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ACTA MEDICA SALINIANA

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ACTA MEDICA SALINIANA

ANESTHESIA

BHAAAS DIFFICULT AIRWAY MANAGEMENT COURSE

Zana Cabak-Borovcanin

ISSN 0350-364X

Title:
BHAAAS DIFFICULT AIRWAY MANAGEMENT COURSE

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Objective: The goal of this comprehensive difficult airway course is to obtain hands-on experience with a broad spectrum of advanced airway management techniques.

Topic review: The course will review the latest state-of-the-art techniques using fiberoptic scopes, video laryngoscopes, supraglottic airway devices and surgical airway techniques. It will provide participants with evidence-based knowledge and technical skills to manage difficult airway in the operating room, intensive care unit, and emergency department. The Difficult Airway Management Course is designed to take participants through six workstations in order to demonstrate equipment, devices and practice skills. The following state-of-the-art difficult airway stations will be available: oral and nasal flexible fiberoptic intubation, flexible fiberoptic Intubation via supraglottic airway, awake tracheal intubation – airway block anatomy, video laryngoscopes and airway exchange catheters, ultrasound of the airway, and emergency surgical airway – front-of-neck access – cricothyrotomy.

Conclusion: At the conclusion of this course, participants should be able to master:
1. Indications, contraindications, techniques and complications of fiberoptic intubation
2. Techniques of topicalization of the airway for awake fiberoptic intubation
3. Fiberoptic guided intubation through supraglottic airway devices
4. Use of airway catheters during extubation of difficult airway or endotracheal tube exchange
5. Application of video laryngoscopes, with opportunities to compare different video laryngoscopy devices
6. Ultrasound airway exam
7. Surgical airway techniques – cricothyrotomy for emergency surgical airway.

Keywords: difficult airway, fiberoptic intubation, video laryngoscopy, surgical airway

CHALLENGES IN THE ANESTHETIC MANAGEMENT OF A PATIENT WITH CHARCOT-MARIE-TOOTH DISEASE – A CASE REPORT

Nermin Ismic

Title:
CHALLENGES IN THE ANESTHETIC MANAGEMENT OF A PATIENT WITH CHARCOT-MARIE-TOOTH DISEASE – A CASE REPORT

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Objective: Charcot-Marie-Tooth disease (CMTD) is a hereditary sensory and motor neuropathy. It is the most common inherited neuropathy with an incidence of 1 in 2,500. The most common initial presentation is weakness in the lower limbs and subsequently involves hands and forearms. Patients with upper limb weakness have a higher incidence of respiratory muscle weakness. During anesthesia patients with CMTD are at increased risk of hyperkalemia after succinylcholine administration, malignant hyperthermia, prolonged response to nondepolarizing neuromuscular blockers, and risks of regional anesthesia.

Topic review: We present a case of a 41-year-old woman with Charcot-Marie-Tooth (CMTD) disease who underwent an emergency laparoscopic cholecystectomy for acute cholecystitis. She was diagnosed with CMTD four years ago, and on admission she demonstrated weakness in the lower extremities and inability to walk without a cane. We decided to use total intravenous anesthesia (TIVA) with propofol infusion, fentanyl as analgesic, and atracurium for muscular paralysis. At the end of the surgical procedure and after the return of spontaneous ventilation, neostigmine and atropine were used for the reversal of the neuromuscular blockade. After meeting the extubation criteria the patient was extubated. The patient was admitted overnight to the intensive care unit, and the next day discharged to the surgical ward.

Conclusion: Since CMTD is the most common inherited neuropathy, it is important to draw attention to the challenges of anesthetic management in patients with this disease. In conclusion, we found that TIVA with short-acting non-depolarizing neuromuscular agent atracurium and with proper titration of anesthetic drugs may be a safe and effective anesthetic method for patients with CMTD.

Keywords: Charcot-Marie-Tooth disease, total intravenous anesthesia

HISTOMORPHOMETRIC PARAMETERS AS INDICATORS OF NERVE TISSUE DAMAGE AFTER PERINEURAL AND INRANEURAL APPLICATION OF LIPOSOMAL BUPIVACAINE IN RAT MODEL

Lejla Dervisevic, Ilvana Hasanbegovic, Amela Dervisevic, Esad Cosovic, Zurifa Ajanovic, Aida Sarac - Hadzihalilovic, Emina Dervisevic, Adis Salihbegovic

Title:
HISTOMORPHOMETRIC PARAMETERS AS INDICATORS OF NERVE TISSUE DAMAGE AFTER PERINEURAL AND INRANEURAL APPLICATION OF LIPOSOMAL BUPIVACAINE IN RAT MODEL

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Background: Liposomal bupivacaine is a long-acting local anesthetic agent and one of the safest local anesthetics. However, there have been several studies detailing possible neurotoxic effects. At present, the exact molecular mechanism of liposomal bupivacaine-mediated neurotoxicity is unknown.

Aim: We postulated that intraneural injection of 1.33% liposomal bupivacaine results in greater nerve injury than a perineural injection, and this would be proved by objective quantitative histological analysis.

Materials/methods: A rat sciatic nerve block model was used. Thirty adult Wistar rats of both sexes were included in the study. After induction of general anesthesia, and sciatic nerve was exposed bilaterally and randomly assigned by the method of sealed envelopes to receive: 2 mL perineurally 1.33% liposomal bupivacaine, 2 mL intraneural 1.33% liposomal bupivacaine, 2 mL perineurally saline, and 2 mL intraneural saline. A quantitative histological examination was followed to determine potential damage to nerve tissue.

Results: All intraneural injections showed a significantly smaller number of nerve fibers ($p<0,001$). There was no statistical significance in myelin thickness ($p>0,005$) and nerve fibers diameter ($p>0,005$) between groups. Intraneural administrated liposomal bupivacaine showed a reduction in axon diameter ($p<0,005$) compared to perineurally administrated liposomal bupivacaine and saline.

Conclusion: On the basis of these preclinical data, we conclude that liposomal bupivacaine poses no risk beyond that of classical local anesthetics commonly used in everyday clinical practice. Morphometry enabled us to describe structural changes after intraneural and perineural application of 1.33% liposomal bupivacaine in quantitative terms and in particular revealed minimal morphological differences between states of function.

Keywords: liposomal bupivacaine, peripheral nerve blocks, neurotoxicity

NEURAXIAL MANAGEMENT FOR LABOR ANALGESIA

Melissa Kreso

Title:
NEURAXIAL MANAGEMENT FOR LABOR ANALGESIA

Authors:
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Labor pain has been described as one of the most intense forms of pain.1 Labor pain is unique to each individual in how they perceive the pain including the cultural, parity, need for augmentation, fetal presentation, obstetric issues etc. Anesthesiologists need to have the tools to evaluate and actively manage each patient's labor pain with a variety of options and management techniques. In this topic review, we will discuss the different stages of labor, the different neuraxial techniques available to manage labor pain, and how to characterize the labor pain (abdomen/back/sacral sparing) what can be done to accomplish this. This includes looking for signs of different fetal presentations. We will discuss how to evaluate and effectively manage epidurals being utilized for labor as there are ways to troubleshoot an epidural to increase a woman's comfort during labor. Analgesia during labor is important. We as anesthesiologists are in a valued position to be able to bring analgesia to women in labor and help make their overall experience of childbirth more positive.

Keywords: Labor, epidural analgesia, neuraxial

PATIENT SATISFACTION WITH SINGLE-SHOT SPINAL ANALGESIA FOR LABOR – A SINGLE-CENTRE STUDY

Ivan Keser, Denis Imamovic, Ranka Krtinic, Edina Pajt

Title:
PATIENT SATISFACTION WITH SINGLE-SHOT SPINAL ANALGESIA FOR LABOR – A SINGLE-CENTRE STUDY

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Ivan Keser[1], Denis Imamovic[1], Ranka Krtinic[1], Edina Pajt[1]

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Background: In low /middle-income countries due to a shortage of anesthesia providers, especially during the covid 19 pandemic, epidural anesthesia is mostly not available to pregnant women; an alternative is single-shot spinal analgesia.

Aims and Objectives: The aim of the study was to determine the patient satisfaction with single-shot spinal analgesia provided for labor.

Subjects and Methods: 50 parturients were asked to participate in this descriptive cross-sectional study performed in the General Hospital Sarajevo during a two year period. A tool used for the data collection was a questionnaire. A subjective feeling of pain was assessed by a visual analog scale (VAS) before single-shot analgesia, 10 minutes into the procedure, 1 hour after the procedure, and during the delivery. Timing for single-shot analgesia was the active phase of labor at cervical dilatation ≥ 5 cm. All parturients received 0,5% Levobupivacaine 0,5 ml, Fentanyl 25 ug, 0,9% NaCl 1 ml.

Results: The approximate duration of pain before the procedure was 4 hours. The pain was estimated as VAS 9 (before the procedure), VAS 3 (10 minutes into the procedure), VAS 1 (1 hour after the procedure), and VAS 4 (during delivery). 66% (33) parturients delivered babies during analgesia and in 34% (17) parturients, the analgesia ended before delivery. The approximate duration of spinal analgesia was 110 min.

Conclusion: All parturients were satisfied with the analgesia, and even though some of them did not deliver during analgesia, they had enough time to rest and actively participate in the final stage of delivery.

Keywords: parturients, satisfactIon, single-shot spinal, labor analgesia

ALLERGIC CONTACT DERMATITIS-PATCH TESTING PROCEDURE AND CULPRIT ALLERGENS

Naida Babic Mulic

ISSN 0350-364X

Title:
ALLERGIC CONTACT DERMATITIS-PATCH TESTING PROCEDURE AND CULPRIT ALLERGENS

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Objective of the review: To present patch testing procedures among dermatology clinics in Sweden, current patient cases and culprit allergens causing allergic contact dermatitis.

Topic review: Patch tests are being performed by a large variety of dermatology clinics in Sweden but they differ in their testing capacity and procedure. Occupational hygienists working in dermatology clinics have a considerable role in finding out the culprit allergens. By working close to both patients and rest of the health care staff they are making large detective efforts in investigating, analyzing and trying to solve the puzzle. The growing spectrum of allergens puts more pieces to the puzzle, challenges researchers and leads to new testing procedures.

Questions to be answered: Different type of patient issues arise and vary over time. Which are the most frequent patient issues nowadays and what have we found? What needs to be further investigated?

Keyword: allergic contact dermatitis, patch testing procedures, allergens

SKIN MANIFESTATIONS RELATED TO COVID-19-INFECTION

Amra Osmancevic

Title:
SKIN MANIFESTATIONS RELATED TO COVID-19-INFECTION

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Objective: To present and discuss polymorphic character and classifications of different skin manifestations related to Covid-19 infection and the mRNA vaccine against COVID-19.

Topic Review: COVID-19 infection is manifested with a wide clinical spectrum from mild to critical symptoms and signs. The most common clinical features at the beginning of the disease are fever, cough and fatigue. Among the many extrapulmonary symptoms, cutaneous manifestations have also been described. Cutaneous manifestations related to Covid-19 infection have a polymorphic character and several classifications exist. However, they are commonly grouped into (a) urticarial rashes, (b) erythematous / maculopapular / morbiliform rashes, (c) papulovesicular exanthema, (d) acral rash similar to chilblain, (e) livedo reticularis / similar to racemosis form, and f) purple "vasculitic" type. Different types of skin lesions can have prognostic value and predict disease outcome. On the other hand, it has been shown that the mRNA vaccine against COVID-19 can also cause diversity of skin reactions including the local type characterized by the redness, swelling and pain, socalled the "Covid-arm." Other types of skin reactions after vaccination have been described, such as urticaria, morbiliform rash, erythromelalgia, pernio / chilblains, and swelling around the filler in the skin. These reactions can come quickly, but there are also delayed reactions where the mechanism of occurrence is not yet completely clear.

Conclusion: Infection with COVID-19 may result in various dermatological manifestations, which may have diagnostic and prognostic values. Skin manifestations related to the mRNA Covid-19 vaccination should not be an obstacle for revaccination.

Keywords: skin, skin manifestations, covid-19, vaccin

THE ROLE OF VITAMIN D IN ATOPIC DERMATITIS

Andrea Elmelid

Title:
THE ROLE OF VITAMIN D IN ATOPIC DERMATITIS

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Objective: To present a short review of the role of vitamin D in atopic dermatitis (AD).

Topic Review: AD is the most common chronic inflammatory skin disease worldwide and among the 50 most common causes of disease globally. The prevalence is increasing in industrialized countries and is estimated to 20% in children and 10% in adults. AD is characterized by chronic or relapsing inflammatory, eczematous and pruritic lesions that usually debut at an early age. The pathogenesis of AD involves a complex interaction between genetic, immunological, and environmental factors. Vitamin D is produced in the skin after irradiation with ultraviolet light B (UVB) and this constitutes the main source of vitamin D in humans. Vitamin D is essential for skeletal health. However, more recent research has elucidated the "none classical" effects of vitamin D such as its role in the immune system. The role of vitamin D in AD remains controversial. Populations living at latitudes with lower sun exposure have increased AD prevalence. Population-based studies have found a positive association between vitamin D deficiency and AD. Several studies have shown that AD patients have lower 25- hydroxyvitamin D (25(OH)D) serum levels than healthy controls. A number of studies found an association between vitamin D deficiency and AD severity. Vitamin D supplementation in AD have shown promising results in a few small studies.

Conclusion: Vitamin D plays an important role in skin inflammation. The potential benefit of vitamin D supplementation in AD needs to be confirmed in large-scale studies.

Keywords: Atopic dermatitis, vitamin D

TOMORROW MEDICINE

Zoran Vrucinic

Title:
TOMORROW MEDICINE

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[1]International dialysis center Banja Luka

Objective of the review: The Covid-outbreak in the end of 2019 took the world by surprise. After almost two years into the pandemic, science has made great progress and politicians have made valuable experiences concerning the management of the global crisis. But can we use the knowledge we acquired if a similar scenario strikes again?

Topic Review: Have we already learned enough about the pandemic? Can the learnings regarding effective therapies and preventive measures be applied for another pandemic? What are the side effects of the pandemic on the health system (e.g. delay of diagnosis and therapies of other diseases like cancer, cardiovascular diseases or chronic illnesses)?

Instead of Conclusion: Are science and politics prepared for the next pandemic?

Keywords: tomorrow medicine, pandemic

PATIENT'S EXPERIENCE UNDERGOING BREAST CANCER RADIOTERAPY

Dusanka Tesanovic, Natasa Milenovic, Jelena Licina

ISSN 0350-364X

Title:
PATIENT'S EXPERIENCE UNDERGOING BREAST CANCER RADIOTERAPY

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Background: Most research in breast cancer radiotherapy has focused on the efficacy of treatment modalities and management of treatment side effects. Little attention has been directed toward understanding patients' experience receiving radiation treatment. Radiotherapy can be particularly challenging and patients can suffer physical, functional, and psychosocial problems especially if side effects of the treatment occur.

Aim: The aim of this qualitative study was to explore the experience of individuals receiving radiation treatment for breast cancer according to the functional and emotional scale of the questionnaire and its relation to the most common breast radiotherapy side effect - radiodermatitis (RD).

Methods: The study included 77 female patients treated at the Oncology Institute of Vojvodina in Serbia who received radiotherapy after conserving breast cancer surgery. The EORTC-QLQ-BR23 and EORTCQLQ -C30 questionnaire was used for the survey.

Results: Results of the study demonstrated that radiotherapy treatment in breast cancer patients affects all aspects of quality of life, and in our study, they are most prominent in the field of emotional and social functioning. On the symptom scale, a statistically significant difference was observed regarding fatigue (p=0,0494) in the group of patients with RD. The functional scale rated symptoms in patients with RD is more intensively, a significant difference was observed in the case of breast-related symptoms (p = 0.0012). The results of the correlation analysis indicated the existence of a statistically significant possibility that patients with RD have difficulty functioning physically and performing daily activities.

Keywords: breast cancer,radiotherapy, quality of life

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PHYSICAL MEDICINE AND REHABILITATION

TENDINOPATHY – EVIDENCE BASED MEDICINE

Abdulhameed Alattar

ISSN 0350-364X

Title:
TENDINOPATHY – EVIDENCE BASED MEDICINE

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Objective: The objective of this presentation is to present the latest research relating to the terminology, pathology, and management of tendinopathy.

Topic Review: Tendinopathy is a complex multifaceted pathology of the tendon, characterized by pain, reduction in function, and exercise tolerance. Research suggests little or no inflammation is present in these conditions. Common tendinopathies involve the rotator cuff tendon, lateral elbow epicondyles, patellar tendon, gluteal tendons, and the Achilles tendon. Diagnosis is mostly based on clinical symptoms, along with pain-provoking tests and imaging might be necessary. Management can be divided into active and passive modalities. Active strategies mainly involve tendon-loading regimes. Passive treatment includes but is not limited to, anti-inflammatory medications, corticosteroid, and platelet-rich plasma (PRP) injections, iontophoresis, topical glyceryl trinitrate (GTN), extracorporeal shockwave therapy (ESWT), low energy laser therapy.

Conclusion: The variability in both quantity and quality of research into tendinopathy treatments makes it difficult to make definitive treatment recommendations.

Keywords: tendinopathy, management, research

ADAPTIVE SPORT MEDICINE

Alex Whelan

Title:
ADAPTIVE SPORT MEDICINE

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The objectives of this review are to explore exercise guidelines for individuals with disability, to discuss the benefits, barriers and facilitators of sport participation for individuals with disability, and to review adaptive sport equipment, common medical injuries and preventative strategies for reducing injuries in para-athletes.

Topic review: Recent studies have shown that adults and youth with physical disabilities are not meeting recommended exercise guidelines. Adaptive sport participation represents an avenue to achieve these guidelines and has been associated with improvement in quality of life, physical and mental health, and community reintegration after injury. There are numerous cited facilitators for sport participation, including the impact of advice from rehabilitation professionals and peer navigators. Medical (e.g. pain, fatigue) and environmental (e.g. availability of equipment, support personnel and accessible transportation) barriers can preclude participation. There is growing literature on the prevalence of musculoskeletal injuries after parasport. There is more limited research exploring spasticity, skin integrity, cardiorespiratory health, and bowel and bladder function, and how these medical issues impact performance and participation. There is a lack of research on injury prevention strategies in para-athletes. In North America, a few select centers have started to offer specific Adaptive Sport Medicine clinics. At these centers, athletes of all abilities work with a multidisciplinary team that can include nurses, physicians, occupational therapists, physiotherapists, prosthetists, recreational therapists, dieticians, and peer navigators.

Conclusion: Given the benefit of sport participation, it is imperative that rehabilitation professionals take an active approach to support sport participation across all individuals with disability.

Keywords: Exercise, parasport, adaptive sport medicine

A REVIEW OF PAROXYSMAL SYMPATHETIC HYPERACTIVITY AFTER ACQUIRED BRAIN INJURY

Amra Saric

Title:
A REVIEW OF PAROXYSMAL SYMPATHETIC HYPERACTIVITY AFTER ACQUIRED BRAIN INJURY

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Objectives: To review pathophysiology of paroxysmal sympathetic hyperactivity post-acquired brain injury, pharmacological and non-pharmacological management during rehabilitation.

Background: Paroxysmal autonomic instability with dystonia (PAID sy) appears to be a distinct syndrome that occurs as an uncommon complication of traumatic brain injury, intracerebral hemorrhage, anoxic brain injury, hydrocephalus, and meningoencephalitis. Pathophysiology of PAID syndrome likely involved dysfunction of the diencephalic autonomic centers or disruption of their connection to other brain regions. Cortically provoked release of catecholamine may contribute to hypertension, tachycardia, and tachypnea. Differential diagnoses include seizures, malignant hyperthermia, autonomic dysrefexia, serotonin syndrome, and agitation. The use of Beta-adrenergic agents and alpha 2 adrenergic agonists are clinically useful in reducing some of the features.

Methods: This case report describes a 29-year-old male with severe traumatic brain injury. The patient sustained intracerebral hemorrhage, diffuse axonal injury, and multiple skull fractures. At acute care, the patient presented with intermittent tachycardia, tachypnea, diaphoresis, and extensor posturing with dystonia. Episodes of autonomic instability persisted despite the improvement of other medical issues. Rehabilitation was consulted and the patient was placed on Propranolol and Gabapentin. Episodes of autonomic instability ceased. The patient made some functional gains, he was able to walk short distances and was independent with a manual wheelchair.

Results: The patient received comprehensive inpatient rehabilitation program. Pharmacological treatment at the time of the discharge was a combination of antispasticity, beta-blockers, and anti-seizure medications.

Conclusion: Early diagnosis and appropriate treatment of these complications may improve patients outcomes, allow earlier participation in therapy, and better rehabilitation outcomes.

Keywords: Paroxysmal autonomic instability, dystonia, autonomic dysreflexia

PELVIC FLOOR DYSFUNCTION AND MANAGEMENT

Emela Skikic, Michelle Emelia Lobo, Niju M Mathew; Rajesh, Kannan Karuppaiyan

Title:
PELVIC FLOOR DYSFUNCTION AND MANAGEMENT

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Objective: Pelvic floor dysfunction (PFD) refers to broad symptoms and anatomic changes related to abnormal function of the pelvic floor muscles including voiding, sexual and anorectal disturbances characterized by urinary incontinence, fecal incontinence, and pelvic pain, constipation/anismus, and organ prolapse. It is heavily under-reported as many people don't feel comfortable speaking up about it.

Topic Review: Dysfunction of pelvic floor muscles including increased activity (hypertonicity), reduced activity(hypotonicity), or inappropriate coordination of the pelvic floor muscles. Pelvic Floor Rehabilitation is a Multidisciplinary program that involves numerous rehabilitation principles such as muscle floor retraining, biofeedback, electrical stimulation of the pelvic floor and functionally associated musculature, Posterior Tibial nerve stimulation (PTNS), etc.
Conservative therapy is the first-line treatment for stress and urge urinary incontinence and includes behavioral therapy, lifestyle modification, and pelvic floor exercises. This program integrates the clinical presentation and assessment of the pelvic floor to identify the physiologic stressors and abnormalities from which a therapeutic program is individualized and prescribed. We can recommend objective assessment and treatment using Urostym Pelvic Floor Rehabilitation System that objectively assesses pelvic floor muscles through EMG and anorectal manometry and individual results are used to develop a rehabilitation program that is patient-tailored.

Conclusion: Pelvic Floor rehabilitation is multidisciplinary, comprehensive management, that treats not only specialty-related symptoms but a full set of functional impairments that can be developed due to dysfunction of pelvic floor muscles.

Keywords: pelvic floor, rehabilitation, incontinence

ROLE OF PHYSIOTHERAPY IN PELVIC FLOOR DYSFUNCTIONS

Michelle Lobo, Emela Mujic

Title:
ROLE OF PHYSIOTHERAPY IN PELVIC FLOOR DYSFUNCTIONS

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Objective: To highlight the role of Physiotherapy in pelvic floor dysfunction.
Topic Review: Pelvic floor dysfunction includes Pelvic girdle pain, Urinary and Fecal Incontinence, Constipation, and Pelvic Organ Prolapse these conditions can have significant adverse impacts on quality of life. Pelvic floor Physiotherapy is a part of a multi-disciplinary team and Physiotherapists trained in this field can fully evaluate pelvic floor muscle performance, surrounding musculoskeletal system, visceral and neural systems, the influence of biopsychosocial factors, and the impact of the condition on functioning in day-to-day life. It encompasses multisystem assessment, which is critical for effective treatment. It is an evidence-based, low-risk, minimally invasive intervention and plays an important role in the prevention and management of pelvic floor dysfunction.

Conclusion: Increased health care provider knowledge about the benefits of Pelvic floor Physiotherapy will help in health promotion and improve the quality of life in patients affected by pelvic floor dysfunctions.

Keywords: Pelvic floor dysfunction, Pelvic floor Physiotherapy

QUALITY OF LIFE IN PEOPLE WITH CHRONIC LOW BACK PAIN

Natasa Milenovic, Stefan Milovanovic, Renata Skrbic, Ksenija Boskovic, Dusanka Tesanovic

Title:
QUALITY OF LIFE IN PEOPLE WITH CHRONIC LOW BACK PAIN

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Introduction: Chronic lumbar syndrome is a very common problem in the general population, defined as a set of symptoms and signs characterized by lower back pain with or without leg pain propagation, that persists for more than 12 weeks. It occurs equally in persons of both sexes and is accompanied by a decrease in the ability to work and the need for adequate treatment in most.

Aim: To determine the quality of life of people with the chronic lumbar syndrome.
Materials and methods: In a retrospective cross-sectional study participated 30 people with a diagnosis and 30 people without a diagnosis. The groups were gender-equal. Respondents completed a set of questionnaires consisting of the Pain Detect Questionnaire, The Quebec Back Pain Disability Scale, and the Multidimensional Scale of Perceived Social Support (MSPSS).
Results: People from the clinical group have a higher presence of greater neuropathic pain compared to the control group ($p > 0.01$). They had a higher disability in everyday life than the respondents from the control group ($p=0.00$). The a significant association between disability and pain perception in the study group compared to the control group ($p=0.916$). The results show that the differences between men and women were not so different significantly.

Conclusion: Examining the quality of life of persons with the chronic lumbar syndrome is of great practical value, as it reveals the aspect of the disease that is of greatest importance to these persons.

Keywords: Chronic low back pain, quality of life.

THE IMPACT OF CHRONIC PAIN ON DEPRESSION IN PATIENTS SUFFERING FROM GONARTHROSIS

Natasa Milenovic, Boris Baranov, Renata Skrbic, Ksenija Boskovic, Jelena Zvekic-Svorcan, Grigorije Jovanovic

Title:
THE IMPACT OF CHRONIC PAIN ON DEPRESSION IN PATIENTS SUFFERING FROM GONARTHROSIS

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Introduction: Knee osteoarthritis or gonarthrosis is a progressive degenerative disease of the primary elderly population. It engages the cartilage and joint surfaces of the knee joint. The most common symptoms are chronic pain, numbness, crepitations, and swelling. Chronic pain plays a major role in the etiology of depressive states.

Aim: This is to determine the impact of chronic pain in people with gonarthrosis on depression.

Materials and methods: The retrospective study included 70 individuals of both genders. We used the VAS pain scale for pain. For the pain, stiffness, and difficulty in daily activities, a WOMAC questionnaire was used. For depression Beck's questionnaire.

Results: Patients average 66.25 years. There are 26 female and 9 male patients. Based on the data from this study, the reliability of the WOMAC scale is $\alpha = 0.987$, which is an excellent emphasis. For Beck's Depression Scale, the internal consistency coefficient (Cronbach's alpha) also turned out to be good $\alpha = 0.847$. Higher values were observed in persons with gonarthrosis in both the WOMAC questionnaire and the Beck questionnaire.

Conclusion: Based on the questionnaires analyzed, it has been shown that people with gonarthrosis are more likely to develop a depressive state than healthy people. Also, people with gonarthrosis have greater stiffness and painful sensations in the joints of the knee, which contributes to the difficulty in performing daily activities, the decline in quality of mental health, and the consequent potential development of depression.

Keywords: Gonarthrosis, pain, depression.

OUR EXPERIENCE IN TREATMENT OF LYMPHOEDEMA

Sabina Saric

Title:
OUR EXPERIENCE IN TREATMENT OF LYMPHOEDEMA

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Introduction: Lymphedema is a chronic, progressive and common condition, specially after surgery, manifesting in swelling of parts of the body as a consequence of lymphatic transportation capacity insufficiency. This suggests that standardized treatment and follow up protocols are crucial to achieve optimal rehabilitation and maintain high quality of life.

Aim: Show the frequency of lymphedema, treatment and follow up necessity, showing the modalities of prevention and treatment itself.

Method: We included patients with lymphedema treated in CBR Saraj Polje in 2019. Based on diagnosis, treatment protocols were applied including Complex Decongestive Physical Therapy (CDPT) and prevention programme.

Results: Annual number of treated and rehabilitated patients is 2628, 5% (128) are those treated for lymphedema. The most frequently treated lymphoedema is secondary 93% (119), whereas primary lymphoedema 7% (9).
The applied treatment protocol was a two step educational therapeutic protocol including active reductive phase of treatment followed by maintenance phase. During the active phase we achieve maximum lymphedema reduction and educate the patients how to maintain and optimize the results achieved.

Conclusion: Standardized and timely treatment and planned follow up protocols for lymphedema patients are necessary to achieve optimal rehabilitation and have direct impact on quality of life.

Keywords: Lymphoedema, treatment.

REHABILITATION AFTER COVID -19: AN OVERVIEW OF RECOMMENDATIONS

Amra Saric

Title:
REHABILITATION AFTER COVID -19: AN OVERVIEW OF RECOMMENDATIONS

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Objectives: To describe possible mechanisms involved in neuropathogenesis of COVID-19, neurological complications post COVID-19 relevant to rehabilitation and the interventions that rehabilitation services could provide.

Background: Neurologic complications occur in approximately half of hospitalized COVID-19 patients. Most common are headache and encephalopathy. Stroke, movement disorders, sensory and motor deficit, ataxia, and seizures are relatively uncommon. Critically ill patients have a higher proportion of neurologic complications, including cognitive dysfunction. Most common symptoms of post COVID syndrome are fatigue, dyspnea, memory impairment and myalgias. Patients with history of cardiovascular disease, including stroke, and patients with a debilitating neurologic disease appear to be at risk of worse outcomes.

Methods: Underlying mechanisms involved in neuropathogenesis are diverse and multifactorial. The neurological diseases that have been observed in individuals with severe coronavirus infection can be divided into three categories on the basis of the presumed underlying mechanism: pulmonary and systemic disease, direct invasion of the nervous system and post-infectious immune-mediatedcomplications. Maladaptive activity of renin-angiotensin system and immune dysfunction play a role.

Results: After COVID-19 patients may develop persisting dysfunction in almost any system. Rehabilitation Interventions include general exercise that increases cardio-respiratory fitness, repeated practice of functional activities, psycho-social therapies, education and a set of specific actions tailored to the patient's priorities and goals.

Conclusion: An integrated rehabilitation approach is recommended involving a multidisciplinary and multi-professional team. The interventions include neuromuscular, cardiac, respiratory, and psychological support. The goal is to improve patients' quality of life, preserve function, and reduce complications and disability.
Keywords: COVID19, neurological complications, neuropathogenesis, interventions

TELEREHABILITATION IN PHYSIOTHERAPY OF MUSCULOSKELETAL DISORDERS

Dijana Avdic

Title:
TELEREHABILITATION IN PHYSIOTHERAPY OF MUSCULOSKELETAL DISORDERS

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Objective: To evaluate the possibilities and the efficacy of telerehabilitation in physiotherapy of musculoskeletal disorders.

Topic overview: Musculoskeletal disorders are the leading cause of global morbidity and are known as an important problem contributing to the increase in healthcare expenses, the reduction of productivity, and the decrease in life quality. The term musculoskeletal disorders represent medical disorders of the muscles, nerves, tendons, ligaments, cartilage, and bones including all forms of the disease with variations from mild disorders to irreversible injuries which disable everyday life. Data analysis on the global disease burden pointed out that 1,71 billion people suffer from musculoskeletal disorders. Telerehabilitation is a general term applied to the approach that implies a wide range of technologies, either synchronous (the interconnection of a patient and physical therapist in real-time by medical device), asynchronous (the computer interventions are remotely supervised and adjusted by the physical therapist) or the combination of both approaches. The programs of telerehabilitation in physical therapy of musculoskeletal disorders, delivered and evaluated by the video conference, have shown the feasibility of an additional program by the teleconference, especially if the geographical distance is significant, with an increased attendance of the telerehabilitation compared to personal sessions.

Conclusion: The results of telerehabilitation in physical therapy for the musculoskeletal disorders suggest the adoption of telerehabilitation as a replacement for „face to face" interventions of physical therapists and patients, for the programs of pain reduction and the improvement of everyday life activities and quality of life for patients suffering from musculoskeletal disorders.
Keywords: telerehabilitation, physiotherapy, musculoskeletal disorders

CANNABIS, CANNABINOIDS AND CANNABIS-BASED MEDICINE – THE WHO, WHAT, WHERE, WHY AND WHEN

Emily Sheppard

Title:
CANNABIS, CANNABINOIDS AND CANNABIS-BASED MEDICINE – THE WHO, WHAT, WHERE, WHY AND WHEN

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Objective: To describe the mechanism of action of cannabinoids and their possible benefits as identified in current literature and guidelines.

Topic Review: Cannabis and cannabis-based medicine have been used throughout history for a variety of different medical indications. Despite this, high-quality research regarding the benefits of cannabis-based medicine is lacking. Cannabinoids are biologically active compounds which interact with the endocannabinoid system through several cannabinoid receptors. These receptors are found throughout the body and are thought to play a role in many physiological functions such as pain, memory, and metabolism. Currently, cannabis-based medicine has shown a small benefit in reduction of neuropathic pain and spasticity in individuals with multiple sclerosis and spinal cord injuries. These studies, however, are limited and are generally of low quality. As such, position statements of several associations currently do not support cannabis use for many medical indications. Future research looking into these areas will provide further clarification of the role of cannabis in medical treatment.

Conclusion: Cannabis and cannabis-based medicines have been used for centuries for a variety of medical conditions. Despite this, there is currently a lack of high-quality evidence in the literature to guide its use, however, research is emerging demonstrating the potential benefit of cannabinoid prescribing in specific populations.

Keywords: cannabis, cannabinoids, pain

REGENERATIVE MEDICINE - IS A PHARMACY IN OUR BODY

Suad Trebinjac

Title:
REGENERATIVE MEDICINE - IS A PHARMACY IN OUR BODY

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Objective: Chronic diseases present a huge challenge to modern medicine.The goal of traditional treatment is symptom reduction and prevention of complications. The results of such an approach are largely unsatisfactory and scientists are looking for better solutions.The aim of this lecture is to define the concept of regenerative medicine and explain the application of regenerative substances like prolotherapy, PRP and stem cells in treatment of musculoskeletal disorders.

Topic review: The discovery of stem cells has dramatically changed the healing paradigm of chronic diseases. Alleviation of symptoms was replaced with treatment of the causes. The idea that tissue can be regenerated and function restored has given rise to numerous preclinical studies with promising results. The use of autologous and allogeneic sources instead of synthetic preparations has made regenerative medicine the most attractive medical concept in last decades. The mode of action of molecules that have regenerative potential has not yet been fully elucidated. Nevertheless, clinical results and the absence of significant side effects justify investing in future research. **Conclusion**: Regenerative medicine is evolving very fast and offers hope that the currently incurable diseases will one day be cured. Understanding of signaling processes, paracrine effects, homing of mesenchymal stem cells and optimal concentration of PRP will contribute to better therapeutical outcome. High safety profile presents an additinal benefit.

Keywords: Regenerative medicine, platelet rich plasma, stem cells

EFFECTIVENESS OF LUMBAR TRACTION THERAPY IN THE TREATMENT OF LOW BACK PAIN SYMPTOMS: A SYSTEMATIC REVIEW

Edina Tanović, Adi Pezo, Elvira Scetic Taffi

Title:
EFFECTIVENESS OF LUMBAR TRACTION THERAPY IN THE TREATMENT OF LOW BACK PAIN SYMPTOMS: A SYSTEMATIC REVIEW

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Background: Low back pain (LBP) is a health disorder of high epidemiological, medical and economical importance. Lumbar traction therapy (LTT) is used to alleviate patients from low back pain symptoms.

Aim: The aim of this systematic review was to prove the benefits of LTT in the treatment of LBP symptoms.

Materials and methods: We used PubMed, Google Scholar, Cochrane Library and Web of Science electronic databases up to March 2022. to find, analise and provide results for our review. Our inclusion criteria for reviewed studies was that studies contained VAS scale and ODI index score taken before and after the therapy and that the publications were defined as Randomized Trials. After a comprehensive electronic literature search of 2200 studies we narrowed our focus to 15 randomized trials that were best suited for our review.

Results: All 15 studies provided us with statistical results regarding changes in VAS scale and ODI index score after the LTT. By analising the given data we have proven the benefits of LTT in the treatment of LBP symptoms.

Conclusion: Lumbar traction therapy is often overlooked in the treatment of low back pain symptoms and in our opinion more studies are needed to define its true role in physical theapy of aforementioned conditions. However we found that in most cases Lumbar traction therapy is used in combination with other therapy modules, so the quality of provided results is questionable and subjected to changes.

Keywords: low back pain, lumbar traction therapy, VAS scale, ODI index

EVIDENCE-BASED APPROACH TO THE ASSESSMENT AND TRAINING OF WHEELCHAIR SKILLS: RELEVANCE TO WHEELCHAIR SERVICE PROVIDERS IN BOSNIA AND HERZEGOVINA

Ronald Lee Kirby, Amra Saric

Title:
EVIDENCE-BASED APPROACH TO THE ASSESSMENT AND TRAINING OF WHEELCHAIR SKILLS: RELEVANCE TO WHEELCHAIR SERVICE PROVIDERS IN BOSNIA AND HERZEGOVINA

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Objective: The goal of this topic review is to update wheelchair service providers in Bosnia and Herzegovina about an evidence-based process for the assessment and training of wheelchair skills. On completion of the review, participants will be able to describe the benefits and problems of wheelchair use, the steps in the World Health Organization (WHO) wheelchair-provision process, the origin and evolution of the Wheelchair Skills Program (WSP), the extent of supporting research evidence and how to implement the WSP in their own settings.

Topic Review: In 2008 the WHO published its Guidelines on the Provision of Manual Wheelchairs in Less Resourced Settings. Emerging evidence suggests this 8-step process should be used in all settings and for all types of wheelchairs. Evidence also supports the use of a formal approach to the assessment and training of wheelchair skills. Such protocols are freely available through the Wheelchair Skills Program (WSP) website (https://wheelchairskillsprogram.ca/). We will provide an overview of the origin and evolution of the WSP and discuss its potential relevance to wheelchair service providers in Bosnia and Herzegovina. Our perceptions are based on Dr. Saric's experience practicing physiatry in Mostar during the 1990's and subsequent training visits by the WSP Team to Sarajevo and/or Banja Luka in 2006, 2008 and 2009.

Conclusion: Because the assessment and training protocols of the WSP are low tech and high impact, we believe that they may be relevant to wheelchair service providers in Bosnia and Herzegovina.

Keywords: Wheelchair, rehabilitation, assessment, training, research

ACTA MEDICA SALINIANA

GYNECOLOGY AND OBSTETRICS

APPLICATION OF PLATELET-RICH PLASMA IN IVF TREATMENT PROCEDURE

Taib Delić

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Title:
APPLICATION OF PLATELET-RICH PLASMA IN IVF TREATMENT PROCEDURE

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Objective: Despite advances in assisted reproduction technologies, promoting embryo implantation seems an insurmountable challenge. The implantation process requires endometrial growth and differentiation of endometrial stromal cells. Various strategies for the treatment of thin endometrium have been developed, and one of them is platelet-rich plasma - PRP.

Topic review: Platelet-rich plasma is a preparation of autologous plasma with high platelet concentration, with a therapeutic mechanism based on the capacity to supply physiological amounts of essential growth factors, which increase the regenerative stimulus for reparation in tissues with low healing potential. PRP plays an important role in promoting cell division, proliferation, differentiation and migration, angiogenesis, extracellular matrix remodeling, tissue regeneration and healing. Platelet-rich plasma is prepared from fresh whole blood collected from a peripheral vein, stored in the anticoagulant acid dextrose citrate solution A and processed to increase platelet count by separating different blood components. By activating platelets in PRP, cytokines and growth factors become bioactive and are excreted within 10 minutes after coagulation. These factors include vascular endothelial growth factor, transforming growth factor, platelet-derived growth factor, and epidermal growth factor, which can regulate cell migration, binding, proliferation, and differentiation, and promote extracellular matrix accumulation.

Conclusion: By analyzing randomized controlled studies that reported the use of PRP in patients with Thin endometrium, we conclude that it has a satisfactory effect.

Keywords: platelet-rich plasma, embryo implantation

SACROCOCCYGEAL TERATOMA: DIAGNOSIS AND TREATMENT - CASE REPORT

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Title:
SACROCOCCYGEAL TERATOMA: DIAGNOSIS AND TREATMENT - CASE REPORT

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Introduction: Sacrococcygeal teratoma (SCT) is a rare tumor, with a frequency of approximately 1:35000 to 1:40 000 in live births. Management of SCT depends on fetal gestational age, the presence of associated abnormalities, and tumor vascularity.

Aim: To emphasize the importance of early and adequate antenatal diagnosis of SCT on which the method of delivery depends, and further treatment and prognosis of newborn diseases as well as the importance of teamwork in three related branches of medicine - obstetrics, pediatrics, and pediatric surgery.

Case report: Sacrococcygeal teratoma type 2 was detected in the sixth month of pregnancy after a complete diagnosis that included ultrasound, MRI, so and CT of the abdomen and small pelvis. The child was born by cesarean section in the 34th week of pregnancy, weighing 3600 grams, of which the weight of the tumor itself was 1200 grams. The tumor was surgically removed and the sacrogluteal region was covered with a compression bandage. On the first postoperative day, the pelvic floor was reconstructed. In the postoperative period, the child achieves daily weight gain. The wound heals neatly, without signs of infection, lumbar regions painfully insensitive, extremities without visible pathological lesions and deformations. The child is discharged for further home treatment with good general and local status.

Conclusion: After establishing the diagnosis of SCT, it is necessary to do a more frequent ultrasound and other fetal monitoring, and during treatment, a multidisciplinary approach is crucial in order to achieve the best possible therapeutic results in the newborn.

Keywords: teratoma, ultrasound, obstetric, newborn, surgery

THE IMPORTANCE OF TEAMWORK IN PREVENTION AND EARLY DETECTION OF CERVICAL CANCER

Nina Juric, Emina Smajic, Maja Stancic

Title:
THE IMPORTANCE OF TEAMWORK IN PREVENTION AND EARLY DETECTION OF CERVICAL CANCER

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Today, cervical cancer is a global health problem, and the majority (80%) of new cases are found in developing countries. The pap test is the best morphological screening test for cervical cancer.

The aim of the topic review is to present the importance of teamwork in prevention of cervical cancer.

Topic review: Cervical cytology is primarily used in gynecology and obstetrics as a method of secondary prevention with the aim of early detection of premalignant and malignant cervical lesions in asymptomatic women. Prevention and early detection of cervical cancer is primarily a team effort. In BiH, the sample for the Pap test is taken by a gynecologist, who can be for conventional and fluid cytology. Conventional cytology is mostly used in B&H. Specially trained medical-laboratory diagnostic engineers / cytotechnologists take part in the further processing of the sample, who analyze all visual fields (screening) with a light microscope and give their opinion. The clinical cytology specialist further performs a detailed analysis, gives the final finding and recommendations for the gynecologist who sent the sample to the laboratory. The most significant risk factor for the development of premalignant and malignant cervical lesions is certainly the Human Papilloma Virus, which is also sampled by a gynecologist and detected by a laboratory for molecular biology.

Conclusion: With a wealth of new diagnostic and therapeutic knowledge and a well-organized professional team nowadays, no woman should die from cervical cancer. The pap test is responsible for reducing the incidence and mortality rate of cervical cancer.

Key words: teamwork, diagnosis, uterine cancer

ACTA MEDICA SALINIANA

HEMATOLOGY-ONCOLOGY

COMPLETE MESOCOLIC EXCISION

Emir Pinjo

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Title:
COMPLETE MESOCOLIC EXCISION

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Complete mesocolic excision (CME), involves removal of the tumor-bearing bowel segment with an adequate proximal and distal margins, en block removal mesocolon along the embryological planes and central ligation of the supplying colonic vessels. CME has become a new surgical paradigm for the treatment of colon cancer. CME for colonic cancer offers a surgical specimen of higher quality, with a higher number of retrieved lymph nodes compared to conventional surgery. Several observational studies suggested that CME for colon cancer improved oncological outcomes compared to standard surgery. However, the quality of evidence does not consistently support the superiority of CME, and the evidence that CME leads to improved long term oncological outcomes is still limited.

ISOLATED RIGHT SIDED NON-COMPACTION CARDIOMYOPATHY - CASE REPORT

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ISSN 0350-364X

Title:
ISOLATED RIGHT SIDED NON-COMPACTION CARDIOMYOPATHY - CASE REPORT

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Objective of the review: Non-compaction cardiomyopathy (NCM) is a myocardial disorder, which occurs due to the failure of ventricle compaction during embryogenesis. Although predominantly connected with a left ventricle, few cases with an isolated right ventricular NCM were documented. Aim of article was to present patients with diagnosis of NCM.

Topic Review: A 55-year-old man presents himself with ongoing dyspnea and reduction in physical strain. Anamnesis emphasised a reoccurring small peripheral pulmonary embolisms in the past. After an introduction in patients medical history, a conclusive source for pulmonary embolism was never found. The patient would be dismissed with different types of anticoagulants for a limited amount of time. The discomfort would cease shortly after discharge. In physical examination there were no signs of cardiac decompensation; electrocardiogram was without significant pathology; blood gas analysis was normal; laboratory tests showed elevated D-Dimmer. Hence a computer tomography of pulmonary arteries was initiated and small pulmonary embolism on both sides presented itself. An extensive search for source of embolism was preformed, without relevant pathology. Echocardiography showed no sign of right heart strain or failure, but showed hypertrabecularisation of right ventricle. A cardiac magnetic resonance imaging (MRI) findings matched echocardiography. Without obvious reason for isolated hypertrabecularisation of right ventricle an isolated right sided NCM was considered as diagnosis and source for reoccurring pulmonary embolisms. The patient was discharged for further genetical screening.

Conclusion: Hopefully this case will inspire clinical doctors to find a cause to pulmonary embolisms that present themselves as without one.

Keywords: myocardium, cardiomyopathies, diagnosis.

AMIODARONE AND TOXIC EFFECT ON LIVER

Almin Handanagic

Title:
AMIODARONE AND TOXIC EFFECT ON LIVER

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Objective of the review: Amiodarone is one of the most specific antiarrhythmics that belongs to group III antiarrhythmics. Aim of article was to show possible toxic effect of amiodarone on liver tissue.

Topic review: Male patients, 50 year old, was hospitalized at the Department of Cardiology for supraventricular achycardia. He had no chest pain, no oedemas. Patient was previously healthy, athlete, non-smoker and did not take pharmacologica therapy. Echocardiography verifies preserved systolic function with normal dimensions of cardiac cavities. Electrocardiographic (ECG) record showed supraventricular tachycardia. Upon admission to Urgent Centar amiodarone 150 mg i.v. in bolus was ordinated and then continuously infused with 5% glucosae another 600 mg amiodarone i.v. with beta blockers, magnesium and enoxaparin, after which sinus rhythm was established. Slight increase in liver function parameters was observed (aspartate transaminase (AST) 64 IU/L, alanine transaminase (ALT) 59 IU/L/). next day in the control laboratory tests there was an increase in liver function parameters up to 50 times compared to previous (AST 2955 IU/L, ALT 2277 IU/L) and hypohesis of toxic effect of amiodarone on liver function was established. Gastroenterologist and infectologist was consulted. Reccomendation was to stop with amiodarone in therapy (but also expanded the diagnostic processing in terms of evaluation of liver function , ultrasound of the abdomen, hepatitis markers and coagulation factors). These measures were resulted in declining of transaminases values.

Conclusion: Therapeutic effect of amiodarone is evident, but use of the drug must always be done with caution and with regard to its toxic effects.

Keywords: Amiodarone, supraventricular tachycardia, liver lesion.

SPECIFICS OF MYXOID LIPOSARCOMA VASCULARISATION FROM SUPERFITIAL FEMORAL ARTERY: DIAGNOSIS AND TREATMENT

Amel Hadzimehmedagic, Benjamin Kaknjasevic, Tarik Selimovic, Muhamed Djedovic, Dzemal Omerovic, Damir Kurtagic

Title:
SPECIFICS OF MYXOID LIPOSARCOMA VASCULARISATION FROM SUPERFITIAL FEMORAL ARTERY: DIAGNOSIS AND TREATMENT

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Objective of the review: Liposarcoma is the second most commonly diagnosed soft tissue sarcoma, often with different types of vascularization. Most patients are adults older than 50 years old and present with a large, painless, deep-seated mass located proximally in the extremities. Histologic subtypes include well-diferentiated liposarcoma, myxoid liposarcoma, round- cell liposarcoma, and pleomorphic liposarcoma. Aim of article is present therapeutic modality of myxoid liposarcoma.

Topic review: A 29-year old male presented with a large, painless mass in proximal and middle third of the left femoral adductor region, that was progressively increasing in size during the last two years. Computerized tomography (CT) scans show large tumorous mass in anterior and medial compratment of the left thigh, which was in tight relation with SFA. Intraoperatively, a large solid mass inflitrated m. sartorius and m. vastus medialis, reciving a numerous vascularisation from femoral vessels which were intact. The tumor was extirpated in toto with infiltrated muscles. Histopathologic result shows myxoid liposarcoma grade 3. Myxoid liposarcomas generally most often occur in thigh region, but have a tendency to occur in the retroperitoneum. Similar to most soft-tissue sarcomas, the metastases occur in lungs, but most common in retroperitoneum, contralateral leg or bone. The treatment is wide local excision. Lung, abdomen and pelvis CT-scans should be included in patient follow-up. Patients with high-grade lesions have a 60% 5-year survival rate. Conclusion Liposarcomas most common occur as deep-seated lesions in proximal aspect of the extremity, primarily the thigh. The main aim of the surgery is wide resection.

Keywords: Myxoid liposarcoma, femoral vessels, surgical treatment, 5-year survival rate

POINT-OF-CARE ULTRASOUND IN CRITICALLY ILL PATIENTS

Amer Iglica

Title:
POINT-OF-CARE ULTRASOUND IN CRITICALLY ILL PATIENTS

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Objective of the review: In the past 10 years, point-of-care ultrasound (POCUS) has been used to aid the assessment of critically ill patients. Aim of article was to present the role of POCUS in cardiology.

Topic Review: In cardiology, a bedside Cardiac Ultrasound or Echocardiogram is a quick Point of Care Ultrasound (POCUS) that allows you to visualize and evaluate how the heart is functioning and allows you to evaluate hemodynamic changes and pathological heart diseases. POCUS can prove immensely helpful in revealing tension pneumothorax, cardiac tamponade, and pulmonary embolism, thus rapidly directing the emergency physician to perform tube thoracostomy, pericardiocentesis, or thrombolysis, for example. Although acute coronary syndrome is a "must not miss" diagnosis, the initial evaluation of chest pain in ED includes alternative diagnoses such as aortic dissection, pulmonary embolism, pericardial effusion, and several primary pulmonary processes. POCUS can be used to improve diagnostic specificity in such settings.

Conclusion: POCUS has been a practice-changing technology for the care of the emergent and critically ill patient. The ability to look inside the human body in real time without the risk of radiation helps physicians narrow the differential diagnoses early on in a patient's evaluation and helps guide decisions regarding further testing (if any is indicated).

Keywords: Echocardiography, Intensive Care Unit, cardiology.

EFFECTIVENESS OF DOAC THERAPY IN THE EARLY TREATMENT OF DEEP VEIN THROMBOSIS IN COMPARISON TO VITAMIN K ANTAGONISTS

Alden Begic, Edin Begic

Title:
EFFECTIVENESS OF DOAC THERAPY IN THE EARLY TREATMENT OF DEEP VEIN THROMBOSIS IN COMPARISON TO VITAMIN K ANTAGONISTS

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Background: Initiation of early treatment of deep vein thrombosis (DVT) is essential for the clinical picture, prognosis and quality of life of the patient.

Aim: The aim of the study was to evaluate the early efficacy (recanalization) and safety of initial therapy with direct factor Xa inhibitors (DOAC) like rivaroxaban, apixaban compared to conventional treatment (low molecular weight heparin and vitamin K antagonists) in the treatment of DVT of proximal segment of lower extremities.

Methods: The study was prospective and included 200 patients (n=200) diagnosed with DVT. The first group were patients diagnosed with DVT of the proximal segment of the lower extremities and treated with DOAC and the second group were patients with DVT treated with conventional treatment (low molecular weight heparin and vitamin K antagonists). Patients were followed for thirty days.

Results: There was a statistically significant difference in the values of the free lumen of the blood vessel between the examined groups after 30 days (p = 0.001). In the first group, the average values of free lumen were 56.5% (50.2-60%) and were significantly higher than the values of free lumen in the second group, 30% (26-36%).

Conclusion: Regarding early treatment, the use of DOAC in the treatment of DVT of proximal segment of lower extremities has been shown to be significantly more effective than conventional treatment.

Keywords: deep vein thrombosis, treatment, anticoagulants.

SODIUM-GLUCOSE CO-TRANSPORTER-2 (SGLT2) INHIBITORS AND GLUCAGON-LIKE PEPTIDE-1 (GLP-1) AGONISTS - MEDICAL MANAGEMENT OF PATIENTS WITH DIABETES MELLITUS (DM) CCOMPANIED WITH CARDIOVASCULAR PATHOLOGY

Edin Begic

Title:
SODIUM-GLUCOSE CO-TRANSPORTER-2 (SGLT2) INHIBITORS AND GLUCAGON-LIKE PEPTIDE-1 (GLP-1) AGONISTS - MEDICAL MANAGEMENT OF PATIENTS WITH DIABETES MELLITUS (DM) ACCOMPANIED WITH CARDIOVASCULAR PATHOLOGY

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Objective of the review: Sodium-glucose co-transporter-2 (SGLT2) inhibitors and glucagon-like peptide-1 (GLP-1) agonists represent novel pharmacological agents that are included in the pharmacotherapy of patients with heart failure (preserved or reduced systolic function), arterial hypertension, as well as in patients who are at increased risk of cardiovascular events prior and after cardiovascular incident (in primary and secondary prevention of cardiovascular disease). Aim of article was to present the effects of SGLT2 inhibitors and GLP-1 agonists in the treatment of diabetes mellitus (DM) accompanied with cardiovascular pathology.

Topic Review: SGLT2 inhibitors (canagliflozin, empagliflozin, dapagliflozin and ertugliflozin) have found their place in treatment of heart failure with reduced and preserved systolic function and they have benefit in preservation of renal function. Sotagliflozin represents a dual (SGLT2 and SGLT1) inhibitor, imposed as a new direction of treatment. GLP-1 agonists (dulaglutide, semaglutide, liraglutide) are part of the therapeutic modality of type 2 DM in adults, and their use should be treatment of choice in patients with cardiovascular pathology or in patients at risk of a cardiovascular incident. Tirzepatide, a drug which is glucose- dependent insulinotropic polypeptide (GIP) and GLP-1 agonist, could be a new promising agent in the treatment of DM.

Conclusion: The use of SGLT2 inhibitors and GLP-1 agonists should be part of the treatment of a cardiac patient with diabetes mellitus, with imperative early initiation of treatment. The choice of a particular substance should be in accordance with the individual characteristics of patient, atherosclerotic changes and systolic function of the left ventricle.

Keywords: diabetes mellitus, treatment, risk, atherosclerosis.

PEDIATRIC CARDIOLOGY AND CARDIOSURGERY IN BOSNIA AND HERZEGOVINA

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Title:
PEDIATRIC CARDIOLOGY AND CARDIOSURGERY IN BOSNIA AND HERZEGOVINA

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Background: Modern pediatric cardiology is basis of pediatrics and deals mostly with congenital heart defects (CHDs) which can require surgical treatment. One of the main parameter of healthcare quality in one country can be represented by a level of quality of pediatric cardiology and cardiosurgery mostly due to influence on neonatal mortality.

Aim: To evaluate and show CHD surgical treatment at Pediatric Clinic, Clinical Center University of Sarajevo, Bosnia and Herzegovina.
Materials and Methods: Study included 794 patients (period from April 1997 to April 2022) who have undergone surgical treatment of CHD.

Results: Cardiac treatment was performed on 794 patients with CHD, 589 (74.2%) of them were acyanotic patients and 205 (25.8 %) were cyanotic patients. Reoperation was performed in 52 (6.6%) of patients. Out of total number of patients, 60 (7.6%) died. In 706 children (88.9%) a complete correction and in 86 (11.1 %) a palliative operation/correction was performed. Defects with left to right shunt were present in 443 (55.8 %) patients, complex heart defects with Tetralogy of Fallot in 174 (21.9 %), obstructive heart defects in 106 (13.4%), obstructive heart defects with shunt in 53 (6.7%), and others in 19 (2.4%) of patients. During surgery, extracorporeal circulation was used in 597 (75.2 %) patients. Peri and early postoperative complications occurred in 181 (22.8 %) of patients.

Conclusion: Although the number of children who had surgical treatment in the last 5 years is relatively small, the continuance of surgical treatment is preserved.

Keywords: pediatric cardiology, congenital heart defects, cardiosurgery, treatment, results.

THE ROLE OF ECHOCARDIOGRAPHY IN ACUTE MYOCARDIAL INFARCTION

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Title:
THE ROLE OF ECHOCARDIOGRAPHY IN ACUTE MYOCARDIAL INFARCTION

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Objective of the review: Echocardiography is a technique for the visible evaluation of each segmental and global myocardial functions. In acute ST elevation myocardial infarction (STEMI), echocardiography is relevant for the assessment of wall movement abnormalities (an evaluation of the wall movement rating is important at the primary step).

Topic Review: Patient hazard stratification, localization of infarction, and evaluation of the infarction volume supply clues to the heart specialist as to the affected person's vascular status. In addition, infarction of the right ventricle is without problems assessed by echocardiography. Left ventricular thrombi, infarct expansion, authentic aneurysm formation, post-infarction pericarditis, pericardial effusion, and tamponade also are detectable by echocardiography. In the case of ventricular clot formation, contrast echocardiography is likewise helpful. Echocardiography has a crucial role in detection of STEMI-related compilations. Early recognition of the complications of STEMI is associated with better patient survival. Among mechanical complications, ventricular free wall rupture, pseudoaneurysm formation, and ventricular septal rupture are among the most dreading complications which may lead to shock. Another ominous complication rapidly detectable by echocardiography is acute mitral regurgitation secondary to papillary muscle rupture. Acute dynamic left ventricular outflow tract obstruction is another entity which can be uncovered by echocardiography. Long-term complications of STEMI can be easily assessed by echocardiography (development and progression of ischemic mitral regurgitation). Stress echocardiography (Dobutamine or Treadmill) may differentiate viable myocardial or scar tissue in the assessment of hibernating viable myocardium.

Conclusion: The role of echocardiography should be accentuated as the cornerstone for all STEMI guidelines.

Keywords: acute coronary syndrome, ST elevation myocardial infarction, echocardiography.

IS THE SEVERITY OF CAROTID ARTERY STENOSIS ASSOCIATED WITH THE NUMBER OF VESSELS AFFECTED IN CORONARY ARTERY DISEASE?

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Title:
IS THE SEVERITY OF CAROTID ARTERY STENOSIS ASSOCIATED WITH THE NUMBER OF VESSELS AFFECTED IN CORONARY ARTERY DISEASE?

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Background: Atherosclerosis is a well-known chronic, progressive and systematic disease that can simultaneously affect arteries at different sites. The prevalence of concomitant carotid artery stenosis (CAS) in patients with coronary artery disease (CAD) is reported as high as 8% to 20%. The safety of their simultaneous surgery still remains the subject of numerous studies. Aim: To determine if the severity of CAS is associated with the number of vessels affected in CAD.

Materials and methods: This single-centre retrospective observation study included 15 patients who underwent simultaneous carotid endarterectomy (CEA) and coronary artery bypass surgery (CABG) at Clinic for cardiovascular surgery of Clinical Centre University of Sarajevo in a two-year follow-up period from January 2019 to December 2021.

Results: Out of 15 patients, 80% were male. The mean age was 65 years. Regarding the number of coronary vessels affected, the majority of patients (80%) had triple-vessel disease, 20% two-vessel disease. None of them was diagnosed one-vessel CAD. The obtained data showed that there was no significant difference between the observed groups of patients with triple-or two-vessel CAD and the severity of CAS (p=0.847), and no significant difference when severity of CAS was compared in patients with or without left main artery stenosis (p=0,202).

Conclusion: Although previous studies showed that the carotid plaque area can be used as a predicting factor for coronary atherosclerosis, our research did not prove that the exact number of vessels affected in CAD was significantly associated with the severity of CAS.

Keywords: Carotid artery stenosis, Coronary artery disease, Coronary artery bypass grafting, Carotid endarterectomy

RISK FACTORS FOR ACUTE CORONARY SYNDROME

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Title:
RISK FACTORS FOR ACUTE CORONARY SYNDROME

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Objective of the review: Acute coronary syndrome (ACS) is a condition of mismatch between myocardial oxygen demand and the ability of the coronary circulation to supply oxygen and nutrients. Aim of the article was to present known risk factors for ACS, with a division into preventable, conditionally preventable and non-preventable.

Topic Review: ACS is one of the most common diagnoses in industrialized countries. In Western countries, the incidence and prevalence of ACS is reduced primarily due to prevention of smoking, reduced consumption of animal fats, decreased in cholesterol levels and increased physical activity. Essentially ACS is a consequence of atherosclerosis, but three groups of risk factors have been defined, which lead to the development of ACS. They are divided into preventable, conditionally preventable and non-preventable. Preventable are: nicotinism, obesity, physical inactivity, hyperlipidemia, low levels of high-density lipoproteins (HDL), high levels of low-density lipoproteins (LDL), oral contraceptives. Conditionally preventable are: arterial hypertension, diabetes mellitus, insulin resistance, socioeconomic and behavioral factors, obstructive sleep apnea, C-reactive protein, fibrinogen, homocysteine, lipoprotein A, familial hypercholesterolemia and hyperlipidemia, familial HDL deficiency, kallikrein, matrix metallopeptidase-9 (MMP-9), galectin-3, protein C, protein C, citrate, valine, leucine, isoleucine, alanine, homocysteine, fibrinogen and iron levels. Non-preventible are: male gender, positive family history of cardiovascular disease and menopause.

Conclusion: Special attention should be paid to preventable and conditionally preventable risk factors, where the greatest progress can be made in the prevention of ACS.

Keywords: acute coronary syndrome, risk factors, prevention.

SIGNIFICANCE OF ASSESSMENT OF LEFT ATRIAL APPENDAGE MORPHOLOGY AND FUNCTION

Denis Mackic

Title:
SIGNIFICANCE OF ASSESSMENT OF LEFT ATRIAL APPENDAGE MORPHOLOGY AND FUNCTION

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Objective of the review: The left atrial appendage (LAA) is a finger-like extension originating from the main body of the left atrium. It has a role in the hemodynamics of the blood and the function of the left atrium, as well as an endocrine role associated with the secretion of natriuretic peptides. In the evaluation of LAA, the analysis of the morphology and function is significant. The method of choice in the LAA assessment is transesophageal echocardiography (TEE) since complete evaluation is impossible with standard transthoracic echocardiography (TTE). The aim of this paper is to present a diagnostic protocol for LAA assessment.

Topic Review: Pulse-Doppler is used in TEE to examine LAA. The typical appearance of the doper flow through the left atrium during discharge is biphasic, and the normal velocity is over 40 cm/s. Low velocities occur in atrial fibrillation and represent a significant independent predictor of thromboembolic events in patients with atrial fibrillation. LAA is the most important source of thrombotic masses in patients with atrial fibrillation and cerebrovascular insult. If the CHA2DS2-VASc Score is greater than 2, anticoagulant therapy is indicated in patients with atrial fibrillation to prevent the development of stroke. In patients with contraindications to the use of anticoagulant therapy, catheter closure of the LAA is recommended.

Conclusion: TEE is the gold standard for LAA assessment. TEE training is essential in the first place in order to make use of its benefits as a diagnostic tool in everyday clinical practice.

Keywords: left atrial appendage, left atrium, atrial fibrillation, thromboembolism

ECHOCARDIOGRAPHY IN HEART FAILURE: A REVIEW

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Title:
ECHOCARDIOGRAPHY IN HEART FAILURE: A REVIEW

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Objective of the review: Heart failure (HF) is not a single pathological diagnosis, but a clinical syndrome consisting due to a structural and/or functional abnormality of the heart that results in elevated intracardiac pressures and/or inadequate cardiac output at rest and/or during exercise. HF is usually divided into two clinical presentations: chronic and acute HF. The prevalence of HF appears to be 1–2% of adults, but the prevalence increases with age to >10% in those aged 70 years or over. The prognosis of patients with HF has improved, but it remains poor, and quality of life is also markedly reduced.

Topic Review: Echocardiography is recommended as the key investigation for the determination of the left ventricular ejection fraction, according to which HF is divided into different phenotypes. HF diagnosis, staging, response to therapy, and etiology are often determined by echocardiography. It have provided comprehensive insight into the complexity of cardiac derangements underlying HF, risk assessment and guiding therapeutic decision-making. Understanding of pathophysiologic nuances in HF is significantly aided by the novel echocardiographic parameters, especially in the field of diastolic function, tissue Doppler imaging and speckle tracking.

Conclusion: Echocardiography is a reliable non-invasive technique, not expensive, easily feasible and compatible with other methods, without which it is difficult today to imagine how HF management could be carried out. The potential of echocardiography in HF has been fulfilled by the incorporation of new science and technologies.

Keywords: Heart Failure, Ejection Fraction, Tissue Doppler, Speckle Tracking.

LIBMAN-SACKS ENDOCARDITIS - CASE REPORT

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Objective of the review: Libman-Sacks endocarditis is a rarely recognized type of sterile nonbacterial thrombotic endocarditis. Aim of article was to signify the importance of comprehensive work-up and early recognition of cardiac changes and progression in patients with SLE in order to reduce their mortality and prevent progression of cardiovascular change.

Topi creview: A 34-year-old woman with a previous medical history of SLE, diagnosed eight years ago, was sent to transthoracal echocardiography (TEE). Patient has lupus nephritis, with the moderate reduced renal function with nephritic proteinuria, but with negative immune parameters in terms of activity underlying diseases. TTE examination verifies morphologically fibrous altered mitral valve, with changes like Libman-Sacks. Then the patient is reffered to transesophageal echocardiography (TEE), on which have been proven the changes that speak in favor of autoimmune lesions within SLE. In therapy of this patient is recommended: amlodipine, perindopril, indapamid, nebivolol, atorvastatin and ezetimib, and from specific nephroimmunological therapy, patient was previously treated with mycophenolate mofetil, cyclophosphamide and corticosteroids, and now only uses corticosteroids.

Conclusion: Clinicians should consider Libman-Sacks endocarditis in patients with history of those conditions and a thromboembolic incident. There is no specific therapy indicated for Libman-Sacks endocarditis. It is important to manage valvular dysfunction. Anticoagulation is usually indicated for atrial fibrillation, mitral stenosis, mechanical heart valves and thromboembolic incidents, but the possible role of aspirin has not been adequately investigated. The indications for excision of vegetation or valve replacement are the same as for infective endocarditis.

Keywords: mitral valve, systemic lupus erythematous, echocardiography.

EDUCATION OF STUDENTS ON SMOKING DURING THE STUDY "SMOKING AND HEALTH" IN MOSTAR

Emir Fazlibegovic, Mustafa Hadziomerovic, Omer Manov, Danijel Pravdic, Benjamin Palic, Ermin Hadzic, Samra Mededovic, Nina Bjedic, Adil Joldic, Enisa Idrizovic, Spomenka Saric, Sarah Music, Adi Maksumic, Mubera Begluk, Adna Dumpor, Armin Dulic, Maid Dilberovic, Lana Bijedic

Title:
EDUCATION OF STUDENTS ON SMOKING DURING THE STUDY "SMOKING AND HEALTH" IN MOSTAR

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Introduction: The student population of young people in Bosnia and Herzegovina is particularly exposed to an increased risk of smoking, what is related with mental health repercussions that students experience while they are in medical school. We wanted to examine attitude toward smoking cessation in the student population and in education staff of the Health Care Study of Džemal Bijedić University in Mostar (a selected population that does not accept this vice).

Aim: To elucidate the impact of health studies on smoking cessation and changing/replacing/tackling harmful behaviors with healthier ones and reinforcing the awareness of setting an example to future patients.

Material and Methods: The study included 337 respondents which lasted for three months. A total of 233 women and 104 men were included, of whom 250 said they were non-smokers and 87 smokers.

Results: There were 180 students of the Health Care Study at Džemal Bijedić University in Mostar, 28 freshmen from the first year, 43 from the second year, 50 from the third year of the study and 59 from the fourth year of study, as well as 8 teachers and 149 patients from MDC Merhamet Mostar.

Conclusion: In study, 25% of smokers stopped smoking. Education about the dangers of smoking contributes to smoking cessation among students.

Keywords: smoking, education, prevention, risk.

PREVALENCE OF CORONARY ARTERY ANOMALIES DETECTED BY CORONARY CT ANGIOGRAPHY IN SARAJEVO CANTON, BOSNIA AND HERZEGOVINA

Fuad Zukic

Title:
PREVALENCE OF CORONARY ARTERY ANOMALIES DETECTED BY CORONARY CT ANGIOGRAPHY IN SARAJEVO CANTON, BOSNIA AND HERZEGOVINA

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Background: Coronary artery anomalies (CAAs) are congenital variations of one or more of the coronary arteries and they are an uncommon but important cause of chest pain and, in some cases, sudden cardiac death. Anomalies of coronary arteries may be found incidentally in 0.3-1% of healthy individuals. The three types of coronary artery anomalies are anomalies of origin, anomalies of course and anomalies of termination.

Aim: To estimate the frequency of CAAs in Sarajevo Canton, Bosnia and Herzegovina (B&H), and to determine the prevalence of origin, course and termination anomalies of coronary arteries.

Material and methods: This was a retrospective analysis of 919 patients who underwent computerized tomography (CT) coronary angiography to determine CAAs in the period from 2013 to 2017.

Results: In our study, total number of CAAs have been found among the 130 patients (14.12%) out of which anomalies of origin are found at 14 patients (1.52%), anomalies of course at 115 patients (12.5%) and anomaly of termination in 1 patient (0.1%).
Conclusion: Coronary CT angiography is an excellent tool for diagnosis of CAAs regarding origin, course and termination of the coronary arteries.

Keywords: Prevalence, coronary artery anomalies, coronary CT angiography

ATRIAL STUNNING AFTER CARDIOVERSION OF ATRIAL FIBRILLATION

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Title:
ATRIAL STUNNING AFTER CARDIOVERSION OF ATRIAL FIBRILLATION

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Object of the review: Cardioversion of atrial fibrillation and flutter significantly increases the short-term risk of thromboembolism and stroke. There are two mechanisms, which explain this phenomenom. The return of effective atrial contractile function could predispose embolisation of already formed thrombus during atrial fibrillation. The other mechanism is atrial stunning. Aim of the review is to present the nature, clinical considerations, determinants and mechanisms of atrial stunning.

Topic review: Atrial stunning is the phenomenon of transient contractile dysfunction of the left atrium and the left atrial appendage after successful conversion of atrial fibrillation into sinus rythm. It is manifested by paradoxically lower atrial appendage flow velocities than velocities before cardioversion or, rarely, by completely absent atrial mechanical function despite restored sinus rythm. Lower flow velocities in the atrial appendage could cause the thrombus formation. Atrial mechanical dysfunction is of greatest degree immediately after cardioversion and can last several minutes up to several weeks after cardioversion depending on duration of atrial fibrillation. The appearence of left atrial stunning does not depend on mode of cardioversion. Tachycardia induced atrial cardiomyopathy and cytosolic calcium accumulation are the suggested mechanisms of atrial stunning.

Conclusion: Atrial stunning is implicated in the development of thromboembolic incidents after cardioversion of atrial fibrillation. Adequate anticoagulation before and after cardioversion is of greatest importance for prevention of its embolic complications.

Keywords: atrial fibrillation, stunning, cardioversion, atrial dysfunction.

ANTIPLATELET THERAPY AFTER PERCUTANEOUS CORONARY INTERVENTION – WHERE ARE WE NOW ?

Ivana Iveljic

Title:
ANTIPLATELET THERAPY AFTER PERCUTANEOUS CORONARY INTERVENTION – WHERE ARE WE NOW ?

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Objective of the review: Antiplatelet therapy has major role in optimising outcomes preventing ischemic events among patients after percutaneous coronary intervention (PCI), but it is associated with increased risk of bleeding.

Topic Review: Aspirin plus P2Y12 inhibitor represent a bedrock therapy for patients undergoing PCI (dual antiplatelet therapy (DAPT) regimen). The choice of P2Y12 inhibitor varies according to clinical setting (acute coronary syndrome (ACS), chronic coronary syndrom, thrombotic and bleeding risk). In ST-segment elevation myocardial infarction (STEMI), before PCI, loading dose with high potenty P2Y12 inhibitor (prasugrel and ticagrelol in absence of contraindications), and with aspirin is highly recommended (continuing DAPT for 12 months). For high bleeding risk patients (HBRP) 6 months DAPT and monotheraphy with Aspirin is recommended. For non-ST- segment elevation myocardial infarction (NSTEMI) pre-treatment with P2Y12 inhibiotor is not recommended, only with low bleeding risk patients (LBRP) not scheduled for early invasive strategy and than with clopidogrel or ticagrelol. During PCI for NSTEMI ACS, first prasugrel and then ticagrelol are preffered, for 12 months duration after. After NSTEMI PCI, LBRP can have ticagrelol monotherapy for 3 months. With HBRP, DAPT with clopidogrel, preferrably 1 month and then just clopidogrel. In patients with CCS initiation of P2Y12 inhibitor is delayed until angiography and then clopidogrel is preffered for 6 months. If a patient needs anticoagulation (OAC), then novel OAC and clopidogrel for 12 months and Aspirin for 7 days.

Conclusion: DAPT intensity and duration should be adjusted to reduce the risk of ischemic complications while minimising bleeding risk.

Keywords: antiplatelet drug, acute coronary syndrome, treatment.

THE IMPORTANCE OF HIGH-QUALITY TRANSTHORACIC ECHOCARDIOGRAPHY IN PATIENTS WITH SEVERE AORTIC STENOSIS

Mario Ivanusa

Title:
THE IMPORTANCE OF HIGH-QUALITY TRANSTHORACIC ECHOCARDIOGRAPHY IN PATIENTS WITH SEVERE AORTIC STENOSIS

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Objective of the review: Transthoracic echocardiography (TTE) is often considered as relatively simple, which is accurate from a risk perspective for patients. However, technical skills required for an interpretation of TTE do not include only learning how to manipulate the transducer and to use the software but also an anatomic and functional evaluation of cardiac chambers, valves, pericardium, and aorta. The need for such skills emphasizes the importance of education, training, and experience. The key role of TTE lies within planning of an optimal period for aortic valve replacement, the only treatment proven to extend the life expectancy of patients suffering from severe aortic stenosis (AS).

Topic review: A high-quality TTE enables to stage the classification of cardiac damage since AS does not only affect aortic valve, but also surrounding structures. Considering that 1/3 of AS patients can exhibit a discrepancy between aortic valve area and mean gradient, which can influence the estimation of AS severity, it is important to recognize when the further assessment should be conducted. Alongside traditional methods such as exercise testing and cardiac catheterization, new markers include dobutamin stress echocardiography and/or quantitative assessment of aortic valve calcification by noncontrast electrocardiogram-gated computer tomography scans with the use of the Agatston method.

Conclusion: The diagnosis of AS severity among most patients can be established using a high-quality TTE following protocols. For a minority of patients, however, the multimodality imaging approach is necessary to solve a puzzling AS diagnosis, enabling an accurate estimation of AS severity, and risk stratification.

Keywords: aortic stenosis; echocardiography; quality.

FETAL ECHOCARDIOGRAPHY - THE FIRST OR SKIPPED STEP IN CARDIOLOGY

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Objective of the review: Making up for 28% of all major congenital anomalies, congenital heart defects (CHD) is the most common type of birth defect according to the EUROCAT. With an occurrence of 7 per 1000 live births, 1.35 million infants are born with CHD each year worldwide. It is well known that 25% of deaths due to CHD occur in the first week of life before the CHD is diagnosed. Aim of article was to present the role of fetal echocardiography in the timely detection of heart disease and positioning the fetus as a cardiac patient.

Topic review: Fetal echocardiography as a diagnostic noninvasive procedure allows an analysis of cardiac anatomy, large blood vessels of the heart, and heart rhythm. Given the complexity of these issues, referral to a maternal-fetal medicine specialist, pediatric cardiologist, geneticist, and/or neonatologist is recommended. Prenatal diagnosis of cardiac disease has been associated with a reduction in neonatal morbidity and improved neonatal outcomes. Infants with CHD that require patency of the ductus arteriosus for systemic or pulmonary blood flow can benefit by the early postnatal intervention to prevent closure of the ductus.

Conclusion: Fetal echocardiography, as the first step in CHD detection, requires faith in what we do, responsibility, and teamwork primarily by perinatologists and pediatric cardiologists. The term "fetus as cardiological patient" represents the reality and the need in modern perinatology in order to define the best treatment and avoid adverse outcomes, especially in the early neonatal period.

Keywords: congenital heart defects, echocardiography, diagnosis

THE IMPORTANCE OF COMPUTED TOMOGRAPHY IN PREOPERATIVE PLANNING OF CARDIAC SURGERY

Merjema Karavdic

Title:
THE IMPORTANCE OF COMPUTED TOMOGRAPHY IN PREOPERATIVE PLANNING OF CARDIAC SURGERY

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Objective of the review: To discuss possible preoperative strategies in order to prevent embolic stroke in patients with intimal aortic atherosclerosis.

Topic Review: Calcified aorta represents a strong predictor for neurological complications after cardiac surgery. Contrast enhanced computed tomography (CT) is a highly sensitive tool for preoperative screening of the aortic plaque distribution. This way the surgeon can more easily plan the exact locus of the aortic cannulation as well as the clamp site. If the aorta is heavily calcified and no suitable place for cannula can be found, risk for postoperative stroke might be too big and some other treatment option should be considered. CT of the aorta is routinely performed before surgery on the thoracic aorta. However, this is not the case in the assessment of other cardiac procedures. Other significant risks for postoperative stroke are peripheral vascular disease, age and prior stroke. In our hospital, lately we tend to obtain CT of the aorta and its large vessels in all patients that require aortic surgery, aortic valve surgery when the valve is heavily calcified as well as in all patients older than 65 years. This greatly facilitates surgical planning. Sadly, this is not always possible, having in mind the often urgency of the needed operation.

Conclusion: When possible, CT evaluation of the ascending aorta should be performed as a part of the preoperative cardiac surgery planning in selected patients.

Keyowords: computed tomography, aorta, surgery.

THERAPY WITH ANTIHYPERTENSIVES AND BIOLOGICS IN PREGNANCY

Mevludin Mekic, Alen Dzubur, Sanja Miseljic, Mirela Halilcevic

Title:
THERAPY WITH ANTIHYPERTENSIVES AND BIOLOGICS IN PREGNANCY

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Objective of the review: To present the treatment with antihypertensives and biologics in pregnant women.

Topic Review: Regular blood pressure monitoring in pregnancy is essential, especially if hypertension is preexisting or renal disease with renal impairment is present. The drug of choice in the treatment of hypertension in pregnant women remains methyldopa; cardioselective beta-blockers, calcium antagonists, and alpha-blockers may be added. In the group of high-risk pregnant women, acetylsalicylic acid 75-100 mg daily is recommended from the 12th week. Preeclampsia should be monitored. For decades, women with rheumatic diseases have been advised not to plan a pregnancy, mainly due to concerns about worsening rheumatic disease, the possible bad outcome of the pregnancy itself, and lack of evidence on safe therapeutic options. High disease activity at conception significantly increases the likelihood of complications in pregnancy as well as the occurrence of complications in the newborn. Pregnancy leads to improved symptoms and remission of the disease in rheumatoid arthritis. Biological therapy has shown high efficacy as a therapeutic approach in rheumatology. Given the high incidence of these diseases in women of childbearing age, it is crucial to choose the appropriate therapy that will not harm reproductive health. However, there is growing evidence of the safety of biologic therapy during pregnancy.

Conclusion: Because disease activity directly affects the outcome in rheumatologic pregnant patients, the best time for pregnancy is during remission of the disease. Careful consideration of antihypertensive and biologic therapies is of utmost importance for treatment efficacy in women with rheumatic diseases.

Keywords. antihypertensives, biologics, rheumatology.

GROWN UP CONGENITAL HEART - OUR FUTURE CHALLENGE

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Title:
GROWN UP CONGENITAL HEART - OUR FUTURE CHALLENGE

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Objective of the review: To point out the need to establish a Grown-up congenital heart (GUCH) disease center in Bosnia and Herzegovina.

Topic review: The remarkable development of paediatric cardiology, surgery and intensive care during the last six decades has been responsible for the fact that up to 90% of children with congenital heart disease (CHD) can now reach adulthood. Despite the advances in this field, death rates in the population from 20 to older than 70 years of age may be twice to seven times higher for the GUCH population than for their peers. Repaired does not mean cured -surgery for complex CHD is not curative, but corrective or even palliative. The GUCH population is growing by linear progression and its number exceeds the pediatric population. The best available evidence suggests that overall prevalence of CHD in the adult population is in the region of 3,000 per million (more than half have moderate or severe CHD). The expected population in Bosnia and Herzegovina is 9800 patients and less than 30% were detected. It is necessary to have an organized GUCH center for 4 million inhabitants. Lack of educated medical staff and specialized units to treat the growing number of adolescents and adults with congenital heart disease is the biggest problem and requires immediate action.

Conclusion: The GUCH problem should not be ignored because patients are already "knocking on our door". It is our commitment to the profession and patients successfully treated for years.

Keywords: GUCH, congenital heart defect, transition

ROLE OF ECG-GATED SPECT MYOCARDIAL PERFUSION SCINTIGRAPHY AS NONINVASIVE METHOD IN EVALUATION OF PERFUSION AND THE LEFT VENTRICULAR MYOCARDIAL FUNCTION

Mirza Skalonja

Title:
ROLE OF ECG-GATED SPECT MYOCARDIAL PERFUSION SCINTIGRAPHY AS NONINVASIVE METHOD IN EVALUATION OF PERFUSION AND THE LEFT VENTRICULAR MYOCARDIAL FUNCTION

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Objective of the review: In addition to standard SPECT myocardial perfusion imaging (MPI), ECG-gated Single Photon Emission Computed Tomography (GSPECT) represents nonvinvasive method used to detect and diagnose patients with known or suspected coronary artery disease (CAD) as well as the analysis of global and regional left ventricular function. Aim of article was to present the diagnostic and prognostic capabilities of the nuclear cardiology technique GSPECT myocardial perfusion scintigraphy in CAD.

Topic Review: GSPECT myocardial perfusion imaging is well established non-invasive evaluation of detection of CAD, coronary artery stent patency, the preoperative evaluation of myocardial viability, the postinterventional and postoperative evaluation, and the evaluation of the necessity for invasive cardiac management. A meta-analysis has shown that a moderate to large defect on MPI is a positive predictor for postoperative cardiac events, while a normal MPI has high negative predictive value for postoperative myocardial infarction or cardiac death.

Conclusion: GSPECT myocardial perfusion scintigrafaphy as noninvasive technique provides important information that helps to risk-stratify patients with suspected or known CAD or following myocardial infarction, enabling more appropriate management of respective conditions. The use of GSPECT should be part of the routine disgnostic patern of CAD. Increasing the use of GSPECT MPI may identify lower risk patients for whom invasive cardiac management might be avoided.

Keywords: GSPECT, SPECT, CAD, nuclear medicine, noninvasive, ventricular function

PREVENTION OF CARDIOVASCULAR DISEASES: RECOMMENDATIONS AND CLINICAL REALITY

Omer Manov

Title:
PREVENTION OF CARDIOVASCULAR DISEASES: RECOMMENDATIONS AND CLINICAL REALITY

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Objective of the review: To present the latest recommendations in the prevention of cardiovascular diseases, as well as problems in their implementation.

Topic review: Prevention of cardiovascular disease (CVD) is defined as a coordinated set of actions at the population level or targeted at the individual, aimed at eliminating or minimizing the impact of cardiovascular disease and its consequent disability. In Bosnia and Herzegovina, as in most countries around the world, CVD, including coronary heart disease, heart failure, and peripheral arterial disease, are the leading causes of morbidity and mortality. On the grounds of the implementation of preventive measures in developed countries since 1980, mortality from coronary artery disease has almost halved, which strengthens the importance of primary prevention. Unfortunately, in developing countries, including our country, we still have devastating data, both on mortality and the prevention of cardiovascular disease itself.

Conclusion: Primary prevention programs should be essential in primary health care. Secondary prevention must be in accordance with the characteristics of patients with optimized pharmacological treatment.

Keywords: cardiovascular diseases, prevention, primary prevention.

THE OPTIMAL CONTROL OF THE POST-COVID-19 SYNDROME

Sokolovic Sekib

Title:
THE OPTIMAL CONTROL OF THE POST-COVID-19 SYNDROME

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Background: The post- coronavirus disease 2019 (COVID-19) syndrome or long covid-19 is a subacute condition affecting certain recovered patients from the acute viral infection. The most post-covid-19 symptoms resolve after 3 months, but certain number of patients experience prolongation of fatigue, shortness of breath, palpitations, cough and muscle chest pain.

Aim: The objective of this study was to investigate the cardiovascular involvement in the long-covid-19 syndrome.

Material and methods: The prospective clinical randomized study of 212 long-covid-19 patients were included. Three groups of recovered patients with mild (Group I), moderate (Group II) and severe (Group III) acute covid-19 infection were formed. Diagnostic procedures included the electrocardiogram (ECG), transthoracic echocardiogram (TTE) and magnetic resonance imaging (MRI)

Results: The average duration of post-covid-19 symptoms was 15,5 weeks with 116 females (55,2 %) and 96 (44,8%) males. Average age was 57,6 years. The most frequent manifestation was mild to moderate subacute pericarditis seen in 23,8% patients. The group III (78,4%) was the most affected with pericarditis, followed by group II (17,8%)%) and insignificant in a group I (4,0%). All patients received colchicine therapy that proved to be effective in all. MRI was performed in 6 patients and no myocarditis was found.

Conclusion: Our results indicate that Pericarditis is the most underlying condition in a long covid-19 period and colchicine is a drug of choice.

Keywords: Long-Covid-19, Pericarditis, Colchicine.

EVOLUTION OF BREASTFEEDING AND COVID-19 PANDEMIC: ARE WE ON THE RIGHT TRACK?

Milan Stanojevic

Title:
EVOLUTION OF BREASTFEEDING AND COVID-19 PANDEMIC: ARE WE ON THE RIGHT TRACK?

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Introduction: Homo sapiens appeared 200,000 years ago. Assisted birth has an evolution of 2 to 3 million years. Mammalian breast milk has evolution of 300 million years. These processes enabled mankind to survive till nowadays, but still, there are many uncertainties should they be respected, which came out during the delivery of perinatal care in the COVID-19 pandemic.

Aim: To present practices of perinatal care in the COVID-19 pandemic, considered as protective for the mother and neonate in 12 European countries.

Material and Methods: From 2016 all maternities in Croatia were accredited as "Baby-Friendly Hospitals" in terms of the implementation of initiative of World Health Organization and UNICEF.

Results: In the WHO European Region, 18,063 women underwent labor of which: 9.1% (0.5-64.4%) did not have skin-to-skin contact (SSC), 12.9% (4.7-69.9%) did not initiate breastfeeding within the first hour, 31.1% (16.5-56.9%) did not get adequate breastfeeding support, 19.4% (5.5-55.6%) did not have continuous rooming-in, and 31.4% (20.2-60.7%) did not get immediate attention when needed. Fundal pressure was practiced in 41.2% (11.5-100%), episiotomy got 20.1% (6.1-66%), pain relief was not given in 20.8% (6.4-46.2%). Could not choose companion during labor in 62% (12.6-99%), could not choose the birthing position in 42.8% (32.4-81.9%). Out of 12 countries, Croatia was scored 11th with disappointing results.

Conclusion: The evolutionary processes, which should be respected, were not, because of the fear of vertical and horizontal transmission of the virus, and that the mother can harm the baby by vaginal birth, SSC, close social contact (rooming-in), breastfeeding.

Keywords: evolution, mankind, breastfeeding, COVID-19 pandemic, perinatal health

ACTA MEDICA SALINIANA

MENTAL HEALTH

ASSESSMENT OF DISABILITY OF CHILDREN AND ADOLESCENTS

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Title:
ASSESSMENT OF DISABILITY OF CHILDREN AND ADOLESCENTS

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Background: Research on the prevalence of disability in children is less represented in the literature than research on the prevalence of disability in adults. Comparing the prevalence of disability in children from different countries is difficult because research conducted in different countries uses different disability measures.

Aim: This research aimed to determine the prevalence of disability in children and adolescents who applied for recognition of rights under the Law on Fundamentals of Social Protection of the Federation of B&H in the period 2019-2021. Materials and Methods: The research was cross-sectional, descriptive, and included a total of 2,951 findings and evaluations of the Institute for Medical Expertise of the FB&H made between 1.1.2019.
and 31.12.2021, which referred to persons aged between 1 month and 18 years of age on the day of the findings, These data were used to assess the prevalence of disability according to the diagnoses of ICD -10 classification.

Results: The results showed a stable trend in the occurrence of disorders in the three analyzed years. About 30 percent are related to mental, intellectual, and neurodevelopment disorders.

Conclusion: The findings emphasize the importance of conducting more comprehensive research that would enable decision-makers to plan the development of services according to the needs of persons with disabilities.

Keywords: disability, children, mental, intellectual, and neurodevelopment disorders.

COVID 19 - PROBLEMS IN CHILDREN AND ADOLESCENTS

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COVID 19 - PROBLEMS IN CHILDREN AND ADOLESCENTS

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Objective: The COVID-19 pandemic has affected all spheres of human life. In addition to impaired somatic health, the mental health of all is particularly endangered. Particularly vulnerable categories are children and adolescents. Children as a developing group, who need security, love, belonging, trust, socializing with peers, suddenly found themselves in a situation that does not guarantee any of the above.

Topic review: The article presents examples from practice where a significant number of children and adolescents during the pandemic showed symptoms of various fears (fear of death, disease, future), insecurity, some symptoms of depression (feeling of isolation from peers, mood swings, sleep problems), then somatic symptoms (hair loss, skin diseases, vague abdominal pain, loss of appetite). When the COVID-19 pandemic started in Bosnia and Herzegovina in March 2020, health and social services were limited and/or disabled. Online crisis interventions, in most cases, have proven to be a significant support.

Conslucion: The WHO Global Health Assessment from 2015 shows that one in five adolescents will experience mental disorder each year, and self-harm is the third leading cause of adolescent death, while depression is among the leading causes of disability. Research related to the impact of the pandemic on mental health will certainly change these data to an even darker figure. Better organization of the health service, systematic action in the prevention of crises in society, not only pandemics, psychosocial treatments and psychotherapy can help prevent greater and more massive consequences that are observed after crises.

Keywords: pandemic, mental health of children and adolescents, consequences of pandemic.

EPIGENETIC PROCESSES AND THE ROLE OF MICRORNA IN ANXIETY DISORDERS

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Title:
EPIGENETIC PROCESSES AND THE ROLE OF MICRORNA IN ANXIETY DISORDERS

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In this review, we consider the epigenetic significance of microRNAs in the control of neurobiological systems that stimulate the processing of anxiety in the brain and act as major posttranscriptional regulators of gene expression, as well as the therapeutic potential that microRNAs may have in the treatment of anxiety disorders. The word "epigenetics" refers to a group of mechanisms that work together to control gene expression in the absence of changes in DNA base pair composition. Environmental factors related to anxiety disorders have been linked to changes in epigenetic mechanisms such as DNA methylation, histone acetylation, and noncoding RNA expression, all of which control the long-term expression of certain genes. MicroRNAs (miRNAs) are a type of short non-coding RNA that has recently gotten a lot of attention as epigenetic regulators of gene expression in psychiatric conditions. Because of their role in synaptic plasticity and neuronal formation and differentiation, miRNAs may play a role in the etiology of a variety of psychiatric disorders. The research of microRNAs in mental disorders has gained interest due to their potential as molecular biomarkers or application in microRNA-specific therapies for mental illness. Anxiety is a mental state that serves as a coping mechanism in harmful environments and is linked to emotional processes as well as cognitive functions like learning and memory. **Conclusion.** In this review we have shown the importance of miRNAs in anxiety and how such findings can be used to better understand and treat anxiety disorders.

Keywords: Epigenetics, Noncodin RNA, miRNAs, Anxiety disorders.

INTERDISCIPLINARY RE/HABILITATION TEAM OF CHILDREN AND ADOLESCENTS WITH DEVELOPMENTAL AND INTELLECTUAL DISABILITIES

Emira Svraka

Title:
INTERDISCIPLINARY RE/HABILITATION TEAM OF CHILDREN AND ADOLESCENTS WITH DEVELOPMENTAL AND INTELLECTUAL DISABILITIES

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Objective: In the development of re/habilitation of children and adolescents with developmental and intellectual disabilities participates a large interdisciplinary team of experts: physical medicine and rehabilitation specialists, pediatric orthopedists, neuropediatricians, neurologists, pediatric psychiatrists, neurosurgeons, physiotherapists, occupational therapists, nurses, somatopedists, speech therapists, psychologists, pedagogues. It is important to have realistic functional goals towards which the treatment is directed (the child and the therapist should know why they are doing something), while at the same time neither the child nor the family should be burdened too much. Parents should be given instructions patiently, tailored to the parents' understanding.

Topic review: There are numerous examples of inclusive practice (workshops with children, families, and professionals) through original research, which will help all members of the interdisciplinary re/habilitation team to work with children with developmental disabilities. It is important that doctors have an insight into the therapy, which they know to have its limitations and possibilities. It is essential that the doctor and the therapist work as a team, speak the same language, and contact each other if problems occur. Continuity of care and monitoring is the responsibility of the doctor.

Conclusion: An interdisciplinary re/habilitation team is the key to success, and knowledge, creativity, mutual trust, and collegiality are the foundations of the quality of services provided. The therapist and doctor decide together how much more therapeutic sessions are needed.

Keywords: interdisciplinary team, re/habilitation, children and adolescents with developmental and intellectual disabilities

INTERNET ADDICTION AMONG YOUNG PEOPLE

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Title:
INTERNET ADDICTION
AMONG YOUNG PEOPLE

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Background: Children and young people today grow up using the internet from an early age. This age category has been identified as vulnerable to the development of behavioral addictions associated with excessive internet use. The aim of the research was to obtain basic information about young people, their use and experiences on the Internet and attitudes about the Internet.

Methods: The research is empirical, prospective and quantitative. The sample consists of 121 respondents (M=60, F=61), aged 14 to 19 years. The instrument used for the purposes of this research is a newly created survey questionnaire designed for quick and easy execution.
The results showed that the largest number of young people report frequent visits to the Internet. Everyone uses the internet for business and entertainment, and in their opinion, all their friends. Most respondents spend more than three hours a day online. Respondents cite a perception of the negative consequences of online presence (82.6%), but the behavior continues. 23.14% of young people surveyed experienced negative comments and ridicule as a form of cyber-violence. Almost all respondents want to change their online habits (90.1%). The only statistically significant difference between men and women is in the report on feelings after time spent on social media. Women felt much more dissatisfied than men.

Conclusion: The research gives us guidelines for future work on the prevention of behavioral addictions and the protection of the mental health of the young population.

MENTAL DIFFICULTIES OF BENEFICIARIES OF THE INSTITUTE FOR UPBRINGING MALE CHILDREN AND ADOLESCENTS SARAJEVO - HUM

Rasema Okic, Nizama Sukorovic

Title:
MENTAL DIFFICULTIES OF
BENEFICIARIES OF THE INSTITUTE
FOR UPBRINGING MALE CHILDREN
AND ADOLESCENTS SARAJEVO - HUM

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Introduction: The Institute for Upbringing Male Children and Adolescents – HUM is an institution conducting the social protection of beneficiaries, school age children. The beneficiaries of the Institute are physically healthy children but neglected in upbringing and educational sense, along with number of those with mental disorders and a special emphasis on experimentation, ab/use of psychoactive substances (PAS).

Goal: The aim of this paper is to show the current psychopathological problem of the beneficiaries and the issues related to the consumption of alcohol and psychoactive substances.

Methods: The study is retrospective. The sample is consisted of the 20-30 beneficiaries, divided into two groups, boys 12-15 years and an adolescent of 16-19 years of age.

Results: For the period 2020-2022, we expect a sociodemographic representation of the beneficiary sample, the reasons for which they are located in the Institute and by whose decisions, the presence of psychopathological disorders (behavioral disorders, emotional immaturity, depression, anxiety) and disorders related to use of psychoactive substances.

Conclusion: Adolescence is the time of the most intense experimentation, ab/use of the psychoactive substances, and especially prone to this are the adolescent with existing mental disorders. It is particularly important to prevent the first use of a psychoactive substance or place under control already developed harmful use by psychotherapy or psychopharmacotherapy. In achieving goal of stable remission and improvement of the quality of life of children it is important to explore the outcome of treatment and further follow-up.

Keywords: beneficiary, mental disorders, psychoactive substances

MENTAL HEALTH AND SPINE DEFORMITIES BY ADOLESCENTS

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Title:
MENTAL HEALTH AND SPINE DEFORMITIES BY ADOLESCENTS

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Introduction: Adolescent idiopathic scoliosis (AIS) is known for its unknown etiology, multifactorial occurrence factors, unpredictable course, and prognosis. Deformity is followed by changes in the quality of life which changes in mental health.

Aim: of our review research was to note the most common mental health findings in AIS, but when the adolescent's mental health can also be the cause of poor posture as before a state of deformity.

Material and method: Using our previous experiences of quality-of-life changes in patients with spinal deformities in general, we conducted a review of published research analyzing mental health in spinal deformity.

Results: The most common symptoms of AIS are depression and anxiety of a mental nature, deformity can be caused by poor balance and balance, as well as changes in balance, deformity and changes in the circulatory system and internal organs cause symptoms of hysteria, neurasthenia and chronicfatigue.

Discussion: The complexity of the etiology of AIS requires the study of the patient's mental state at the time of examination, as a condition for emphasizing it. Noted research is important not only for assessing the quality of life due to mental factors but also for choosing treatment and including psychological support. **Conclusion:** During examination, follow up and treatment of AIS, except changes of the musculoskeletal system, the mental status must be access as a factor in emphasizing the deformity and its occurrence due to the deformity itself.

Key words: AIS, mental health.

THE USE OF ELECTRONIC MEDIA - A NEW ADDICTION

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Title:
THE USE OF ELECTRONIC MEDIA - A NEW ADDICTION

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Introduction: The use of electronic media, and especially the Internet, is part of our everyday life and is present, to varying degrees, in all categories of people. In addition to all the benefits of using information technology, there is an objective risk of overuse and addiction. Children are a particularly vulnerable category. This paper aims to present the results of the project "Information Technology Addiction and Peer Violence" implemented in three primary schools in the area of Mostar (IV primary school, Gnojnice Primary School, and Blagaj Primary School).

Methods: The paper is a cross-sectional study conducted using a questionnaire that had nineteen questions. Seventh, eighth, and ninth-grade students of primary school filled in the questionnaire anonymously.

Results: Primary school students in Mostar follow world trends related to the use of information technologies and use information technologies in full capacity.
Over half of the respondents have had a mobile phone since going to school, and a large number of students have a computer. Students use the Internet for several hours a day, rarely less than two hours. The Internet is most often used for social networks and games, and much less often for searching for teaching materials and expanding knowledge. Students have their profiles on Facebook and Instagram, and the number of friends and followers increases with the age of the students. At the same time, the percentage of students who have parents as friends on FB is decreasing. There is a high percentage of students who use the Internet at night. Peer violence with the help of information technology is an increasingly common form of violence, almost 1/3 of students had that experience. They talked about it with their friends

Conclusion: The use of information technology is very important, but there is a dilemma what is useful and what is harmful? Where is the limit? The use of information technology is associated with peer violence, which we must not underestimate.

ACTA MEDICA SALINIANA

NEUROSURGERY

ASSESSMENT OF NEUROLOGICAL OUTCOME AFTER RESECTION OF SPINAL MENINGIOMAS

Dragan Jankovic, Darius Kalasauskas, Florian Ringel, Naureen Keric

ISSN 0350-364X

Title:
ASSESSMENT OF NEUROLOGICAL OUTCOME AFTER RESECTION OF SPINAL MENINGIOMAS

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Objective: First line therapy for symptomatic spinal meningiomas is surgery, however, the postoperative outcome may be heterogeneous. The aim of this study was to evaluate potential preoperative clinical and imaging factors influencing the postoperative neurological deterioration.

Methods: We conducted a single-center retrospective analysis of spinal meningiomas that were operated between 2004 and 2019. Demographic, clinical, and radiological data (tumor size, location, occupation ratio and the degree of spinal cord compression), comorbidities, histological features, complications, intraoperative risk factors were recorded. Karnofsky Perfomance Status, Modified McCormick Scale and Frankel Scale were used to assess patients' functional status before surgery, at discharge and 3-6 months after the surgery.

Results: In total, 121 patients were included in the analysis, mean age was 66 (SD 13) years and 86% were female. The most common location was thoracic (68%) followed by upper (17 %) and lower (12 %) cervical spine. Preoperatively, 2% of patients were categorized as Frankel A, 2% as B, 34% as C, 54% as D, 8% as E. Neurologic function improved in 36%, remained unchanged in 58% and worsened in 4% at the time of discharge. After 3-6 months the proportions changed to 54%, 26% and 5%, respectively. Preoperatively Frankel category correlated significantly with the degree of spinal cord flattening (p=0.014, Spearman's rho -0.23). No relationship between the presence of T2 hyperintense signal and Frankel score could be established. Postoperative complications were reported in 4.8% of cases (hematoma in 3 patients, CSF fistel in 2 patients, meningitis in 1 patient). No factors associated with worsening of neurological symptoms could be established although the number of cases was limited to five. The degree of cord compression, spinal canal occupation ratio did not have significant effect on outcome.

Conclusion: Surgery of intraspinal meningiomas can be considered as safe. In our cohort there is a correlation between degree of spinal cord compression and preoperative neurological deficits. However, it is not associated with early postoperative outcome.

VIRTUAL SURGICAL PLANNING AND AUGMENTED REALITY IN CRANIOFACIAL SURGERY - REVIEW OF THE LITERATURE AND CASE EXAMPLE

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Title:
VIRTUAL SURGICAL PLANNING AND AUGMENTED REALITY IN CRANIOFACIAL SURGERY - REVIEW OF THE LITERATURE AND CASE EXAMPLE

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Background: Virtual Surgical Planning (VPS) and computer aided design is increasingly used in craniofacial surgery. Mixed Reality Viewers offer new possibilities to further enhance surgical planning. Especially in craniofacial and reconstructive surgery, it may help to balance the risk of the operation against the cosmetic results.

Material and methods: We present an overview of the literature and a case of a patient with sagittal craniosynostosis presenting after 1 year of age in which we used VSP and a Mixed Reality Viewer.

Results: We used virtual surgical planning to prepare the operation. We presented and discussed the preoperative CT scan and 3D photo as well as the virtually planned result interactively with the patient using a mixed reality viewer and patient specific 3D-Models. During the operation we used patient- specific, disposable guides and splints to speed up the operation and archive optimal results. The patient was followed up using 3D photography.

Conclusion: Virtual Surgical Planning has the potential to shorten operative time and improve operative results in complex craniofacial cases. The possibility to demonstrate the expected results and the extent of the operation with the use of a Mixed Reality Viewer and Patient-Specific 3D model improves shared decision-making.

WHY "MILD" HEAD INJURIES IN PEDIATRIC AGE MAY BE SERIOUS?

Mirjana Raicevic, Srdjan Nikolovski

Title:
WHY "MILD" HEAD INJURIES IN PEDIATRIC AGE MAY BE SERIOUS?

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Objective: This review will summarize the overall aspects of defining various types of traumatic brain injury (TBI), as well as pathophysiologic mechanisms, symptomatology, immediate and neuroimaging evaluation, as well as management options in pediatric patients with mild TBI and concussion as its specific entity.

Topic Review: TBI and concussion are still very popular subjects of discussion. The pathophysiology of these conditions is a complex and multifactorial process, depending on the mechanism and characteristics of the impact, individual susceptibility, and environmental factors. Neurometabolic changes, as well as cerebral blood flow changes and neuroinflammation, play an important role in both acute and chronic phases of brain injury. Microstructural damage, as well as diffuse axonal injury, are crucial morphologic substrates, directly causing the development of symptomatology. Many assessment tools have been developed and many guidelines for the management of patients with brain trauma have been proposed.

Conclusion: Current treatment recommendations include rest, symptomatic therapy, and a gradual return to mental and physical activities. Still, there are no specific options for the treatment of acute concussion or for the prevention of prolonged or permanent symptoms.

Keywords: children, traumatic brain injury, concussion, brain injury, diffuse axonal injury

ACTA MEDICA SALINIANA

NEUROLOGY

ANTI LG1 AUTOIMMUNE ENCEPHALITIS

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ANTI LG1 AUTOIMMUNE ENCEPHALITIS

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The objective of review: Our aim is to present a short overview of current knowledge on clinical presentation, evaluation, and treatment of patients with autoimmune LG1 encephalitis.

Topic review: Anti LG1 autoimmune encephalitis (leucine-rich glioma-inactivated protein1) is a very rare entity of autoimmune encephalitis associated with voltage-gated potassium channels (VGKC), typically manifested with cognitive impairment, mental disorders, epileptic seizures, and refractory hyponatremia. That is non-paraneoplastic and partially reversible encephalitis, which can be diagnosed by serological testing. Neuroimaging evaluation indicates dominant findings in the medial temporal lobe and hippocampus. Generally, encephalitis with antibodies on the cell surface has a better prognosis than those associated with intracellular antibodies. We report a case of 51 years old man who presented with epileptic seizures, new-onset alteration of mental status, and mild hyponatremia. Serum antibody testing on LG1 was positive. Brain MRI demonstrated T2-FLAIR hyperintense lesions in both medial temporal lobes. EEG evaluation revealed diffuse background slowing in frontotemporal parts of the brain of moderate severity. After administered high-dose intravenous (IV) methylprednisolone and plasma exchange, clinical symptoms were in mild regression.

Conclusion: This case report demonstrates that acute and subacute encephalopathy with dominant cognitive dysfunction followed by epileptic seizures can be caused by the immunologic reaction on LG1. Early recognition of symptoms and diagnosis is of great importance for treatment and a better prognosis.

Keywords: positive LGI1; limbic encephalitis

CHANGES IN SWEDISH GUIDELINES REGARDING MANAGEMENT OF ACUTE STROKE

Adin Osmancevic

Title:
CHANGES IN SWEDISH GUIDELINES REGARDING MANAGEMENT OF ACUTE STROKE

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Objective: The aim is to review the changes made to Swedish treatment guidelines regarding thrombectomy in acute stroke. Topic review Stroke and suspicion of stroke are among the most common reasons for a visit to the emergency department. A stroke is a medical condition where the normal function of the brain is acutely disrupted with symptoms for at least 24 h and the underlying cause is vascular. There are two types of stroke: ischemic and hemorrhagic. In Sweden, the incidence each year is 25 500 cases and globally stroke is the second most common cause of death. In recent years there has been a change in the Swedish guidelines regarding indication for Thrombectomy from within 6 hours to within 24 hours. This decision was based on studies showing that the acute interventions within 24 hours have the greatest effect on ischemic infarcts as well as having a cost effective and health gaining impact.

Conclusion: Results from the studies on which the changes in guidelines are based confirmed that thrombectomy is one of the interventions with the greatest effect in acute ischemic infarcts. It also showed that after suffering a stroke, patients became less dependent on support from other people and instances. Thrombectomy within 24 hours is also a cost-saving and safe intervention.

COGNITIVE IMPAIRMENT IN PATIENTS WITH MULTIPLE SCLEROSIS

Aida Sehanovic

Title:
COGNITIVE IMPAIRMENT IN PATIENTS WITH MULTIPLE SCLEROSIS

Authors:

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Background: Multiple sclerosis (MS) is a chronic, inflammatory, (auto) immune disease of the central nervous system (CNS). Cognitive impairment in MS is found in over 50% of patients.

Aim: The study aimed to determine the distribution of cognitive impairment in people with MS.

Materials and methods: The prospective study included 135 respondents with MS and 50 healthy respondents. The respondents were divided into three groups. Clinical assessment instruments were: EDSS, MMS, Wechsler Intelligence Scale, Revised Beta Test, Raven Colored Progressive Matrices, Wechsler Memory Scale, Rey Audio Verbal Learning Test -Osterriecht's complex character test, verbal fluency test.

Results: Cognitive impairment was present in 40-60% of respondents with MS. Visuospatial, visuoconstructive and visuoperceptive functions were worse in the first group. Mnestic functions were most affected in both groups, ranging from 30-to 60%. Poorer cognitive domains were present in the first groups. Immediate working process memory, attention, short-term and logical memory were worse in the examinees of the first group. Verbal fluency was impaired in 16% of respondents at the beginning of the disease, and as the disease progresses it becomes more frequent.

Conclusion: Cognitive impairment is heterogeneous, they can be noticed in the early stages of the disease. They refer to impairments of working memory, executive functions, and attention, while global intellectual efficiency is later reduced.

Keywords: multiple sclerosis, cognition, neurology

CRYPTOGENIC STROKE IN YOUNG ADULTS

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Title:
CRYPTOGENIC STROKE IN YOUNG ADULTS

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Background: The etiology of stroke in young adults differs from that in older patients, with the frequent prevalence of undetermined causes. Previous research has indicated a possible interaction of modifiable risk factors with several gene polymorphisms, among them, 1691G> A FV, FII G20210A, and APOE polymorphism, leading to an increasing number of stroke cases in young people.

Aim: We aimed to examine the most common etiologies and risk factors in young patients aged ≤ 50 who had an ischemic stroke from Bosnia and Herzegovina.
Materials and methods Cross-sectional study was conducted in 2018. at Neurology Clinic in Sarajevo. 90 stroke patients aged 20 to 50 years old were included. Data on modifiable factors were collected, then participants were genotyped for: APOE rs1412 and rs429358, FV rs6025 and rs1800595, and FII rs62623459.

Results: In our study, most common stroke subtype was a stroke of undetermined etiology (n = 50; 55.6.%). Smoking (n=66; 73.3%), hyperlipidemia (n=52; 57.8%) and hypertension (n=46; 51.1%) were most common modifiable risk factors. Our results did not show any significant differences in prevalence of genotypes: rs1412 and rs429358 APOE, rs6025 and rs1800595 FV and rs62623459 FII (each $p > 0.05$) according to stroke subtype.

Conclusion: High incidence of cryptogenic stroke in young adults implicates an objective necessity for more research in this area.

Keywords: Key words: stroke, young adults, risk factors, SNPs

CURRENT CONCEPTS IN ENDOVASCULAR STROKE MANAGEMENT

Deniz Bulja, Odej Ali Abud, Nevena Mahmutbegovic, Edina Dozic, Salko Zahirović, Almir Dzurlic

Title:
CURRENT CONCEPTS IN ENDOVASCULAR STROKE MANAGEMENT

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Despite several effective strategies for stroke prevention, the stroke epidemic still constitutes one of the leading causes of mortality and permanent disability. Stroke survivors and their families are often burdened with exorbitant rehabilitation costs, lost wages, and productivity, and limitations in their daily social activity. Timely treatment and intervention can minimize long-term disability by salvaging the at-risk penumbra and, consequently, reducing the associated morbidity and mortality. For more than 20 years the only proven causal treatment of acute ischemic stroke has been intravenous thrombolysis (IVT). However, its use has been limited by several factors like the narrow time window after stroke onset and the only moderate recanalization rate, especially in the proximal arteries. A series of well-designed and well-conducted randomized controlled trials (RCT), and individual patient meta-analyses published in 2015 or later concluded convincingly that endovascular thrombectomy (EVT) with standard medical treatment is more effective than standard medical treatment alone for severe acute stroke caused by large-vessel occlusion in the anterior circulation. Safe recanalization of occluded posterior circulation vessels has been reported within 24 hours after the onset of brain stem infarction. The overall approach in acute stroke management necessitates good knowledge of cerebrovascular anatomy, physiology, and pathophysiology, proper education with adopted necessary skills in interventional neuroradiology treatment of stroke, management of potential complications, and the establishment of an overall acute stroke management pathway with 24/7 availability as it is the case with prompt coronary interventions.

Keywords: endovascular treatment, thrombectomy, stroke management

EMBOLIC STROKE DUE TO INTERNAL CAROTID DISSECTION: CASE REPORT (MARFAN SYNDROME)

Lejla Redzic, Nerimana Sujkanovic, Zejneba Pasic, Zikrija Dostovic

Title:
EMBOLIC STROKE DUE TO INTERNAL CAROTID DISSECTION: CASE REPORT (MARFAN SYNDROME)

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Introduction: Cervicocerebral arterial dissections (CAD) are an important cause of strokes in younger patients accounting for nearly 20% of strokes in patients under the age of 45 years. CAD is an under-recognized cause of stroke.

Case report: We described a 52-year-old male patient who developed right CAD. On admission, the neurological examination revealed central facial palsy, left homonymous hemianopsia, plegia of the left arm, and severe paresis of the left leg. Magnetic resonance imaging of the brain and computed tomography angiogram of the blood vessels brain and neck confirmed the ischemic lesion and a possible intramural hematoma in the right ACI area, all of which are highly suspicious of right ACI dissection. Ultrasound of neck blood vessels indicates the presence of an intramural thrombus that propagates into the carotid basin on the right and stenoses the lumen by up to 90%. The inspection revealed a very long neck, mild pectus exacavatum, scoliosis of the thoracic spine, scanty subcutaneous fat, elevated arch of the upper palate, long and thin fingers and toes, elongated limbs, which led us to think about Marfan's syndrome. He was treated with anticoagulant therapy. Clinical and ultrasound recovery is noted, and he was discharged with a recommendation to continue anticoagulant therapy with regular INR monitoring.

Conclusion: Early detection of dissection is crucial for the timely inclusion of anticoagulant therapy to minimize the risk of infarction, neurological deficit, and death.

Keywords: Internal carotid artery dissection, embolic stroke, diagnostic, treatment

FAHR'S DISEASE AND ISCHEMIC STROKE

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Title:
FAHR'S DISEASE AND ISCHEMIC STROKE

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Objective: We aim to present a rare case of acute ischemic stroke associated with Fahr's disease and to indicate this disease as a possible etiology in similar cases.

Topic review: Fahr's disease is a rare neurodegenerative disorder characterized by diffuse, symmetric intracranial calcium deposition and associated cell loss mainly in bilateral basal ganglia and dentate nuclei of the cerebellum. Patients usually present with chronic, progressive cognitive deterioration, psychiatric problems, and extrapyramidal symptoms. The precise mechanism is not fully clear.
We present a case of a 37-year-old female patient with sensorimotor dysphasia and right-side hemiparesis. She was previously diagnosed with diabetes mellitus and terminal stage of kidney failure. Brain MRI showed symmetrical calcifications in bilateral basal ganglia and cerebellum and lacunar stroke. Laboratory examinations showed metabolic ketoacidosis, episodes of hypoglycemia and hyperglycemia, and elevated cortisol levels. Because of the severe ketoacidosis, she was transferred to the intensive care unit. Her condition is still following.

Conclusion: The association between ischemic stroke and Fahr's disease has yet to be determined. Nevertheless, the true prevalence of acute ischemic stroke in Fahr's disease remains unknown due to the lack of large-scale study.

Keywords: Fahr's disease; Young stroke

GUILLIAIN-BARRÉ SYNDROME AS A COMPLICATION OF COVID 19 INFECTION

Amina Kacar

Title:
GUILLIAIN-BARRÉ SYNDROME AS A COMPLICATION OF COVID 19 INFECTION

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Objective: We aim to present a rare case of acute motor axonal neuropathy (AMAN), as an unusual neurological complication of COVID 19 infection

Topic review: There is a growing recognition that coronavirus-2 (SARS-CoV-2) infection can lead to both acute and long-term neurological sequelae. Proposed mechanisms of SARS-CoV-2-associated neurological complications include direct neuroinvasion, and indirect mechanisms of vascular and inflammatory/autoimmune origin. We are presenting a case of 55 years old male patient, admitted with progressive muscle weakness of extremities, associated with tingling in the palms and both hands. Symptoms started three days before admission. Three weeks ago he had a fever that lasted two days and the PCR test on SARS CoV2 was positive. During hospitalization, we performed an extensive diagnostic evaluation, and the patient was diagnosed with acute motor axonal neuropathy (AMAN) most likely caused by COVID 19 infection, as a key stimulation factor. The patient was treated with five cycles of therapeutic plasma exchange, after which there was a significant recovery of neurological findings.

Conclusion: Results of several studies showed that COVID 19 may be a stimulatory factor for neurological complications. Quick recognition of symptoms and diagnosis is important in the management of Guillain-Barré syndrome associated with COVID 19.

Keywords: Guillain-barre syndrome, COVID-19; SARS -CoV-2

IMPROVEMENT OF STROKE THROMBOLYSIS RATE IN THE DEVELOPING COUNTRY: A HOSPITAL-BASED OBSERVATION STUDY

Marija Bender, Stjepan Covic, Matea Baranik, Sandra Lakikicevic, Inge Klupka-Saric

Title:
IMPROVEMENT OF STROKE THROMBOLYSIS RATE IN THE DEVELOPING COUNTRY: A HOSPITAL-BASED OBSERVATION STUDY

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Background: Intravenous thrombolytic therapy after ischaemic stroke significantly improves functional outcomes, reduces mortality, and is the first-line treatment worldwide since 1996. Despite the revolutionary development of stroke treatment, many regions have not made the necessary shift in improving the quality of stroke care. The burden of stroke is higher in developing countries, and the rate of thrombolytic treatment of ischaemic stroke is significantly lower compared to high-income countries.

Aim: We aimed to assess the trends in thrombolysis rates and door-to-needle times between 2013 and 2021 in University Hospital Mostar.

Materials and Methods: We used data from the University Hospital Mostar Registry. Information on the number of ischaemic stroke patients, intravenous thrombolysis rates, and „door-to-needle times" (DNT) was collected between January 2013 and December 2021.

Results: From January 1, 2013, to December 31, 2021, alteplase was given to 130 patients out of a total of 3100 ischaemic stroke patients, giving a thrombolysis rate of 4.2%. The mean hospital thrombolysis rate increased from 2.4 % in 2013 to 10.6 % in 2021.
Conclusion: Intravenous thrombolysis rates in University Hospital Mostar more than quadrupled between 2013 and 2021, and DNT also showed a significant decline in the study period.

Keywords: Ischaemic stroke, Developing country, Thrombolysis, Door-to-needle time

LEPTOMENINGEAL CARCINOMATOSIS (LMD) IN GASTRIC CANCER

Nejra Masic

Title:
LEPTOMENINGEAL CARCINOMATOSIS (LMD) IN GASTRIC CANCER

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Objective: In this review, we summarize current knowledge on clinical presentation, diagnostic approach, and management of leptomeningeal carcinomatosis is a rare complication of gastric cancer.

Topic review: Leptomeningeal disease is a rare but frequently devastating complication of advanced cancer, most commonly lung cancer, breast cancer, and melanoma. Patients can present with a broad range of signs and symptoms due to the simultaneous involvement of multiple areas of the craniospinal axis. We herein report a rare presentation of leptomeningeal carcinomatosis in 54 years old female patient, who felt gradually intensifying weakness and tingling in her upper and lower extremities for three weeks before admission. The patient was diagnosed with gastric cancer in March 2020 and underwent four cycles of chemotherapy and total gastrectomy. We performed an extensive diagnostic evaluation and neuroimaging revealed infiltration of the leptomeninges in the field of the underlying pathological process — gastric cancer. LMD is traditionally a late-stage complication of advanced cancer with a median survival of several months.

Conclusion: The main challenge in the diagnosis and management of LMD is the wide range of symptoms and rapid deterioration of clinical presentation. The natural history of central nervous system (CNS) metastasis is evolving with improvements in systemic cancer therapies, however, particularly for certain cancer subtypes, the therapeutic possibilities remain limited.

Keywords: Leptomeningeal carcinomatosis; gastric cancer

MULTIPLE SCLEROSIS DURING COVID-19 PANDEMIC

Enra Mehmedika Suljic

Title:
MULTIPLE SCLEROSIS DURING COVID-19 PANDEMIC

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The objective of review: In this review, we summarize current knowledge on the approach and evaluation of patients diagnosed with multiple sclerosis (MS), their treatment, and recommendations for vaccination during the period of the COVID 19 pandemic.

Topic review: COVID-19 pandemic has been a challenging period, especially for people suffering from chronic diseases. Multiple sclerosis (MS) is the most common chronic inflammatory demyelinating disease of the central nervous system. The disease can be active at any time, either in terms of exacerbation- relapses, or in terms of continuous progression, that may or may not be accompanied by relapses. Therefore, it is important that in addition to treating exacerbations, patients also receive disease-modifying medications, which affect the course of the disease. In this regard, there are recommendations considering the safe use of immunomodulatory drugs in periods of the active pandemic, and especially for the use of COVID-19 vaccines in MS patients who are about to start immunomodulatory treatment or have been already using it.

Conclusion: COVID-19 pandemic raised questions regarding the safe use of immunomodulatory therapy that is essential in MS treatment. Moreover, awareness of the safe use of COVID-19 vaccines in patients on chronic immunomodulatory therapy has still been ambiguous. Therefore, an overview of the current knowledge is indispensable.

Keywords: multiple sclerosis; COVID-19; SARS -CoV-2

POST-STROKE EPILEPSY

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Title:
POST-STROKE EPILEPSY

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The objective of review: This review summarizes recent advances in our understanding of post-stroke epilepsy (PSE) and provides up-to-date information on PSE issues such as epidemiology, risk factors, diagnosis, treatment, and prognosis.

Topic review: Stroke is one of the most common causes of unprovoked seizures and epilepsy in older adults. With an aging population and age itself being an independent risk factor for stroke, the incidence and prevalence of seizures after stroke and epilepsy after stroke are likely to increase. Depending on the type of cerebrovascular disease, 8-15% of stroke patients may develop post-stroke epilepsy. Risk factors for unprovoked seizures and post-stroke epilepsy include younger age, larger and more severe strokes involving the cortex, hemorrhagic stroke, and acute symptomatic seizures. Patients with epilepsy after stroke differ in several respects from patients with other forms of structural-metabolic epilepsy. The choice of the ideal anti-seizure drug in this group of epilepsy patients should not only rely on efficacy, but should also take into account adverse effects, altered pharmacodynamics in the elderly, and the impact on underlying vascular comorbidity.

Conclusion: Recently, there has been remarkable activity in the study of post-stroke epilepsy. Studies on the treatment and prognosis of PSE are emerging and PSE shows signs of maturation in an independent area of epilepsy research.

Keywords: stroke, epilepsy, post-stroke seizures, post-stroke epilepsy

SERUM NEUROFILAMENT AS A BIOMARKER OF DISEASE ACTIVITY AND TREATMENT SUCCESS IN PATIENTS WITH MULTIPLE SCLEROSIS

Admir Mehicevic

Title:
SERUM NEUROFILAMENT AS A BIOMARKER OF DISEASE ACTIVITY AND TREATMENT SUCCESS IN PATIENTS WITH MULTIPLE SCLEROSIS

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The objective of review: In this review, we summarize current knowledge on the values of serum neurofilament as a biomarker of disease activity and treatment success in patients with multiple sclerosis (MS).

Topic review: Currently, about 2.5 million people worldwide suffer from multiple sclerosis. Immunomodulatory treatment of the disease requires adequate monitoring of disease progression and treatment effect. The importance of monitoring disease activity and the efficacy of immunomodulatory therapy has resulted in the need to find a new biomarker for disease monitoring. Previous studies indicate that the level of serum neurofilament can be considered a simple and rapid way of monitoring disease progression and the effectiveness of treatment of patients with MS.

Conclusion: We expect that the availability of such measurements will significantly reduce the use of MRI in monitoring patients with MS, the cost of inadequate treatment, and facilitate the timely replacement of immunomodulatory therapy, which would ultimately reduce chronic disease progression and disability.

Keywords: multiple sclerosis, neurofilament light, biomarker

STROKE TREATMENT: MONITORING AND AMPLIFICATION OF THROMBOLYTIC THERAPY WITH ULTRASOUND

Aida Kantardzic Sehic

Title:
STROKE TREATMENT: MONITORING AND AMPLIFICATION OF THROMBOLYTIC THERAPY WITH ULTRASOUND

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Objective of review: In this review, we summarize current knowledge on monitoring and amplification of thrombolytic therapy with ultrasound

Topic review: For the identification of stroke pathogenic mechanisms, transcranial Doppler (TCD) is used as an extension of the neurological examination to provide diagnostic information that is helpful in occlusion localization and hemodynamic reserve. TCD has been recently used for ultrasound-enhanced thrombolysis that includes improved drug transport, reversible alteration of fibrin structure, and increased TPA binding to fibrin. In stroke patients treated with intravenous TPA, continuous TCD monitoring of intracranial occlusion safely augments TPA-induced arterial recanalization that is coupled with early dramatic clinical recovery. New studies have been done using continuous TCD monitoring combined with air microspheres. Microspheres, TCD, and TPA compare favorably with concurrent and historic controls receiving TPA alone. Microspheres combined with ultrasound may represent a more effective treatment initiation strategy that will help develop an intravenous–intra-arterial approach to recanalize thrombi most resistant to fibrinolysis alone.

Conclusion: Ultrasound can amplify the existing therapy for ischemic stroke with early brain perfusion augmentation, complete recanalization, and dramatic clinical recovery.

Keywords: Stroke, TCD, air microspheres, TPA

THE IMPORTANCE OF SPINAL LESIONS IN MONITORING THE PROGRESSION OF MULTIPLE SCLEROSIS

Naida Spahovic, Deniz Bulja, Odej Ali Abud, Maida Niksic, Enra Mehmedika- Suljic, Sandra Vegar-Zubovic, Selma Milisic

Title:
THE IMPORTANCE OF SPINAL LESIONS IN MONITORING THE PROGRESSION OF MULTIPLE SCLEROSIS

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Objective: In this review, we summarize current knowledge of the clinical and radiological significance of spinal demyelinating lesions in monitoring the progression of multiple sclerosis

Topic review: A number of pathological abnormalities, including demyelination and neuroaxonal loss, occur in the spinal cord, causing motor, sensory and autonomic dysfunction. Advances in conventional spinal cord MRI include improved identification of MS lesions, recommended spinal cord MRI protocols, and enhanced recognition of MRI lesion characteristics that allow MS to be distinguished from other myelopathies. The rate of spinal cord atrophy is greater than that of brain atrophy, suggesting that it can become an important outcome measure in clinical trials, especially in progressive MS. Recent developments allow the calculation of spinal cord atrophy from brain volumetric scans and evaluation of its progression over time with registration-based techniques.

Conclusion: Advances in quantitative imaging techniques to evaluate neuroaxonal integrity, myelin content, metabolic changes, and functional connectivity, have provided new insights into the mechanisms of damage in MS. Future directions of research and the possible impact of 7T scanners on spinal cord imaging will be discussed.

Keywords: multiple sclerosis; progressive relapsing

UNDERSTANDING AND MEASUREMENT STRATEGIES IN MULTIPLE SCLEROSIS PROGRESSION

Selma Sabanagic Hajric

Title:
UNDERSTANDING AND MEASUREMENT STRATEGIES IN MULTIPLE SCLEROSIS PROGRESSION

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Objective of review: In this review, we summarize current knowledge on the approach and definition of progression in multiple sclerosis (MS).

Topic review: In order to provide a time-based assessment of the current status of the disease, definitions of Clinical courses of multiple sclerosis (MS) were made in 1996 and updated in 2013. Since then, modifiers of activity and progression and clarification of the difference between the terms worsening and progressing are highlighted. Since 2013, MS phenotypes are classified as a clinically isolated syndrome (CIS), relapsing-remitting MS (RRMS), primary progressive MS (PPMS), and secondary progressive multiple sclerosis (SPMS). Within those phenotypes, the current disease state is also described by assessment of activity and progression as active, progressing, and worsening disease. Active disease is clinically defined as the presence of relapses and/or magnetic resonance imaging (MRI) confirmed gadolinium-enhancing lesions or new or unequivocally enlarging T2 lesions. Progressing disease is defined as the accumulation of disability, independent of any relapse activity, during the progressive phase of MS (PPMS or SPMS).

Conclusion: Since studies results show that the most of overall disability accumulation in multiple sclerosis is due to an underlying progressive disease course independent of relapse activity, it is important to have more sensitive approaches in disease progression measurements, neuropsychological assessments, and biomarkers.

Keywords: multiple sclerosis; disease progression

UPDATE OF REVISED CRITERIA FOR INTRAVENOUS THROMBOLYSIS ON ACUTE ISCHAEMIC STROKE

Edina Djozic

Title:
UPDATE OF REVISED CRITERIA FOR INTRAVENOUS THROMBOLYSIS ON ACUTE ISCHAEMIC STROKE

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Objective: In this review, we summarize current knowledge about the criteria for intravenous thrombolysis for acute ischaemic stroke /AIS/.

Topic review: Thrombolysis with intravenous tissue-type plasminogen activator (IV tPA) is the only approved treatment for patients with acute ischemic stroke (AIS). Since the first version of European Stroke Organisation (ESO) guidelines on intravenous thrombolysis for AIS was issued significant progress has been made. On February 19th, 2021, the ESO published a new guideline on intravenous thrombolysis for AIS. The new guideline makes forty specific recommendations for stroke treatment. We would outline that the authors of the guideline found high-quality evidence to recommend intravenous thrombolysis with alteplase to improve functional outcomes in patients with AIS within 4.5 h after symptom onset as well as high-quality evidence to recommend intravenous thrombolysis with alteplase in patients with AIS on awakening from sleep, who were last seen well more than 4.5 h earlier, who have MRI DWI-FLAIR mismatch, and for whom mechanical thrombectomy is not planned.

Conclusion: These guidelines provide further recommendations regarding patient subgroups, late time windows, imaging selection strategies, and relative and absolute contraindications to alteplase.

Keywords: stroke, intravenous thrombolysis, alteplase

ACTA MEDICA SALINIANA

OPHTHALMOLOGY

A NEW SUCCESSFUL APPROACH FOR EMMETROPIC PRESBYOPIC PATIENTS USING INTRASTROMAL POCKET WITH SMILE MODULE-LONG TERM FOLLOW-UP

Faruk Semiz, Anita Syla Lokaj, Njomza Hima Musa, Ceren Ece Semiz, Zekeriya Alp Demirsoy, Olcay Semiz

Title:
A NEW SUCCESSFUL APPROACH FOR EMMETROPIC PRESBYOPIC PATIENTS USING INTRASTROMAL POCKET WITH SMILE MODULE-LONG TERM FOLLOW-UP

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Running title:
SMILE for Emmetropic Presbyopic Patients
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Purpose: Since presbyopia is a natural aging process, its incidence increases as the world population increases and the elderly population increases. Our study aimed to create an intrastromal pocket by using Smile in the corneas of presbyopic emmetropic patients by increasing the elasticity of negative Q corneal values and shaping the cornea to sharpen near vision without impairing distance vision. And also to show that, with the Smile module, effective alternative treatment for provided for patients with emmetropic presbyopic.

Patients and Methods: This study included 60 eyes of 30 patients (40–50 years old) with an emmetropic presbyopic who visited the Pristina Eye Hospital between 2018 and 2019. VisuMax femtosecond laser created a stromal pocket with a diameter of 7.60 mm and a cover thickness of 120 μm from the corneal surface and a 2-mm incision. The pocket was dissected using a blunt spatula.

Results: The study population included 16 female (53.3%) and 14 male (46.7%) patients. Negative Q value increased from -0.38 ± 0.07 [-0.52 to -0.26] in pre-op to -0.48 ± 0.08 [-0.64 to -0.31] 1-year post-op. The preop and postop uncorrected visual acuity were measured at two distances (35 cm and 70 cm) in all patients, and visual acuity was significantly better in photopic and mesopic conditions at 1-year postop ($p < 0.001$). Moreover, besides, binocular 100-word reading speeds increased significantly after 1-year postop ($p < 0.001$).

Conclusions: Our presbyopic treatment shows that intrastromal pocket preparation using the SMILE module by increasing negative Q corneal values without changing the distance visual acuity for emmetropic patients improved presbyopia.

EFFECTIVE SMALL INCISION LENTICULE EXTRACTION (SMILE) TREATMENT OF RESIDUAL MYOPIC REFRACTIVE ERRORS AT PSEUDOPHAKIC PATIENTS

Anita Syla Lokaj, Faruk Semiz, Njomza Hima Musa, Ceren Ece Semiz, Olcay Semiz

Title:
EFFECTIVE SMALL INCISION LENTICULE EXTRACTION (SMILE) TREATMENT OF RESIDUAL MYOPIC REFRACTIVE ERRORS AT PSEUDOPHAKIC PATIENTS

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Purpose: The aim of this study is to improve visual acuity in pseudophakic (IOL) patients who have residual myopic refraction after 3 months of surgery using SMILE module.

Methods: 208 eyes of 150 consecutive patients who underwent pseudophakic (IOL) implantation such as trifocal, multifocal, and monofocal were included in this retrospective study. All residual myopic eyes underwent SMILE surgery.

Result: The age of patients was between 53 and 82 years, and the pre-operative residual myopic refraction was between -0.75 D and -5.50D. Two hundred eight eyes were followed after SMILE for two years. There was a significant increase in UDVA (uncorrected visual acuity) from (0.51±0.18 to 0.01±0.02) LogMAR $p<0.001$). Moreover, patients satisfaction improved.

Conclusion: Smile surgery is the most reliable method in the treatment of pseudophakic residual refractions. It also increases patient satisfaction and vision in a short time.
Clinical trial Reg: NCT04693663

Keywords: SMILE in pseudophakic patients, trifocal, multifocal, monofocal IOL, residual refraction, refractive surgery

INFLUENCE OF DRY EYE DISEASE ON EPITHELIAL MAPPING AND CORNEAL PARAMETERS

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Title:
INFLUENCE OF DRY EYE DISEASE ON EPITHELIAL MAPPING AND CORNEAL PARAMETERS

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Background: Dry eye disease (DED) is a common ocular surface disease for which different methods to objectify it are still being investigated.

Aim: To investigate whether anterior segment optical coherence tomography (AS OCT) epithelial thickness mapping (ETM) may be an objective tool to diagnose DED, as well as to compare the consistency of corneal parameters with age-matched healthy patients.
Materials and Methods: The study included 36 eyes with DED and 36 healthy eyes. Female patients, aged 40 to 65, without ocular pathology were included. Patients underwent the ocular surface disease index questionnaire, non-invasive tear breakup time test, Schirmer test, AS OCT, corneal tomography, optical biometry, and DED group also Oxford and Lyssamine green test. Epithelium within the 5-mm and 7-mm zone was analysed, and corneal parameters on IOLMaster, corneal tomography and equivalent K-reading (EKR) Holladay Detailed Report were compared.

Results: Epithelial thickness parameters were lower in DED group, with statistical significance of minimal epithelial thickness both on 5-mm (p=0,0369) and 7-mm map (p=0,0431). Inferior epithelial thickness on 7-mm map showed significantly lower values in DED group, measuring 51,95±3,46 μm (p=0,0199), in comparison to control group (55,12±3,83 μm). When comparing Pentacam steep keratometry and mean astigmatism values on EKR Holladay Detailed Report, as well as anterior corneal surface measurements, significant differences were found in both groups (p<0,001 for both variables).

Conclusion: ETM demonstrated that corneal epithelium parameters were thinner in DED group. AS OCT epithelial mapping could be a very useful tool for detecting and following patients with dry eye disease.

Keywords: Epithelial thickness, dry eye disease, anterior segment OCT, epithelium thickness map

STROMAL LENTICULE IMPLANTATION USING SMILE SURGERY FOR MANAGEMENT OF STROMAL HERPETIC KERATITIS-THREE YEAR RESULTS

Anita Syla Lokaj, Faruk Semiz, Njomza Hima Musa, Ceren Ece Semiz, Olcay Semiz

Title:
STROMAL LENTICULE IMPLANTATION USING SMILE SURGERY FOR MANAGEMENT OF STROMAL HERPETIC KERATITIS-THREE YEAR RESULTS

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Purpose: To evaluate corneal transparency, improve visual acuity, and whether there is recurrence by removing the corneal scar after herpetic infection with a smile and implanting the lenticule equal to the volume of the removed scar tissue.

Methods: First, the thickness of the herpetic stromal scar in the cornea is calculated in microns in OCT, and accordingly, extraction is performed with SMILE, and a new lenticular stromal pocket is placed in the same volume. This study started in January 2017. 35 eyes of 35 patients, aged 21-46 years, participated in this study. AS-OCT was evaluated using corneal topography and glass corrected best visual acuity (BSCVA) measurements and electron microscopy. Postoperative complications were recorded during the follow-up period.

Results: Stromal haze and scar had successfully been sealed in that patient; a patient exhibited improved postoperative BSCVA. During the follow-up period of three years, no signs of recurrence or infections were detected in this patient.

Conclusions: These early findings suggest that the use of corneal stromal lenticules with stromal stem cells and live keratocytes could be a safe and efficient surgical adjuvant for stromal scar after herpetic keratitis with potential clinical application, as relatively simple and low-cost procedures that offer advantages over corneal transplantation as a definitive procedure in the treatment of this disease.
Clinical trial reg : NCT05156151

Keywords: stromal lenticule implantation, Relex Smile, stem cells, herpetic keratitis

TREATMENT OF APHAKIC PATIENTS WITH INTRASTROMAL LENTICULE IMPLANTATION USING SMILE SURGERY

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Title:
TREATMENT OF APHAKIC PATIENTS WITH INTRASTROMAL LENTICULE IMPLANTATION USING SMILE SURGERY

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Purpose: To investigate patient satisfaction and vision improvement by performing intrastromal fresh myopic lenticule implantation in aphakic patients using Smile.

Methods: Eye Hospital Pristina was performed in 13 eyes of 13 patients aged 18 and 35 years. Corrected and uncorrected visions were obtained preoperatively. When calculating diopters in aphakic patients, we determine the lenticule thickness to be added by considering variables such as AC (anterior chamber distance), K values, lens bag distance, and cornea thickness. Since there is no lens in the eye, all the task falls on the cornea. VisuMax femtosecond laser created the stromal pocket with a diameter 7.50 mm and cap thickness set to 120 μm from corneal surface and with a small opening - 3 mm superior incision at 90° and side cut angle 50°. The pocket was dissected using a blunt spatula. The lenticule was held with lenticule forceps and gently inserted into the pocket through the 3 mm superior incision.

Results: The patients were followed up for one year. There were no complications. Postoperative uncorrected vision increased to 4 lines in 7 eyes and improved to 5 lines in 6 eyes. Patient satisfaction has increased. We think statistics and formulations for calculating implanted lenticule thickness in aphakic eyes can be easily obtained in future studies with more patients and longer follow-ups.

Conclusion: Intrastromal lenticule implantation is a feasible and complication-free treatment method in aphakic patients. However, more patients should be studied in order to calculate the lenticule to be implanted accurately.
ClinicalTrials.gov Identifier: NCT05115058

Keywords: lenticule, aphakic, VisuMax, SMILE surgery

ANATOMICAL AND VISUAL OUTCOMES OF PARS PLANA VITRECTOMY (PPV) IN COMBINATION WITH INTERNAL LIMITING MEMBRANE PEELING ALONE (ILM) IN THE SURGICAL TREATMENT OF MACULAR HOLES

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ISSN 0350-364X

Title:
ANATOMICAL AND VISUAL OUTCOMES OF PARS PLANA VITRECTOMY (PPV) IN COMBINATION WITH INTERNAL LIMITING MEMBRANE PEELING ALONE (ILM) IN THE SURGICAL TREATMENT OF MACULAR HOLES

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Purpose: To present anatomical and visual outcomes of pars plana vitrectomy (PPV) in combination with internal limiting membrane peeling alone (ILM) in surgical treatment of macular holes. Size of a macular hole is important for choosing the surgical tehnique. It is measured with Optical Coherence Tomography (OCT), disease duration, preoperative visual acuity and earlier results of surgical repairs

Materials and methods: PPV with ILM peeling alone was performed in a patient suffering of a macular hole woth a size less than 300 μm and disease duration less than 60 days. According to the success of closing the macular hole and the improvement of visual function compared to the primary state, the postoperative results were analyzed.

Results: The results have shown that the patient has had a successful closing of the macular hole with mean visual functional improvement of 0.4 (Snellen).

Conclusion: In treating of a macular hole, the PPV is a successful surgical method. There exist different factors that can influence the surgical tehnique; size of the macular hole, duration of the disease and earlier results of surgical repair significantly influence the surgical success.

Keywords: pars plana vitrectomy, internal limiting membrane peeling alone, macular hole

ACTA MEDICA SALINIANA

ORTHOPEDICS

A CASE OF GIANT MYXOID LIPOSARCOMA IN YOUNG MALE: DIAGNOSIS AND TREATMENT

Benjamin Kaknjasevic, Dzemil Omerovic, Tarik Selimovic, Amir Ahmetovic, Nedim Mujanovic, Amel Hadzimehmedagic

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A CASE OF GIANT MYXOID LIPOSARCOMA IN YOUNG MALE: DIAGNOSIS AND TREATMENT

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The objective of review: Liposarcoma is the second most commonly diagnosed soft tissue sarcoma. Most patients are adults older than 50 years old and complain of a large, painless, deep-seated mass located proximally in the extremities. Histologic subtypes include well-differentiated liposarcoma, myxoid liposarcoma, round cell liposarcoma, and pleomorphic liposarcoma.

Topic review: A 29-year-old male presented with a large, painless mass in the proximal and middle third of the left femoral adductor region. The mass is progressively increasing in size over the last two years. CT scans show a large tumorous mass in the anterior and medial compartments of the left thigh. Intraoperatively, a large solid mass infiltrated m. sartorius and m. vastus medialis, femoral vessels were intact, and the mass was extirpated in toto with infiltrated muscles. The histopathologic result shows myxoid liposarcoma G3. Myxoid liposarcomas generally most often occur in the thigh region but have a tendency to occur in the retroperitoneum. MRI is nonspecific. Similar to most soft-tissue sarcomas, the metastases occur in the lungs but are most common in the retroperitoneum, contralateral leg, or bone. The treatment is wide local excision. Lung, abdomen, and pelvis CT scans should be included in patient follow-up. Patients with high-grade lesions have a 60% 5-year survival rate.

Conclusion: Liposarcomas most commonly occur as deep-seated lesions in the proximal aspect of the extremity, primarily the thigh. Before surgery, a biopsy is indicated. The main goal of the surgery is wide.

Keywords: Myxoid liposarcoma, thigh region, surgical treatment, 5-year survival rate

CROSS -BORDER TRAUMA CARE (CBTC) AND CROSS-BORDER MAJOR INCIDENT CARE (CBMIC)

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Title:
CROSS -BORDER TRAUMA CARE (CBTC) AND CROSS-BORDER MAJOR INCIDENT CARE (CBMIC)

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Differences in treatment concepts, organisation and equipment in prehospital and hospital health care exist in Europe. This lead to different for example trauma mortality measured by objective method according to the ISS and RTS. To reduce mortality and improve organisation and treatment concepts of trauma care in Europe it is necessary to raise cross-border coordination, communication and collaboration on higher level which includes both prehospital and hospital trauma care systems. Some regions in Europe are examples how we can improve trauma care system by simple and economically low cost model. Objective will result in reduced mortality in accident that occurs. Cross-border regulations are important because in some situations in the European Union, the most appropriate or the most accessible health care happens to be in another Member State. The overall goal of the Cross-border trauma care (CBTC) project is to improve safety, quality and efficiency in acute trauma care. Same model will be used for improving Major Incident and Disaster Response in Europe (BMIC). EU Patients' Rights Directive implemented on an EU wide basis in October 2013. This directive has been the pioneer in cross-border regulations at the EU level. With the implementation of this directive, political, financial and organizational barriers have been reduced in cross-border health care. On a day 25th july 2021 year we organise a Medical Response to Major Incident because of a huge bus crush near Slavonski Brod were all citisens were from Republic of Kosovo. We received a total number of 42 patients in a 90 minutes at our hospital. All of them get appropriate medical care according to the MRMI principles and ATLS and DSTC trauma care protocols. Same day we received highest ISS score injured patient from Bosnia and Herzegovina, 6 year girl. Principles of Cross-border trauma care were engage fully. Girl from Bosanski Brod after 6 moths of hospital care in Croatia came home in good health.

Conclusion: Principles of Cross-border trauma care and also Cross-border Major Incidents Care should be implement between European states. Collaboration between Croatia nad Bosnia and Croatia and Kosovo in this case is best example.

ACTA MEDICA SALINIANA

PEDIATRICS

2 CASES OF CONGENITAL DIAPHRAGMNATIC HERNIA TREATED WITH THERAPEUTIC INDUCED HYPOTHERMIA FOR HIE BEFORE SURGERY

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ISSN 0350-364X

Title:
2 CASES OF CONGENITAL DIAPHRAGMATIC HERNIA TREATED WITH THERAPEUTIC INDUCED HYPOTHERMIA FOR HIE BEFORE SURGERY

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Background: This case report describes two asphyxiated patients with congenital diaphragmatic hernia treated with mild induced therapeutic hypothermia for 72 hours before surgery. Although induced moderate hypothermia is a standard for treatment of HIE, there are no RCTs for newborns with congenital malformation requiring surgery. Furthermore, respiratory or cardiovascular life-threatening abnormalities are contraindicated and pulmonary hypertension is considered a relative contraindication.

Case presentation: Case 1. A baby boy conceived by IVF, born via Cesarian section, underwent surgical repair on the 6th day after hypothermia treatment and stabilization. The baby required adhesiolysis to treat volvulus on the 11th day of hospitalization. On discharge, he had mildly diminished muscle tone and reflexes. Brain ultrasound and MRI were normal.

Case 2. Baby girl, born via vaginal delivery, underwent surgical diaphragm reconstruction with latissimus dorsi muscle on the 5th day of hospitalization. Following surgery, as the trial of conventional ventilation failed, high oscillatory ventilation was applied for 2 days. On the 8th day, the baby girl has weaned off a respirator and was treated with CPAP. The postoperative period was complicated by sepsis (Serratia marcensens). Brain ultrasound and MRI showed enhanced echogenicity in basal ganglia. On discharge, she was hypotonic with diminished reflexes.

Conclusion: apart from other possible side effects of moderate hypothermia, the main concern in the case of diaphragmatic hernia was pulmonary hypertension. However, both infants were successfully stabilized before surgery. It cannot be determined whether mild hypothermia increased the susceptibility to infection in the second case.

CONGENITAL CYTOMEGALOVIRUS INFECTION

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Title:
CONGENITAL CYTOMEGALOVIRUS INFECTION

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Objective of the review: Congenital cytomegalovirus (CMV) infection is one of the most common causes of long-term sequelae and death in childhood and it is necessary to increase awareness of health professionals about early detection of congenital CMV infection.

Topic Review: Congenital CMV is the leading non-genetic cause of sensorineural hearing loss. Worldwide, the birth prevalence of CMV is estimated at 7 per 1,000 births. Approximately 10% of infected infants have symptoms at birth, and about half of them will have significant neurodevelopmental impairment. Of infants who are asymptomatic at birth, approximately 10% have long-term consequences including sensorineural hearing loss in childhood. There is sufficient evidence to recommend treatment for infants with symptomatic congenital CMV with neurological involvement, as this may improve hearing and neurodevelopmental outcomes. The evidence is based on the use of intravenous ganciclovir or oral valganciclovir starting within the first 4 weeks of life and it is therefore important to make an early diagnosis when possible. Recent research suggests that the best outcomes result from a six-month course of treatment compared to previous regimens that used a shorter course of six weeks.

Conclusion: As congenital CMV infection at birth is asymptomatic in 90% of cases, neonatal screening is the best way for early detection and timely treatment. There is currently no universal screening program for CMV, consequently, every hospital makes its own protocols.

Keywords: Cytomegalovirus, congenital infection, valganciclovir, screening

COVID 19 AND DIABETES IN CHILDREN

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Title:
COVID 19 AND DIABETES IN CHILDREN

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Background: According to many studies in the adult population, diabetes mellitus has been recognized as one of the most common comorbidities in Covid-19, associated with a more severe clinical course and an unfavorable outcome. The data regarding children population are scarce. The pathophysiological pathway of type 1 diabetes is the autoimmune destruction of beta cells, often provoked by a previous viral infection. It is known that the SARS-CoV-2 virus enters beta cells via ACE-2 receptors, the expression of which has been confirmed in pancreatic islet tissue. Recent studies report an increase in the incidence of new-onset type 1 diabetes during the Covid-19 pandemic.

Aim: To present the incidence of new-onset type 1 diabetes mellitus in children of Zenica-Doboj Canton during the Covid-19 pandemic.

Materials and methods: We performed a six-year retrospective review of the medical records of all children with newly diagnosed type 1 diabetes mellitus in our Canton, which included two years of the pandemic and four previous years.

Results: In the period from 2016 to 2021, a total of 69 children with new-onset type 1 diabetes were registered in our Canton. The average incidence during the first four observed years has increased from 2.76 to 4.01/100000 in the last two, with a peak in the second year of the pandemic (5.80).

Conclusion: The incidence of new-onset type 1 diabetes in children of Zenica-Doboj Canton has increased during the pandemic period. Covid-19 could be a trigger for autoimmune processes in pancreas. Further controlled studies are needed to confirm connection.

Keywords: Covid 19, type 1 diabetes mellitus, incidence

ELECTRICAL STATUS EPILEPTICUS DURING SLOW WAVE SLEEP (ESES) -CAUSES, CLINICAL PICTURE, DIAGNOSIS, THERAPY-OUR EXPERIENCES

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Title:
ELECTRICAL STATUS EPILEPTICUS DURING SLOW WAVE SLEEP (ESES) -CAUSES, CLINICAL PICTURE, DIAGNOSIS, THERAPY-OUR EXPERIENCES

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The purpose of the review: Description of the cause, the clinical picture of the diagnosis, and therapy of ESES. The importance of early detection and treatment of ESES in the prevention of retardation in language, motor and cognitive ability.

Topic overview: ESES is a special pattern of epileptic discharge of a continuous spike of the slow-wavecomplex in the slow-wave sleep phase. It occurs at the age of 2 to 14 years with a frequency of 0.5%. During adolescence, EEG abnormalities pass spontaneously but cognitive regression that occurs earlier usually remains. The cause includes idiopathic, genetic, immune, and malformation disorders of the regression, to severe epileptic encephalopathy with intellectual impairment. For the diagnosis, in addition to laboratory imaging, genetic tests, EEG registration in slow-wave sleep with the presence of spikes in the slow-wave complex from> 50% to> 85% is crucial. Treatment is individual, without an official ILAE recommendation. Conventional antiepileptics are often not effective in treatment. It is necessary to make a diagnosis as early as possible with therapy that shortens the duration of ESES, because timely treatment gives a better long-term cognitive outcome. Our paper presents patients of
different age groups and genders, with different therapeutic approaches and outcomes.

Conclusion: ESES occurs as a progression of benign focal seizures, epileptic genetic syndromes, in children with and without structural brain abnormalities. Early detection and treatment of ESES improve language, motor, and intellectual function.

Keywords: ESES, Children, Epilepsy, sleep EEGbrain. It is clinically manifested from benign focal epileptic seizures, autism seizures, psychomotor

MANAGING HYPERTROPHIC OBSTRUCTIVE CARDIOMYOPATHY IN PEDIATRIC PATIENTS

Elma Smajlovic, Orhana Grahic-Mujcinovic, Sibila Tabakovic

Title:
MANAGING HYPERTROPHIC OBSTRUCTIVE CARDIOMYOPATHY IN PEDIATRIC PATIENTS

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Objective: Hypertrophic obstructive cardiomyopathies (HOCM) are a heterogeneous group of myopathies, according to their metabolic and genetic background, with similar clinical presentation and outcome. Pathophysiology of the disease is based on hypertrophied interventricular septum which obstructs the left ventricular outflow tract (LVOT), decrease in left ventricular end-diastolic volume, and reduction of systematic blood flow. Diagnosis is usually made in early infancy or adolescents, regarding heart murmur or syncope, while sudden cardiac death is the rarest seen presentation in children. Treatment strategies aim to reduce the burden of sudden cardiac death associated with an increased risk of tachyarrhythmia.

Topic review: Current clinical guidelines in the management of pediatric hypertrophic obstructive cardiomyopathies are slightly different from guidelines in the adult population. Higher doses of beta-blockers are needed to achieve beta-blockade in the younger population, especially in infancy, with doses ranging from 4-24mg/kg/day, that significantly reduce obstruction gradient in LVOT and the risk of ventricular tachyarrhythmia. Unresponsiveness to this therapy, which produces an obstruction gradient >50mmHg in LVOT, indicates cardiothoracic surgery (septal myectomy). Identification of high-risk patients and implantation of ICDs for sudden cardiac death prevention extends longevity and quality of life. Novel strategies seen in the adult population are still in experimental phases for administration in pediatric patients.

Conclusion: Proper management of HOCM in children provides symptomatic relief and prevention of sudden cardiac death. Guidelines from European and North American cardiologic societies need to be revised in the pediatric population

Keywords: hypertrophic cardiomyopathy, ventricular tachyarrythmia

MUTATION V617F JAK2 GENE IN THE DIAGNOSTIC CONFIRMATION OF POLCYTHEMIA AND BUDD CHIARI SYNDROME

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Title:
MUTATION V617F JAK2 GENE IN THE DIAGNOSTIC CONFIRMATION OF POLCYTHEMIA AND BUDD CHIARI SYNDROME

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Background: Budd-Chiari syndrome is caused by hepatic vein thrombosis, followed by: abdominal pain, ascites and hepatomegaly. It also occurs as a complication of polycythemia vera, myeloproliferative disease, and the consequent hyperviscosity of the blood, which leads to risk of thrombotic events. Polycythemia vera (PV) is a tumor disease of the bone marrow, characterized by elevated erythrocyte counts, elevated hemoglobin values.
If polycythemia vera is suspected, genetic testing for the presence of the JAK2 V617F mutation from a peripheral blood sample is mandatory.

Aim: To present the link between JAK 2 mutations, polycythemia and Budd Chiari syndrome.

Material and methods: A case report of a patient admitted with suspected hepatic vein thrombosis and Budd Chiari sy. By finding a mutation in the JAK2 protein, we confirm that polycythemia is causally related to Budd Chiari syndrome.

Results: Patient P.A., 2003, admitted on suspicion of Budd Chiari syndrome, with ascites and hepatosplenomegaly. Malignant process excluded. Blood smear, sternal puncture finds neat. Mutated heterozygote of Factor V Leiden.

Clinical: ascites, pleural and pericardial effusion, hypoproteinemia, mineral imbalance- correction, ascites drainage. Imaging diagnostic tests focus on the problems of the gastrointestinal tract - EGDS, distal endoscopy, liver biopsy, MRI enterography. PET CT indicates increased metabolic activity of the bone marrow, which brings us back to the hematological problem. In lab increased values of blood elements. JAK2 protein mutation positive.

Conclusion: A finding of the JAK2 protein mutation is evidence of polycythemia, which causally leads to hepatic vein thrombosis and the development of Budd Chiari syndrome.

OVERALL SURVIVAL ANALYSIS IN CHILDREN WITH CHRONIC KIDNEY DISEASE IN SERBIA

Srdjan Nikolovski, Dusan Paripovic, Mirjana Kostic, Aleksandra Paripovic, Natasa Stajic, Emilija Golubovic, Biljana Milosevic, Brankica Spasojevic Dimitrijeva, Gordana Milosevski Lomic, Radovan Bogdanovic, Amira Peco Antic

Title:
OVERALL SURVIVAL ANALYSIS IN CHILDREN WITH CHRONIC KIDNEY DISEASE IN SERBIA

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Background: Despite the improvements in the treatment of patients with chronic kidney disease (CKD), the risk of progression and eventual mortality remains an issue of significant concern.
Aim: This study aims to analyze the basic parameters of overall survival (OS) of children with CKD, as well as factors with an impact on survival.
Materials and Methods: The study included 543 patients with CKD during the 20 years of follow-up.
Results: In 18.9% of patients, the disease was diagnosed in its terminal stage. During the follow-up period, death occurred in 30 patients (5.5%), with a mean survival time from the moment of diagnosis of 109.2±81.3 months. Mortality in the second decade of the follow-up period was significantly lower compared to the first half. Factors with a significant impact on the total 5-year, 10-year, and 15-year OS of patients were disease stage at diagnosis and using erythropoiesis-stimulating agents ($p<0.05$), while
the patient age at the time of CKD diagnosis was a factor with an impact on 5-year OS only, both in the group of patients in preterminal and terminal CKD stages ($p<0.05$).
Conclusion: Although mortality in children with CKD tends to decrease, the progression of CKD to its terminal stage is a significant risk factor for death outcomes. Also, earlier stages of disease at the time of diagnosing CKD represent a more favorable circumstance for OS. Therefore, early detection and
prevention of CKD progression in children are out of paramount importance for reducing mortality in these patients.
Keywords: children, chronic kidney disease, end-stage renal disease, overall survival, mortality

OVERVIEW OF COVID-19 PANDEMIC IMPACT ON CHILDREN

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OVERVIEW OF COVID-19 PANDEMIC IMPACT ON CHILDREN

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Objective: COVID-19 pandemic has caused significant disruption in lives of children around the word. This review looks at health, poverty, education and long-term impact on children who have lived during the COVID-19 pandemic.

Topic Review: UNICEF estimates that 638.3 million children around the world live in poverty in 2021 compared to 574.8 million in 2019 pre pandemic. When looking at educational impact, 463 million children were not able to access the remote learning during school closures in 2020. 80 million children under the age of 1 years likely missed out on receiving lifesaving vaccines due to COVID-19 pandemic. According to the article published in Lancet Child and Adolescent Health on February 24, 2022 modeling shows that estimated more than 5.2 million children worldwide have lost one of their parents or caregivers to COVID-19. International survey of adolescents and adults conducted by UNICEF and Gallup in 21 countries shows that median of 1 in 5 young people between ages of 15 and 24 often feel depressed or have little interest in doing things. In the USA, Department of Health and Human Services reports that many facets of children's lives have been affected including developmental, emotional, and behavioral health. As schools transitioned to on-line learning in the spring of 2020 to prevent spread of COVID-19 children's daily routines, sleep patterns, eating habits and physical activity got significantly disrupted.

Conclusion: Children have experienced significant challenges during COVID-19 pandemic. Support from their communities and governments is necessary to help them navigate those challenges. Building resilience is important.
Keywords: children, COVID-19 pandemic, impact, health

PEDIATRIC KIDNEY TRANSPLANTATION IN SERBIA AND EARLY INDICATORS OF GRAFT SURVIVAL TIME

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Title:
PEDIATRIC KIDNEY TRANSPLANTATION IN SERBIA AND EARLY INDICATORS OF GRAFT SURVIVAL TIME

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Background: Kidney transplantation is one of the most effective therapies of choice for children with end-stage renal disease (ESRD).
Aim: Epidemiologic evaluation of pediatric kidney transplantation in Serbia and analysis of early indicators of kidney graft survival time.
Materials and Methods: We analyzed data from pediatric kidney transplant recipients who underwent kidney transplant procedures in the period 2000 to 2018. Graft loss was classified as the one secondary to acute rejection (AR) or chronic allograft failure (CAF). CAF was defined as graft loss beyond 6 months, not attributable to death, recurrent disease, AR, and thrombosis. Survival curves and Cox proportional hazard models were used to investigate the risk factors.
Results: Out of overall 142 transplant recipients, 10 required a re-transplant procedure to be performed due to graft dysfunction. Almost two-thirds of all dysfunctions occurred in living donor kidney grafts. The median time spent on the transplant waiting list for patients with ESRD was 15 months (IQR 3-42). The mean follow-up period after the transplant procedure for all patients was 74.07±61.19 months. Differences in survival curves were observed between the patients with different chronic kidney disease (CKD) stages and between different groups of primary renal diseases (PRD) ($p<0.05$). Cox regression analysis did not show the influence of donor type, donor gender, and donor-recipient gender miss-match on graft dysfunction risk.
Conclusion: CKD stage at the moment of diagnosis, as well as PRD, have an impact on graft survival time without significant influence on graft failure probability in pediatric kidney transplant patients.
Keywords: children, chronic kidney disease, end-stage renal disease, kidney transplantation, graft survival

RECOGNIZING STIGMA ASSOCIATED WITH SPECIAL HEALTH CARE NEEDS AND DISABILITIES

Mirzada Kurbasic

Title:
RECOGNIZING SIGMA ASSOCIATED WITH SPECIAL HEALTH CARE NEEDS AND DISABILITIES

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By definition stigmatization is a socially and culturally constructed process, occurring in social interactions, whereby a person is labeled as different and then devalued. Stigmatization is present in every society and culture. Children with disabilities and special health care needs are at higher risk to be stigmatized and bullied by peers. Understanding ways to fight stigmatization is crucial in today's age when survival and life expectancy of individuals with special care needs have greatly improved.
Keywords: stigma, disabilities, special care needs

SUCCESS OF TREATMENT OF IDIOPATHIC THROMBOCYTOPENIA WITH REVOLADE (ELTROMBOPAG)

Lejla Hodzic- Pilav, Meliha Sakic, Sanela Cekic-Hajdarpasic, Tatjana Simsic, Nermana Cengic Sehaganovic

Title:
SUCCESS OF TREATMENT OF IDIOPATHIC THROMBOCYTOPENIA WITH REVOLADE (ELTROMBOPAG)

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Background: Thrombocytopenia is any condition in which the platelet count is less than 150,000 per microliter. The decrease to 30,000 causes the manifestation of the disease. Serious health problems appear when the number of platelets is less than 10,000. Algorithm for the treatment of thrombocytopenia: Corticosteroids, Immunoglobulins, Anti-D therapy, Rituximab, Thrombopoietin, Splenectomy, Plasmapheresis, Transfusions of concentrated platelets.

Aim: To demonstrate the role of treatment with Revolade in the treatment of thrombocytopenia.

Materials and methods: Case report of two patients, who were refractory to therapy according to the algorithm of treatment of thrombocytopenia - until the inclusion of Revolade (thrombopoietin).

Results: Patient, B.L., year 2009, Dg Idiopathic thrombocytopenia (ITP). Platelet counts low (4,10,15 x 10^9), no effect therapy according to the algorithm.
Heavy menorrhagia with the first menstrual bleeding. In lab Tr 17, 4. After extensive laboratory and diagnostic processing we decide to introduce Revolade tbl 1x 50 mg, after which we get positive results, Tr 45, 41, 29. In control examinations, monthly monitoring of lab findings, Tr values ranging from 40 to 140 x 10^9.
-Patient Č.K., year 2018, low platelet counts 5. No effective response (4,3,2 x 10^9) according to the algorithm. After extensive laboratory and diagnostic processing, we decide to introduce Revolade. Platelet values increased, 41, then on the controls again lower values of 18, 20 x 10^9, but significantly better general condition and no symptoms of bleeding.

Conclusion: The success of treatment with Revolade with a significant improvement in the quality of life for patients.

TREATMENT OF SUDDEN CARDIAC ARREST IN CHILD

Nedim Begic, Dusko Anic, Verica Misanovic, Zijo Begic, Selma Dizdar, Emina Vukas, Zinka Huseinbegovic, Adisa Cengic, Medina Hasanovic

Title:
TREATMENT OF SUDDEN CARDIAC ARREST IN CHILD

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15-year-old boy was admitted to the PICU after resuscitation, first by a person with no medical background and then by the ambulance due to cardiac arrest, which was preceded by VF. On PICU the fresh vascular ischemic brain lesion in the right frontal area with a 21 mm diffusion restriction was diagnosed. The child was monitored on mechanical ventilation with prior sedation. Inotropes were added as well as supportive therapy and Sotalol. Extubation occured on the fourth day of hospitalization due to improvement of clinical condition and good response to therapy. Then cardioverter defibrillator was implanted on fifteenth day due to arrhythmia that went in terms of preexcitation, WPW syndrome to PSVT. The child was transferred to the cardiology department, where he remained monitored for a month and undergone multidisciplinary treatment by an intensivist, cardiologist, pediatric neurologist, endocrinologist, psychologist, psychiatrist and was discharged home with regular vital parameters and recommendation of further monitoring. We remain in doubt whether the arrhythmia was the cause or consequence of ischemic stroke, and whether the child could have been stratified earlier as someone with a risk of sudden cardiac death. The boy remains a patient who requires long-term cardiac and neurological monitoring. It is necessary to have a knowledge of sudden childhood death syndrome and to officially establish defibrillation in as many public places as possible as well as to have a wide BLS education coverage. In hospital environment it is important to have a multidisciplinary and individualized approach to rare diagnoses of childhood.

Keywords: sudden childhood cardiac death, stroke, basic life support, ICD

CLINICAL, THERAPEUTICS AND OUTCOME FEATURES OF SINGLE TERTIARY PEDIATRIC CENTER COHORT OF 31 PATIENTS WITH MULTISYSTEM INFLAMMATORY SYNDROM IN CHILDREN – OBSERVATIONAL STUDY

Velma Selmanovic, Adisa Cengic, Aida Omercahic–Dizdarevic, Almira Kadic, Mirza Halimic, Zijo Begic, Semra Cepic–Kapic, Seilam Dizdar, Verica Misanovic, Dusko Anic, Irmina Sefic – Pasic, Melika Bukvic, Amra Dananovic

Title:
CLINICAL, THERAPEUTICS AND OUTCOME FEATURES OF SINGLE TERTIARY PEDIATRIC CENTER COHORT OF 31 PATIENTS WITH MULTISYSTEM INFLAMMATORY SYNDROM IN CHILDREN – OBSERVATIONAL STUDY

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Background: Multisystem inflammatory syndrome in children (MIS-C) was firstly described in the spring of 2020. Strong viral and epidemiological evidence suggested that SARS-COV-2 was the trigger. Observation of a time leg of 2-6 weeks between the peak of SARS-COV2 infection and the onset of MIS-C indicated that the virus acted as a trigger of a post-infectious inflammatory process.

Methods: This is a retrospective-prospective observational study from a tertiary pediatric rheumatology center. Clinical, therapeutic and outcome features data were collected and analyzed.

Results: A total of 31 patients with MIS-C were included in the study (boys: 51.6%). Presentation included fever (100%), mucocutaneous (90.3%), gastrointestinal (60.9%), neurological symptoms (51.6%). Hypotension exhibited 61.2% of patients linked to various cardiac dysfunction seen at echocardiography (61.2%). Treatment included immunoglobulins in the first 24h after admission; followed by steroids; acetylsalicylic acid plus low molecular weight heparin prophylaxis for those with cardiac dysfunction. In 3 patients a subsequent therapeutic escalation to anakinra was required. All cardiac manifestations normalized before hospital discharge. More than one-third of patients required admission to the PICU (32.2%), more than half needed one or two inotropic drugs (51.6%), and one patient received mechanical ventilation. No patient had infection related to immunosuppressives and no unfavorable outcome.

Conclusion: There is wide variability of clinical signs and symptoms of MIS-c. A multidisciplinary team approach and aggressive immunomodulatory treatment are required to achieve rapid disease control. Expanding knowledge and increasing awareness of MIS-c should shorten the time to hospital admission and PICU. That would result in significant cost and resource savings and less stress for patients and their families.

Keywords: MIS-C, immunomodulatory treatment, anakinra, PICU

THE IMPORTANCE OF ADEQUATE PHARMACOLOGICAL THERAPY MERCAPTOPROPIONYLGLYCINE MPG - THIOLA) IN THE CARE OF CHILDREN WITH CYSTINURIA AND THE PREVENTION OF FREQUENT SURGICAL INTERVENTION. (PERCUTANEOUSNEPHROLITHOLAPAXY PCNL)

Aida Mustajbegovic Pripoljac

Title:
THE IMPORTANCE OF ADEQUATE PHARMACOLOGICAL THERAPY MERCAPTOPROPIONYLGLYCINE MPG - THIOLA) IN THE CARE OF CHILDREN WITH CYSTINURIA AND THE PREVENTION OF FREQUENT SURGICAL INTERVENTION. (PERCUTANEOUSNEPHROLITHOLAPAXY PCNL)

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Introduction: Cystinuria is a rare disease, an autosomal recessive disorder of amino acid transport in the kidneys that leads to an increase in cystine in the urine, and the formation of kidney stones in concentrations above 300 mg./l. Adequate screening of diagnostic tests, diagnosis, and adequate therapeutic approach is one of predictors in the prevention and treatment of patients with cystinuria.

Materials and methods: A retrospective examination of all patients with cystinuria referred to our Center for Pediatric Nephrology at the Clinic of Pediatrics, University Medical Center Sarajevo was performed within 8 years. Medical diagnostics, therapy, the incidence of calculus recurrence, drug compliance, and planned follow-up were reviewed, as well as the results of metabolic assessments of serum and urine. Average urinary cystine concentrations in initial and subsequent 24-hour samples, frequency of surgical treatment, and complications during cystinuria treatment process.

Results: Of all patients followed within 8 years, only one patient has: one kidney function, frequent stone recurrences, and recurrent interventions (percutaneous nephrolitholapaxy) PCNL - although on continuous thiopronine therapy.

Conclusion: The duration of treatment of patients with cystinuria is limited to only a small percentage that can achieve and maintain the goal of reducing cystine levels below saturation levels. Better harmonization of the health system in providing pharmacological treatment to patients with the aim of reducing the number and frequency of surgical procedures. Greater supervision by physicians at all levels of assessment and timely diagnosis is needed to diagnose and care for patients with cystinuria as early as possible.

Keywords: Cystinuria, PCNL THiola

AUTISM DIAGNOSTIC PROTOCOL FOR LOW-AND-MID INCOME COUNTRIES: BARRIERS FOR AN EARLY DIAGNOSIS AND INTERVENTION FOR AUTISM SPECTRUM DISORDER IN BOSNIA AND HERZEGOVINA

Nirvana Pistoljevic, Eldin Dzanko, Mohammad Ghaziuddin

Title:
AUTISM DIAGNOSTIC PROTOCOL FOR LOW-AND-MID INCOME COUNTRIES: BARRIERS FOR AN EARLY DIAGNOSIS AND INTERVENTION FOR AUTISM SPECTRUM DISORDER IN BOSNIA AND HERZEGOVINA

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Background: Obtaining a reliable and timely diagnosis of Autism Spectrum Disorder (ASD) is a large problem in most Low-and-Mid Income Countries (LMIC). The problem lies mostly in the lack of trained professionals and access to reliable screening/diagnostic tools which are often to expensive and culturally inappropriate for those countries. Bosnia and Hercegovina (B&H) is such a county, where children with ASD often stay undetected and without appropriate intervention.

Aim: to show autism diagnostic protocol for for Low-and-Mid Income Countries: Barriers for an Early Diagnosis and Intervention for Autism Spectrum Disorder in Bosnia and Herzegovina

Materials and methods: We analyzed medical documentation and tested 126 children ages 23 to 94 months, with detected severe developmental delays. Although parents reported developmental problems in their children on average at the age of 17 months, it took 812 visits to professionals (>6 per child) over several months (mean 16.8, range 2-52) to get the diagnosis. Results: Only 8 children (6.3%) of our sample received a diagnosis referring to autism. However, when these children were tested with the Childhood Autism Rating Scale (Second Edition), 68 of them (54%) were rated in the severe autistic range.

Conclusion: In order to solve such high rates of undetected and undiagnosed children with ASD in B&H we developed the EDUS Protocol for Autism Screening which is a functional behavioral screening tool created by following the DSM-V diagnostic criteria and aimed to help professionals in diagnosing autism in B&H. We will discuss the barriers to an early childhood diagnosis of ASD in B&H and the development of the EDUS Protocol for Autism Screening as the first step forward to an early diagnosis of ASD enabling access to early intervention programs.

Keywords: Autism, Diagnostics protocol, Early Detection, Autism Symptoms

ACTA MEDICA SALINIANA

PLASTIC SURGERY

BODY CONTOURING AFTER MASSIVE WEIGHT LOSS

Drazan Eric

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Title:
BODY CONTOURING AFTER MASSIVE WEIGHT LOSS

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Background: After massive weight loss, patients typically presented with skin redundancy of the abdomen, back, buttocks, thighs, chest and arms which causes enormous aesthetic, physical, medical and psychological problems.

Aim: The aim of this paper is to show our experience in body contouring after massive weight loss.

Material and Methods: A retrospective study was carried out at the Department of Plastic and Reconstructive Surgery, Al Emadi Hospital, Doha, Qatar including all body contouring procedures in massive weight loss patients performed by the author between January 2019 and December 2021.

Results: We performed 105 body contouring surgeries in 90 patients. The maximum weight, before the weight loss process ranged between 89 kg and 195 kg an average of 135,5kg. The minimum weight, after weight loss and stability, ranged from 49 kg and 110 kg, with an average of 61,2 kg. We had hematoma and postoperative bleeding in 3 patients, infection in 2 patients, wound dehiscence in 8 patients and seroma in 6 patients. There were no cases of deep venous thrombosis and pulmonary thromboembolismus.

Conclusion: The key to achieving successful patient outcomes after massive weight loss is careful evaluation and selection of surgical candidates. Although body-contouring procedures are not routinely performed until considerable time has passed, because of the bariatric operation, early consultation about potential future surgical procedures to correct skin laxity can help the patient to be better informed about the long-term course of bariatric operation and to develop realistic expectations and goals about aesthetic and functional outcomes.

MANAGEMENT OF CHOLECYSTOCUTANEOUS FISTULA IN POST COVID19 PATIENTS

Anel Okic, Alma Krvavac-Hafizovic, Semir Bolic, Savan Kuridza, Mahir Omanovic, Jamal Mughrabi, Hasib Mujic

Title:
MANAGEMENT OF CHOLECYSTOCUTANEOUS FISTULA IN POST COVID19 PATIENTS

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Background: Cholecystocutaneous fistula (CCF) is a very rare phenomenon in digestive surgery, especially in patients who have overcome COVID19 infection. CCF is described as an external fistula that connects the gallbladder with the skin. The incidence is very small, and the phenomenon itself is rarely seen. Combined with COVID19 infection affect much younger patients.

Aim: We aimed to compare our finding and experience in treatment of this type of patients.
Materials&Methods: A total of less than 100 cases of cholecystocutaneous fistula have been described in the literature. We have reviewed the available literature related to this phenomenon and the two cases we have had in our practice. One case was 10 years ago and one in the beginning of 2021st. We found 21 cases in the literature and each example was considered regardless of age, gender, race, and location.

Results: In 65% of cases in literature, the patients were women and average age 69.7 years. We compared our case with the data in the literature and came up with different result. Our last case was a male who had overcome COVID19 infection three months previously with moderate clinical picture. He was a 54 years old without chronic diseases and previous surgical procedures.

Conclusion: COVID19 infection significantly affected the progression and onset of Cholecystocutaneous fistula. Correlation with previous surgeries, age and gender were not significant. Open cholecystectomy was the choice of treatment in our case. We present the original photos of diagnostic and treatment procedure, before and after surgery.

RECTOVAGINAL FISTULA

Emir Pinjo

Title:
RECTOVAGINAL FISTULA

Authors:
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Rectovaginal fistulas are abnormal connection between the rectum and vagina. Rectovaginal fistulas most frequently result from obstetric trauma, inflammatory bowel disease, trauma, malignancy, pelvic irradiation and postsurgical complications. Successful management depends on fistula etiology, size, location, quality of surrounding tissue, integrity of the anal sphincter, number and type of previous repairs and patients risk factors. For small or minimally symptomatic fistula, nonsurgical management is appropriate. For the majority of patients with rectovaginal fistulas the symptoms are intolerable and surgical repair is indicated. Surgical treatments include endorectal advancement flap, dermal advancement flap anoplasty, sphincteroplasty, gracillis flap, Martius flap, rectal sleeve advancement flap. Endorectal advancement flap is procedure of choice for small, simple rectovaginal fistulas (intact sphincter complex and viable tissues). Sphincteroplasty is advocated for patients with rectovaginal fistula and damage of anterior sphincter complex with fecal incontinence. Gracilis muscle/bulbocavernosus muscle flap and Martius flap are reserved for patients with complex rectovaginal fistula (Crohn´s disease, radiation induced fistula, large opening, complication of pelvic surgery procedures or when tissue is heavily damaged or scarred).

RELIABILITY OF THE FLAPS BASED ON THE THORACODORSAL ARTERY SYSTEM IN THE CHEST WALL AND SHOULDER RECONSTRUCTION

Drazan Eric

Title:
RELIABILITY OF THE FLAPS BASED ON THE THORACODORSAL ARTERY SYSTEM IN THE CHEST WALL AND SHOULDER RECONSTRUCTION

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Background: The thoracodorsal vessels after originating from the subscapular axis course toward the latissimus dorsi muscle..

Aim: The aim of this paper is to show our experience in chest wall and shoulder reconstruction with flaps based on thoracodorsal artery system.

Material and Methods: At the Department of Plastic Surgery, we performed reconstruction of the chest wall, shoulder and axilla with flaps based on the thoracodorsal system in 42 patients from January 2016 to December 2020 year. We harvsted thoradorsal artery perforator flap (TAP), latissimus dorsi muscle or musclucutaneous flaps. We recorded demographic characteristics such as sex, age, profession, cause and size of defects, size of flaps, number of perforators, arch of rotation and complications.

Results: In 20 patients we harvsted thoracodorsal artery perforator flap, in 15 patients latissimus dorsi myocutaneous flap while in 7 patients we harvsted latissimus dorsi mucle flap. These flaps were accepted without complications in thirty eight patients. We had the partial flap necrosis in one patient while there were seroma formation in three cases. The flaps were transposed or rotated to cover the defects and size of the flaps was from 14x8 to 23x10 cm.

Conclusion: The reliability of the flaps based on the thoracodorsal system has several advantages such as easy dissection, long vascular pedicle, wide arch of rotation and minimal donor site morbidity. That is why these flaps are used as workhorse flaps for the chest wall and shoulder reconstructions.

Keywords: thoracodorsal artery, flaps, reconstruction

ACTA MEDICA SALINIANA

FAMILY MEDICINE

ANTIBIOTIC RESISTANCE OF ESCHERICHIA COLI IN URINARY TRACT INFECTIONS AMONG OUTPATIENTS IN CANTON SARAJEVO

Amina Obradovic Balihodzic, Sejla Kotoric Keser, Sabaheta Bektas, Dunja Hodzic

Title:
ANTIBIOTIC RESISTANCE OF ESCHERICHIA COLI IN URINARY TRACT INFECTIONS AMONG OUTPATIENTS IN CANTON SARAJEVO

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Background: Urinary tract infections (UTI) are among the most common infections in outpatients with Escherichia coli (E.coli) as the predominant pathogen. A large amount of oral antibiotics is prescribed in primary health care for their treatment. Inappropriate use of antibiotics increases the problem of antibiotic resistance. Extended-spectrum beta-lactamase (ESBL) E.coli is resistant to multiple antimicrobial agents and is an important public health concern.

Aim: To show antibiotic resistance of E.coli isolated from urine samples of outpatients in Canton Sarajevo.

Materials and Methods: In this retrospective descriptive-analytical study we collected antibiotic susceptibility data from laboratory reports of urine samples of outpatients analyzed in the Microbiology Laboratory of the Institute for Public Health of Canton Sarajevo from 2019 to 2021. The antimicrobial susceptibility testing was performed using the disk diffusion method, according to EUCAST (European Committee on Antimicrobial Susceptibility Testing).

Results: A total of 139120 urine samples were analyzed in the period 2019-2021. There were 22,1% (n=30.698) positive samples. E.coli was isolated in 76,6% (n=23493) of samples. Resistance to trimethoprim-sulphamethoxazole was 34,1% and nitrofurantoin 3.2%. Ciprofloxacin was tested as a second-line antibiotic in 877 isolates with a high resistance rate of 55,9%. Extended-spectrum betalactamase. (ESBL) E-coli was isolated in 1,2%, 3,4% and 2,1% in 2019, 2020 and 2021 respectively.

Conclusion: Antibiotic resistance of E.coli in outpatient UTI is similar to that in the region. Knowledge of local antibiotic resistance is important in the decision making of the optimal choice for empirical antimicrobial therapy and its duration in primary health care.

Keywords: E.coli, outpatient, antibiotic resistance

MANAGEMENT OF OBESITY IN THE SWEDISH PRIMARY CARE: A MULTIMODAL APPROACH

Amar Osmancevic

Title:
MANAGEMENT OF OBESITY IN THE SWEDISH PRIMARY CARE: A MULTIMODAL APPROACH

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Objective: Presenting the Swedish guidelines in the management of obesity in primary health care, including a new multimodal approach to the treatment of adiposity.

Topic review: Obesity is one of the leading causes of cardiometabolic diseases and premature death in society. It is related to poorer socioeconomic conditions, higher tobacco and alcohol use, diabetes, and lower life expectancy. The development of obesity is increasing in the population worldwide and pharmaceutical treatment options are few. The causes include low compliance and inadequate collaboration and follow-up in and between primary health care and obesity-specialized outpatient clinics. Although updated routines are available, the experience of a general practitioner is an inadequate strategy to restrain the prevalence of adiposity in the general society. A new multimodal approach to the treatment of obesity is induced at the primary healthcare center in norther east Gothenburg, Sweden, cooperatively with the local rehab clinic and medical dietitian unit with the aim to reduce the prevalence and development of obesity, further reduce the risk of obesity-associated comorbidities in order to improve the quality of life and consequently reduce the risk of mortality in the population.

Conclusion: As the prevalence of obesity and its associated comorbidities increase in the global population, a thorough examination of the updated Swedish guidelines for the treatment of obesity in primary care is of importance. The need for new approaches is essential in the management of obesity and a multimodal collaboration in primary care could be a new option for treatment.

Keywords: obesity, primary care

SUCCESSFUL TREATMENT OF PULMONARY MYCOBACTERIUM XENOPI INFECTION IN AN IMMUNOCOMPROMISED PATIENT WITH CROHN'S DISEASE

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Title:
SUCCESSFUL TREATMENT OF PULMONARY MYCOBACTERIUM XENOPI INFECTION IN AN IMMUNOCOMPROMISED PATIENT WITH CROHN'S DISEASE

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Background: Mycobacterium xenopi is a ubiquitous thermophilic bacterium occurring predominantly in water. In the past few years an increasing number of clinically relevant Mycobacterium xenopi the infection has been reported.

Aim: We present a case of cavernous pneumonia caused by Mycobacterium xenopi in a 51-year-old male with bronchiectasis and Crohn's disease hospitalized at the Clinic for lung disease and tuberculosis-The Clinical Center University of Sarajevo after chest x-ray findings of cavernous pneumonia.

Methods: At the beginning of hospital treatment, sputum was directly microscopic negative, but all three cultures tested positive. After molecular diagnostics of positive sputum cultures, mycobacterium xenopi is verified. According to the protocol, we started to treat with a triple-drug combination comprising Rifampicin, Ethambutol, and Clarithromycin. Chest computed tomography scan showed a cavitary lung lesion.

Results: We successfully treated a 51-year-old male with bronchiectasis and Crohn's disease with a triple-drug combination comprising Rifampicin, Ethambutol, and Clarithromycin. After 2 months of treatment, all sputum cultures remained negative.

Conclusion: Triple-drug combination of Rifampicin, Ethambutol, and Clarithromycin has been shown as a very good combination in the treatment of Pulmonary Mycobacterium xenopi Infection in an immunocompromised patient with Crohn's disease.

Keywords: Mycobacterium xenopi, cavernous pneumonia, Mb Crohn.

ACTA MEDICA SALINIANA

VASCULAR SURGERY

AORTIC VALVE AND ASCENDING AORTA SURGERY HROUGH RIGHT LATERAL MINI THORACOTOMY

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Title:
AORTIC VALVE AND ASCENDING AORTA SURGERY THROUGH RIGHT LATERAL MINI THORACOTOMY

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Background: In last decade we witness increasing number of reports describing right minithoracotomy approach for aortic valve surgery, but there are only few reports of this approach for operations on ascending aorta and Bentall procedure.

Aim: This is a single-center retrospective review of eight patients who underwent elective right anterior mini-thoracotomy approach for operations on aortic valve and ascending aorta.

Materials and Methods: Selected group of patients underwent video assisted right mini thoracotomy approach through second costal interspace. Aoritc valve replacement with supracoronary ascending aorta replacement was performed on five patients and Bentall procedure in three patients.

Results: Mean aortic cross-clamping time was 120min } 25min. Avarage blood loss was 4 blood units. ICU stay 2 days.All patients discharged from 5-8 postoperative day.

Conclusion: This approach should be considered as an option in carefully selected patients requiring aortic root replacement.

Keywords: Minithoracothomy Bentall procedure, Minimally invasive cardiac surgery

COMPARISON OF OUTCOMES (0-30 DAYS) AFTER CAROTID ENDARTERECTOMY BETWEEN DIABETIC AND NONDIABETICS PATIENTS WITH SYMPTOMATIC CAROTID STENOSIS

Muhamed Djedovic, Damir Kurtagic, Amel Hadzimehmedagic, Behija Hukeljic-Berberovic, Tarik Selimovic

Title:
COMPARISON OF OUTCOMES (0-30 DAYS) AFTER CAROTID ENDARTERECTOMY BETWEEN DIABETIC AND NONDIABETICS PATIENTS WITH SYMPTOMATIC CAROTID STENOSIS

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[2]Medical School, University of Sarajevo

Background: Our aim was to compare early outcomes after carotid endarterectomy (CEA) between patients with diabetes and without diabetes, who had symptomatic carotid artery stenosis, and to determine effects of diabetes on perioperative complication rates.
Methods: This retrospective study included analysis of 163 CEA that were performed on 145 patients with symptomatic significans carotid artery stenosis, in period from January 2018 to February 2022. Patients were divided in two groups: with diabetes (n=58; 36%) and without diabetes (n=103; 64%). Results included the incidence of major adverse effects (MAE) which were defined as mortality, nonfatal cerebrovascular insult and myocardial infarction (MI), during early perioperative period after CEA.
Results: No statistical differnce between two groups was found in regards to total MAE (3.4% vs 2.9%; P>0.05). In group of patients with diabetes statistically significant difference was noted for presence of bilateral stenosis (31% vs. 16.5%; P=0.046) and peripheral arterial occlusive disease (32.8% vs. 16.5%; P=0.029). Even though these differences were present, patients with diabetes had similar postoperative outcomes as patients without diabetes, including perioperative MI (1.7%% vs. 0.97%; P=NS), perioperative mortality (1.7% vs., 0.97%; P=NS) and neurological events like CVI (0% vs. 0.97%; P=NS). Demographic factors in both studied groups were without significant differences.
Conclusion: Even though higher prevalence of bilateral stenosis and peripheral arterial occlusive disease was found in patients with diabetes who underwent CEA, the incidence of perioperative cardiac and neurological morbidity as well as the mortality were equal in both groups.

Keywords: symptomatic carotid artery stenosis, carotid endarterectomy, diabetes mellitus, outcomes

ENDOTHELIAL DYSFUNCTION AFTER VENOUS SCLEROTHERAPY

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Title:
ENDOTHELIAL DYSFUNCTION AFTER VENOUS SCLEROTHERAPY

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Background: the growing popularity of UGFS lies in well-controlled endothelial dysfunction. Endothelial dysfunction is characterized by a shift of the actions of the endothelium toward reduced vasodilation, a proinflammatory state, and prothrombic properties. For our research, the main goal is to cause controlled endothelial dysfunction by sclerotherapy treatments of veins with various sclerosing agents.

Aim: the main task is to measure and compare controlled endothelial dysfunction after UGFS (ultrasound-guided foam sclerotherapy) with various sclerosing agents. The two most common agents are polidocanol and sodium tetradecyl sulfate. We will use laboratory inflammatory parameters right after treatment within 30 minutes, analyzing the patient's venous blood.

Material and method: patients will be divided into two groups, treated with polidocanol and sodium tetradecyl sulfate by Tessari method of sclerotherapy. After treatment blood will be taken from all patients to analyze inflammatory parameters. Other social and clinical parameters will be correlated as well. All data would be subject to appropriate statistical processing to obtain relevant and usable information

Results: our results will help in choosing a sclerosing agent and the best way to control endothelial dysfunction for the best results of UGFS. Great importance in research is the choice of a sclerosing agent, its advantages and disadvantages.

Conclusion: Different types of veins request different choices of sclerosant agents. The diameter of the vein is an important predictor of endothelial dysfunction. The concentration of sclerosants should be selected following all other parameters.

Keywords: endothelial dysfunction, UGFS, Sclerotherapy, varicose veins, inflammatory

INFLUENCE OF CERTAIN FACTORS IN THE TREATMENT OF ENDOVENOUS LASER ABLATION (EVLA) ON LONG-TERM OCCLUSION OF THE SMALL SAPHENUS VEIN (SSV)

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Title:
INFLUENCE OF CERTAIN FACTORS IN THE TREATMENT OF ENDOVENOUS LASER ABLATION (EVLA) ON LONG-TERM OCCLUSION OF THE SMALL SAPHENUS VEIN (SSV)

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Introduction: It is believed that about 15% of varicose veins on the lower leg are caused by insufficient SSV.

Objective: To determine which factors influence the long-term occlusion of SSV during EVLA treatment.

Material and methods: Successful long-term occlusion of SSV was examined in patients treated in our institution. 250 patients included in this study are treated the Chicago Vein Institute Sarajevo and were randomly selected over seven years, an average of 35 patients per year. The study includes insufficient SSVs who were treated with EVLA treatment in the period from January 2015 to May 2021. The main factors monitored and recorded during EVLA are laser power (W), amount of energy delivered (J), duration of treatment (min: sec), and length of the treated vein (cm) as well as diameter (mm) and reflux (m/s).

Results: The results of our study show that within 6 months after EVLA treatment, the number of insufficient SSV occlusions occurred in 10 patients, after one year in one patient. The percentage of satisfactory occlusions in EVLA SSV after one year in our study is 95.6%.

Conclusion: In our opinion it is important to treat larger branches of SSV, and double SSV between the two fascias, which significantly affect the percentage of recanalization.

Keywords: EVLA (Endovenous laser ablation), SSV (Small saphenus vein)

LEFT VENTRICULAR ASSIST DEVICE (LVAD) - OUR EXPERIENCE

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Title:
LEFT VENTRICULAR ASSIST DEVICE (LVAD) - OUR EXPERIENCE

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A left ventricular assist device (LVAD) is an implantable mechanical pump that helps pump blood from the ventricles to the rest of the body. It is used in patients with end-stage heart failure, and may also be used if heart transplant is contraindicated. It can be used as „Bridge-to-transplantation", „Destination therapy", „Bridge-to-the-decision" and „Bridge-to-Recovery". There is an increasing number of young patients in Bosnia and Herzegovina with end-stage heart failure (NYHA IV). In our country, the first LVAD was implanted in May 2019. From May 2019 to January 2020 we implanted six HeartMate 3. The youngest patient was 27 years old, and the oldest patient was 71 years old. All of them were NYHA IV, with an ejection fraction between 15 and 18%. LVADs have revolutionized the treatment of end-stage heart failure patients. The consequences of LVAD were improved contractility, which lead to the increase of ejection fraction and improved quality of life.

Keywords: heart failure, NYHA IV, mechanical circulatory support, LVAD, HeartMate 3

LEFT VENTRICULAR FREE WALL RUPTURE AFTER ACUTE MYOCARDIAL REINFARCTION DUE TO IN-STENT THROMBOSIS IN COVID-19 PATIENT

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Acute left ventricular free wall rupture (LVFWR) is a life-threatening complication of myocardial infarction that requires urgent intervention. Surgical repair has continued to be the treatment of choice. Studies suggest a posterolateral or inferior infarction is more likely to result in free wall rupture than an anterior infarction. LVFWR generally results in death within minutes of the onset of recurrent chest pain, and on average was associated with a median survival time of 8 hours. Prompt diagnosis and management can lead to successful treatment for LVFWR. We present an emergency case with an LVFWR in a COVID-19 patient who suffers from AMI and was treated with PCI stents in the ramus intermedius and circumflex coronary artery. Although dual antiplatelet therapy introduction and good outcome of PCI were achieved, soon after instant thrombosis of both stents appear to result in transmural necrosis and LVFWR. Urgent catheterization was performed and diagnosed in-stent thrombosis where the ventriculography confirmed LVFWR of the posteroinferior wall. Urgent surgery was performed. Transmural necrosis was noticed alongside the incision line. The incision is sawn with 4 U-stitches (Prolen 2.0 with Teflon buttressed stitches). Another layer of fixation was made by Prolen 2.0 running stitches reinforced with Teflon felts from both sides. A large PTFE patch was fixed to epicardium over the suture line by Prolen 6.0 running stitch and BioGlue was injected in-between patch and LV (Figures 8 and 9). After aortic cross-clamp removal, the sinus rhythm was restored. espite the high mortality, the urgency and the complexity of surgical treatment the early diagnosis plays a key role in the management of postinfarction LVFWR patients presenting a case of preserved postoperative left ventricular function and accomplished good functional status, as presented in our case.

Keywords: left ventricular free wall rupture, acute myocardial infarction, COVID-19

MINIMALLY INVASIVE CARDIAC SURGERY IN CLINICAL CENTRE UNIVERSITY OF SARAJEVO DURING COVID-19 PANDEMIC

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Title:
MINIMALLY INVASIVE CARDIAC SURGERY IN CLINICAL CENTRE UNIVERSITY OF SARAJEVO DURING COVID-19 PANDEMIC

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Objective of the review: Minimally invasive heart surgery involves making small incisions through the right or left side of the chest to reach the heart between the ribs, rather than cutting through the sternum, as is done in classic open-heart surgery.

Topic review: First minimally invasive cardiac operations in B&H were conducted in 2012. as a Vshape mini sternotomy aortic valve replacement and Video assisted right mini thoracotomy mitral valve repair/ replacement. During COVID -19 pandemic, in order to enhance patients' turnover simultaneously shortening their hospital stay, recommendation for Cardiac surgery was to shift classic open heart surgery setup towards minimally invasive one. In our Institution, for ischemic heart disease 80% of coronary surgeries were conducted as off-pump, from which 26% were conducted through left mini thoracotomy for one vessel disease or hybrid revascularization in multivessel disease. For valvular surgery 53% operations were conducted through right lateral mini thoracotomy or V-shape mini sternotomy.

Conclusion: Minimally invasive cardiac approach reduce rates of bleeding, blood product transfusion, postoperative atrial fibrillation, sternal wound infection, ventilation time, ICU stay, hospital length of stay, and time to return to normal activity.

Keywords: Minimally invasive cardiac surgery, COVID-19 pandemic

RIGHT SIDED IMPLANTATION OF ICD

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Type of presentation: Original research,
Title:

RIGHT SIDED IMPLANTATION OF ICD

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Background: Life-threatening ventricular arrhythmias, including sustained ventricular tachycardia (VT) and ventricular fibrillation (VF), are common in patients with systolic heart failure (HF) and dilated cardiomyopathy and may lead to sudden cardiac death (SCD). Implantable cardioverter-defibrillator (ICD) implantation is generally considered the first-line treatment option for the primary and secondary prevention of SCD due to VT/VF. Primary prevention of SCD prevent SCD in patients who have not experienced symptomatic life-threatening sustained VT/VF or sudden cardiac arrest (SCA) but who are felt to be at an increased risk for such an event. Secondary prevention of sudden cardiac death (SCD) in patients with prior sustained ventricular tachycardia (VT), ventricular fibrillation (VF), or resuscitated SCD thought to be due to VT/VF. Implantation of implantable cardioverter-defibrillators (ICD) from the left pectoral region is the standard therapeutical method and right-sided implantations remain an exception.

Aim: The aim of our evaluation was to define the outcome of righ-sided implantation of ICD

Materials and Methods: We represent a case of right-sided implantation of ICD (secondary prevention) in a patient with abnormal left subclavian and cephalic vein. Anterograde venography from the antecubital fossa showed absent subclavian and cephalic veins.

Results: During implantation of ICD, we had adequate ventricular sensing of >6 mV, and a pacing threshold of <1 V was achieved.

Conclusion: Alterations of the implanted system such as lead repositioning, device relocation, and changing device polarity are effective means to achieve sufficient sensing of VAs and an appropriate safety margin to terminate life-threatening VAs. The data of lots of studies strongly suggest the necessity of intraoperative ICD testing in right-sided implanted ICDs.

Keywords: ventricular arrhythmias, systolic heart failure, dilated cardiomyopathy, ICD

SIMULTANEOUS OCCURENCE OF ATRIAL MYXOMA AND INVASIVE BREAST CANCER: DIAGNOSIS AND TREATMENT STRATEGY

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SIMULTANEOUS OCCURENCE OF ATRIAL MYXOMA AND INVASIVE BREAST CANCER: DIAGNOSIS AND TREATMENT STRATEGY

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The objective of the review: Myxomas are the most common benign cardiac tumors and 75% of them are located in the left atrium. Most cases are sporadic and the etiology remains unknown. Some research has shown that tumors that metastasize to the heart often have a primary breast origin. That's why we wanted to review this topic, based on a case of a patient treated in the Clinic for Cardiovascular Surgery, Clinical Centre University of Sarajevo.

Topic Review: The patient was 44 years old female, with no previous comorbidities. She presented with recent onset of fatigue, heavy breathing, and chest discomfort. One month before hospital admission she noticed a lump on her right breast. Further diagnostic procedures that were performed included physical examination, breast nodule biopsy, as well as chest CT and heart ultrasound which showed a large mass in her right atrium. Considering the clinical presentation, the size of the myxoma, which was obstructing the tricuspid valve, and the fact that the mass was fluttering, thus presenting a great risk for embolization, we decided that more urgent surgical treatment was necessary. Considering that the myxoma was adjacent to the triangle of Koch, we opted to do an extirpation on the beating heart with 20 minutes of ECC use. After an operation that lasted up to one hour, the patient was hemodynamically stable and transported to ICU. Latter patohistological results showed invasive ductal breast cancer.

Conclusion: The occurrence time of myxoma and breast cancer raised a suspicion that the two are related, but this requires further research. Using the technique of tumor extirpation on the beating heart, and short use of ECC we have lowered the risk for inflammatory cells and products dissemination, improving the combined outcome for both diseases.

Keywords: myxoma, ductal breast cancer, beating heart surgery

SYMPTOMATIC INFRARENAL ABDOMINAL AORTIC PSEUDOANEURYSM

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Title:
SYMPTOMATIC INFRARENAL ABDOMINAL AORTIC PSEUDOANEURYSM

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The objective of the examination: Pseudoaneurysm is an abnormal focal dilatation of a blood vessel contained inside a fibrous capsule. The pseudoaneurysm wall usually consists of an additional arterial fibrous capsule instead of the intima, media, and adventitia seen in true aneurysms. The result of abnormal arterial fibrous tissue of pseudoaneurysms without normal elastic fibers in the wall layer is the gradual expansion of pseudoaneurysm lumen diameter. Pseudoaneurysms, however, can cause symptoms due to direct pressure on adjacent structures such as nerves, blood vessels, and intraabdominal organs. Factors that precede the onset of pseudoaneurysms include vascular wall trauma, disturbed surgical anastomosis, and unidentified injuries to blood vessel walls during catheterization.

Topic overview: This paper aims to present 2 patients operated on for abdominal aortic pseudoaneurysm, in the last 2 years at the Clinic for Cardiovascular Surgery of the Clinical Center of the University of Sarajevo. There were 2 male patients, average ages 71 (72 and 70 years old). During the postoperative period, the graft was passable and renal insufficiency or renovascular hypertension, as well as no significant increase in inflammatory parameters, was not noticed.

Conclusion: We described two cases in which we successfully surgically treated abdominal aortic pseudoaneurysm (first is the consequence of injury to the aortic wall during catheterization, second is the consequence of aorto-aortical reconstruction of abdominal aortic aneurysm). Although patients had severe preoperative comorbidities, emergent traditional open surgery was performed by an experienced surgical team, instead of endovascular treatment.

Keywords: abdominal aortic pseudoaneurysm, surgical anastomosis, percutaneous arterial punctures

THE IMPACT OF COMBINED CAROTID ENDARTERECTOMY AND CORONARY ARTERY BYPASS GRAFTING ON EARLY POSTOPERATIVE ICU PERIOD VERSUS ISOLATED CORONARY ARTERY BYPASS GRAFTING

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Title:
THE IMPACT OF COMBINED CAROTID ENDARTERECTOMY AND CORONARY ARTERY BYPASS GRAFTING ON EARLY POSTOPERATIVE ICU PERIOD VERSUS ISOLATED CORONARY ARTERY BYPASS GRAFTING

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Background: Coexisting carotid artery stenosis (CAS) and coronary artery disease (CAD) is frequent. The prevalence of severe CAS among patients undergoing coronary artery bypass grafting (CABG) is 8-20%. Current strategies for treatment include Combined or Staged surgeries and Hybrid procedures. The best approach still remains under investigation.

Aim: The aim of our study was to determine if there was a difference in the postoperative outcome of combined carotid endarterectomy (CEA) and CABG compared with isolated CABG.

Methods/Materials: This single-center retrospective study included 30 patients, divided into two groups: 15 patients (group A) with combined CAE and CABG surgery and 15 patients (group B) with isolated CABG. Data were obtained in a two-year period (January 2019 to December 2021) at Clinic for Cardiovascular Surgery University Clinical Centre of Sarajevo. The postoperative outcome was defined as extubation time, occurrence of CVI, length of ICU stay, and length of hospital stay.

Results: Out of 30 patients included in the research, 15 patients in groups A and B respectively, there were no significant differences in regards to gender, age (p=0.3752), and preoperative risk factors. No statistically significant differences in extubation time (p=0.776), ICU stay (p=0.230) and postoperative CVI occurrence (0 %) were found. There was a statistically significant difference in regards to a total hospital stay (p= 0.024).

Conclusion: Performing combined CEA and CABG remains controversial, but our research suggests this combined procedure is safe in regard to early ICU recovery period, and additional attention for these patients is required during total hospital stay.

Keywords: Carotid endarterectomy, Cronary artery bypass grafting, ICU stay, hospital stay, extubation

THE ROLE OF ECHOCARDIOGRAPHY IN CHRONIC HEART FAILURE PATIENTS

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THE ROLE OF ECHOCARDIOGRAPHY IN CHRONIC HEART FAILURE PATIENTS

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Objective: During the last years, the number of patients with heart failure has been increasing. Of 750 million patients, 2% of them have heart failure (about 15 million). 7-10% have CLAS IIIb-IV (500.000-700.000). With no major comorbidities are 100.00-200.000 (CLAS IIIb-IV) younger than 70- year-old.

Topic review: The diagnosis of HFrEF requires the presence of symptoms and/or signs of HF and a reduced ejection fraction (LVEF ≤40%). This is usually obtained by echocardiography. During the assessment of chronic heart, failure echocardiography is the key investigation for the assessment of cardiac function. We determined left ventricular ejection fraction, the function of the right ventricle, chamber size, left ventricular hypertrophy, regional wall motion abnormalities which suggest underlying CAD, Takotsubo syndrome, or myocarditis, pulmonary hypertension, valvular function, markers of diastolic function, assessment before and after implantation CRT, LVAD, and RVAD. 3-dimensional echocardiography, strain imaging and myocardial perfusion imaging have an important role in assessment of myocardial function. In conclusion, Echocardiography has a crucial role in identifying structural and hemodynamic changes associated with systolic and diastolic heart failure and to monitor patients' responses to new therapies. In patients with advanced heart failure (HF) refractory to medical therapy, assessment of patients for LVADs, RVADs, and transplantation using echocardiography is an everyday challenge.

Keywords: echocardiography, heart failure, LVAD

THE ROLE OF TRANSESOPHAGEAL ECHOCARDIOGRAPHY IN MINIMALLY INVASIVE CARDIAC SURGERY

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THE ROLE OF TRANSESOPHAGEAL ECHOCARDIOGRAPHY IN MINIMALLY INVASIVE CARDIAC SURGERY

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Objective: Over the past decades, the popularity of minimally invasive cardiac surgery (MICS) has been increasing. Patients' demand for cosmetically acceptable scars, less surgical trauma, reduced postoperative pain, early mobility, earlier recovery, and return to normal activity rises every day.

Topic review: Transesophageal echocardiography (TEE) is a routine during MICS operations. In everyday practice during MISC, we use transesophageal echocardiography for confirmation of definitive diagnosis. We assess the repair or replacement of the mitral, aortic, tricuspid or pulmonary valve. During surgery, we use navigation of the guidewire and correct placement of the cannulae, interatrial and interventricular septum, cardiac masses, real-time assessment of intracardiac air, ventricular filling, ventricular function, weaning from cardiopulmonary bypass. With TEE we detect problems during operations and help surgeons correct them.

In conclusion, patients' perceptions and expectations have changed. Patients which are delegated for cardiac surgery increasingly ask for the approach that leaves the sternum intact. Minimally invasive cardiac surgery and transesophageal echocardiography continue to evolve. Today intraoperative TEE is a class I indication for assessment of all valves during minimally invasive cardiac surgery. During MICS navigation surgeons with transesophageal echocardiography provides better outcomes for patients.

Keywords: Transesophageal echocardiography (TEE), minimally invasive cardiac surgery (MICS), real-time assessment.

TREATMENT MANAGEMENT IN A PATIENT WITH GIANT RUPTURED INTERNAL ILIAC ARTERY ANEURYSM

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Title:
TREATMENT MANAGEMENT IN A PATIENT WITH GIANT RUPTURED INTERNAL ILIAC ARTERY ANEURYSM

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The objective of the examination: Internal iliac artery aneurysms are very rare vascular malformations. Approximately 30% to 50% are bilateral. It mainly occurs in older men and is related to other aortic aneurysms. Ruptures of the internal iliac artery aneurysm (RAAII) are rare and demanding surgical treatment. Due to their anatomical position, they are difficult to operate on, and perioperative morbidity is high. The purpose of treating an aneurysm is to exclude it from circulation and to restore distal vascularization. Patients with a ruptured aneurysm require urgent treatment. Currently, two methods of treatment are available: open surgery and repair of the endovascular aneurysm (EVAR). In this report, we are presenting 2 patients with acute rupture huge internal iliac artery aneurysm, treated by resection and bifurcated graft reconstruction.

Topic overview: The aim of this paper is to present 2 patients operated for the rupture of a giant internal iliac artery aneurysm (RAAII), in the last 4 years at the Clinic of Cardiovascular Surgery Clinical Center of the University of Sarajevo. There were 2 male patients with, an average age of 72.5 (83 and 62 years old). During the postoperative period, the graft was passable, and renal failure or renovascular hypertension was not noticed.

Conclusion: We described two cases in which we successfully surgically treated the rupture of a huge internal iliac aneurysm associated with urethral obstruction with dilation of the renal canal system, elevated urea values, creatinine, and inflammatory parameters. Although patients had severe preoperative comorbidities, emergency traditional open surgery performed by an experienced surgical team, instead of endovascular treatment, can be an excellent alternative to endovascular treatment.

Keywords: open surgery, giant ruptured internal iliac artery aneurysm, abdominal structure compression