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INVITED LECTURE

QUANTITATIVE RHEUMATOLOGY: MEASURES IN RHEUMATOID ARTHRITIS

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ABSTRACT

Rheumatoid arthritis is systemic autoimmune progressive disease leading to imparmaint of the joints, functional disability and handicap.Early diagnosis, early prescription of different pharmacologic therapy and non pharmacological treatment produce benefits for prognosis and outcome. The efficacy assessment of the treatment and tight control of the patients lead to achieving target of the RA treatment- remission. Quantitative measurement enable evaluation of disease activity, radiologic progression and functional status and physical activity in the patients with rheumatoid arthritis.

Keywords: *rheumatoid arthritis, early diagnosis, disease activity, outcome measures*

INTRODUCTION

Rheumatoid arthritis (RA) is systemic, autoimmune disease with persistent joint inflammation leading to the joint impairment and loss of function. Substantial irreversibile damage occurs within the first 2 years.[1] Early diagnosis and early treatment infuence better prognosis and outcome. The terapeutic target is remission of disease or minimal disease activity. Presumptions to achieving these goals are early prescription of different pharmacological therapy (disease modifying antireumatic drugs, glucocorticosteroids and biologic agents), tight control and on time evaluation of efficacy and tolerability and change of therapeutic strategy as needed. Non-pahramacologic treatment and quantitative measurement of disease activity, radiologic progression and response to the therapy are necessary to achieving this target.[2,3] Various disease activity indices improvement scores and outcome measures were developed to enable evaluation of diseas eactivity and response to treatment in individual patients.

DISEASE ACTIVITY

Tender and swelling joint count is most specific clinical parameter to assess clinical status.[4,5] ACR (American College of Rheumatology) joint count is videly accepted as measure of disease activity. The classical 66/68-joint count with graded scoring (0-4) for swelling, tenderness, pain on motion,limited motion, and deformity has been shortened for clinical care to a 28-joint count, scored only as 'Yes' or 'No' for swelling or tenderness.[6,7] The ACR Core Data Set includes seven measures: three from an assessor – tender joint count, swollen joint count, and physician/assessor estimate of global status; one from a laboratory test – ESR or CRP; and three from patient self-report questionnaire – physical function, pain, and patient estimate of global status.[8] EULAR (European ligue against rheumatism) criteria for disease activity DAS (Disease Activity Score) are based on tender and swelling joint acount, sedimentation rate (ESR) and patient's general health assessment on visual analogue scale (VAS)[9] These indices have been widely used in essentially all RA clinical trials over the last two decades. Various modifications were made. In clinical practice

DAS28 score (28 tender and swelling joints, ESR with or without patients general health assessment) is generally accepted.[10] Smolen et al. proposed simplified activity index (SDAI-Simplified Disease Activity Index) based on numerical summe of 5 parameters: number of tender joints (28), number of swollen joints (28), patients disease activity assessment (VAS), physician disease activity assessment (VAS) and CRP. [11] However, acute phase reactants add little to composite disease activity indices for rheumatoid arthritis, Aletaha et al. proposed clinical disease activity index (CDAI identical as SDAI without ESR and CRP.[12]

DISABILITY MEASURE IN RA

The Health Assessment Questionnaire (HAQ) [13] is the gold standard functional status questionnaire recommended by ACR .[8] The HAQ asks the patient to rate on a four-point ordered category item scale the degree of difficulty they have experienced over the last week with each of 20 tasks, grouped into 8 functional areas with scores further adjusted based on an additional 21 questions regarding the use of companion aids or devices. Scores are then converted into an overall mean score ranging from 0-3, with 0 indicating no functional impairment and 3 indicating complete impairment.[14] Three shorter versions, modified-HAQ (MHAQ), multidimensional-HAQ (MDHAQ), and HAQII, are often used in outcomes research as HAQ substitutes. MHAQ asks patients to answer 8 questions; 1 in each of the 8 functional areas explored with the HAQ.[15] MDHAQ was created as a further modification of the HAQ, designed with 10 formally scored activity questions and an additional 3 non-scored items (sleep, anxiety, and depression) to assess psychological status with the resultant score again converted into an overall mean score ranging from 0-3.[16] Based on the original HAQ, the HAQII is a 10-item functional questionnaire with scores ranging from 0-3.[17] The conversion formulas between these modified versions and the original HAQ is developed.[14]

RADIOLOGICAL PROGRESSION OF RA

From the Steinbrocker's classification of radiological features in RA various standard or computerized, simple or complicate methods of scoring of the joint space narowing and erosions in different araes of the hands and feets are developed.[18-23] Diagnostic ultrsound and magnetic resonance offer hughe possibility in the diagnosis of early RA and radiological progression.[24,25]

TREATMENT RESPONSE AND OUTCOME MEASURES

The target of RA treatment is remission. If remission is not possible, minimal disease activity or improvement at least 20 % is appropriate. Improvement of 20% in both tender and swollen joint counts, as well as three of the five additional measures (patient and physician global assessments, pain, disability, and an acute-phase reactant.), known as "ACR 20", is designated as the ACR preliminary definition of improvement.[26] The EULAR response criteria classify individual patients as non-, moderate, or good responders, dependent on the extent of change and the level of disease activity reached.[27] International group for Outcomes Measures in Rheumatoid Arthritis Clinical Trials (OMERACT) has established criteria for minimal disease activity. Minimal disease activity match to DAS28 £ 2,85 and to 5 from 7 WHO/ILAR parameters.[28] Criteria for remission of RA were also developed. Six criteria according ACR yielded optimal discrimination: morning stiffness absent or not exceeding 15 minutes, no fatigue, no joint pain by history, no joint tenderness, no joint or tendon sheath swelling, and no elevation of erythrocyte sedimentation rate. The remission is defined by the presence of 5 from 6 criteria (pain (0-10) £ 2; swollen joint count (28) £ 1; tender joint count (28) £ 1; HAQ £ 0.5; physician global assessment of disease activity (0-10) £ 1.5; patient global assessment of disease activity (0-10) £ 2; ESR £ 20. in 2 consecutive months.[29] Equivalents to this definition is DAS28 score < 2.6, CDAI ≤ 2.8, SDAI $\leq 3,3$.[30]

CONCLUSION

Remission is treatment target in RA. To achieve this target, early diagnosis and early prescription of pharmacological treatment are necessary. Criteria for early diagnosis, disease activity and response to treatment are established. Tight control and measures are important for properely decisions and prognosis and outcome in RA.

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