

DEATH IN HOSPITAL CONDITIONS

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DEATH IN HOSPITAL CONDITIONS

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Accurate information on the cause of death is obtained from expert teams based on pathological or forensic expertise. Reliable information can be obtained from physicians in hospital settings if the deceased person has been treated in such an institution and has previously been diagnosed with an illness (intra-hospital mortality). Intra-hospital mortality analysis provides reliable data that can be used in the planning of a bed fund, the amount of medication purchased, the purchase of equipment, the organization and creation of highly specialized medical teams (resuscitation team), the number of resuscitation procedures, the number of pathologists required for autopsy procedures, etc. The aim of the study was to determine the total number of deaths, to identify the most common causes of death and 10 leading diagnoses of deceased patients at the Internal Medicine Clinic, University Clinical Center Tuzla (UKC) during one calendar year (2011).

Material and methods: Archive material (case histories and reports of deceased patients of the Internal Medicine Clinic) were used.

Results: During this period, 6 488 patients were treated at the Internal Medicine Clinic and 451 patients died. According to the analyzed data, the most common diagnoses and causes of death at the Internal Medicine Clinic were: cerebrovascular incidents 104 (20.84%), cardiogenic shock in 24 (5.31%), heart failure 59 (10.86%), hepatic coma with cirrhosis of the liver 25 (5.33%), sudden cardiac death 30 (6.53%), respiratory failure 15 (3.32%), myocardial infarction 41 (9.99%), multiorgan failure 18 (4.00%), pulmonary edema 14 (3.10%), sepsis 6 (1.38%), pulmonary emboli 17 (3.82%), valvular heart disease 9 (1.92%), cardiorespiratory arrest 9 (1.92%), malignant abdominal neoplasms in 23 (5.28%), pancreatitis 2 (0.44%), hematemesis 8 (1.76%), diabetes mellitus 4 (0.88%), lung tumor 1 (0.22%), chronic renal insufficiency 12 (2.54%), suicidal intoxication 4 (0.88%), ileus 4 (0.88%), cachexia 3 (0.66%), restrictive cardiomyopathy 2 (0.44%), mesenteric thrombosis arteries 2 (0.44%), disseminated lupus erythematosus 2 (0.44%), coffee vein thrombosis inferior 2 (0.44%), and 1 (0.22%) died of an aneurysm aortic abdominalis, ventricular septal defect, amyloidosis, disseminated intravascular coagulation, systemic sclerosis, rheumatoid arthritis and breast tumors.

Conclusion: During the analyzed period, 6488 patients were treated at the Internal Medicine Clinic and a total of 451 patients died. The most common cause of death in hospitalized patients is cardiovascular disease (n = 208; 41.68% of deaths), with cerebrovascular disease (n = 104; 20.84% of deaths) totaling 312 (62.25%) of deaths from cardio and cerebrovascular disease.

Key words: overall mortality, cerebrovascular disease, cardiovascular disease, mortality rate.

INTRODUCTION

Natural death occurs as a result of illness or damage to health that can be caused by natural internal or external factors that cause a fatal condition with a fatal outcome. Accurate information about the cause of death is obtained from expert teams on the basis of pathological or forensic expertise. Reliable information can also be obtained from in-hospital physicians if a deceased person has been treated at such an institution and if previously diagnosed with the disease (intra-hospital mortality).

On the basis of the obtained data, the causes of death are analyzed and as a rule the 10 most common causes are defined which are then structurally analyzed. The most common causes of mortality are cardiovascular and cerebrovascular diseases. International studies indicate a decline in the rate of coronary heart disease mortality. The intra-hospital mortality of this disease varies from 4-7% depending on study by study (1,2,3). The presence of overweight, diabetes and extracorporeal vascular disease increase intra-hospital mortality (3,4). One-year intra-hospital mortality in acute

myocardial infarction often exceeds 10% (4,5). Intra-hospital mortality after cerebrovascular strokes in different studies also varies by institution, as well as by state, and ranges from 8 to 56% (6,7,8). By analyzing intrahospital mortality we obtain numerous data that can be used in the planning of the bed fund, the amount of medication procurement, the purchase of equipment, the organization and creation of highly specialized medical teams (resuscitation team), the number of resuscitation procedures, the number of pathologists required for autopsy procedures, etc.

The aim of the study was to determine the total number of deaths, identify the most common cause of mortality, and verify leading diagnoses as the cause of death at the Internal Medicine Clinic during one calendar year (2011).

MATERIAL AND METHODS

The archive material (case histories and reports of deceased patients, Clinics for internal diseases) was used. All deceased patients were statistically processed over a period of one year.

RESULTS

During the analyzed period, 6 488 patients were treated at the Internal Medicine Clinic, and 451 patients died, which is 6.90%. According to the analyzed data, the most common cause of death and leading diagnosis of causes of death over a 1 year period are: cerebrovascular incidents 104 (20.84%), cardiogenic shock in 24 (5.31%), heart failure 59 (10.86%), hepatic coma with liver cirrhosis 25 (5.33%), sudden cardiac death 30 (6.53%), respiratory failure 15 (3.32%), myocardial infarction 41 (9.99%), multiorgan failure 18 (4.00%),

pulmonary edema 14 (3.10%), sepsis 6 (1.38%), pulmonary emboli 17 (3.82%), valvular heart disease 9 (1.92%), cardiorespiratory arrest 9 (1.92%), malignant abdominal neoplasms in 23 (5.28%), pancreatitis 2 (0.44%), hematemesis 8 (1.76%), diabetes mellitus 4 (0.88%), lung tumor 1 (0.22%), chronic renal failure 12 (2.54%), suicidal intoxication 4 (0.88%), ileus 4 (0.88%), cachexia 3 (0.66%), restrictive cardiomyopathy 2 (0.44%), mesenteric artery thrombosis 2 (0.44%), disseminated lupus erythematosus 2 (0.44%), coffee vein thrombosis inferior 2 (0.44%), and 1 (0.22%) died pain eschinea from abdominalis aortic aneurysm, ventricular septal defect, amyloidosis, disseminated intravascular coagulation, systemic sclerosis, rheumatoid arthritis and breast tumors. The analysis of diagnoses identified conditions that could practically be considered the cause of death.

Analyzed data of diagnoses of the most common causes of death in the Internal Medicine Clinic during one calendar year in relation to the total number of deaths (n = 451) were:

1. cerebrovascular incidents 104 (20.84%),
2. heart failure 59 (10.86%),
3. Myocardial infarction 41 (9.99%),
4. Sudden cardiac death 30 (6.53%),
5. coma caused by cirrhosis of the liver 25 (5.33%),
6. cardiogenic shock 24 (5.31%),
7. malignant abdominal neoplasms 23 (5.28%),
8. multiorgan failure 18 (4.00%),
9. lung embolism 17 (3.82%),
10. respiratory failure 15 (3.23%).

Table 1. Diagnoses of the 10 most common causes of death

Cause of death	Number of deaths	Percentage [%]
Cerebrovascular incident	104	20,84
Heart failure	59	10,86
Myocardial Infarction	41	9,99
Sudden Cardiac Death	30	6,53
To whom caused by cirrhosis of the liver	25	5,33
Cardiogenic Shock	24	5,31
Malignant Abdominal Neoplasms	23	5,28
Multiorgan Failure	18	4,00
Lung embolism	17	3,82
Respiratory failure	15	3,23

Other diagnoses of death knell in order of occurrence are:

1. pulmonary edema 14 (3.10%),
2. chronic renal failure 12 (2.54%),

3. valvular heart disease 9 (1.92%),
4. Cardiorespiratory arrest 9 (1.92%),
5. hematemesis 8 (1.76%),

6. sepsis 6 (1.38%),
7. diabetes mellitus 4 (0.88%),
8. suicidal intoxication 4 (0.88%)
9. ileus 4 (0.88%),
10. cachexia 3 (0.66%),
11. Pancreatitis 2 (0.44%)
12. restrictive cardiomyopathy 2 (0.44%),
13. mesenteric artery thrombosis 2 (0.44%),
14. disseminated lupus erythematosus 2 (0.44%)
15. coffee vein thrombosis inferior 2 (0.44%),

16. and in 1 (0.22%) case, died of abdominalis ventricular septal defect aneurysm, amyloidosis, disseminated intravascular coagulation, systemic sclerosis, rheumatoid arthritis, breast tumors and lung tumors.

According to the analysis of the most common causes of death by diseases of the affected systems, the obtained data of the most common causes of death in patients during one calendar year are: cardiovascular diseases (n = 208; 41.68% of deaths), second place are cerebrovascular diseases (n = 104; 20.84% of deaths), totaling 312 (62.25%) of cardio and cerebrovascular deaths, while gastrointestinal diseases ranked third (n = 62; 13.84%).

Table 2. Diagnoses of causes of death by system at the Internal Medicine Clinic

Cause of death	Number of deaths (n=451)	Percentage [%]
Cardiovascular Diseases	208	41,68
Cerebrovascular Diseases	104	20,84
Gastrointestinal diseases	62	13,84
Respiratory Diseases	16	3,54
Endocrinological diseases	4	0,88
Hematologic diseases	1	0,22
Nephrological diseases	12	2,54
Multiorgan failure	18	4,00
Infections-sepsis-other diseases	16	3,54

DISCUSSION AND CONCLUSIONS

The information obtained from physicians who did not know or did not treat the deceased person is partially correct. For the accuracy of the data in the statistical processing of the causes of death, only the data provided by the physician who treated the patient are relevant. The place of death of the deceased person can be anywhere. Accuracy of data is increasing in proportion with the increase in deaths in healthcare facilities. The death of a person in a hospital setting should not occur without the physician being required to complete a medical report on the cause of death. The cause of death structure is used to obtain information on the most common cause of death, to determine whether the causes of death differ by place of residence, whether they are related to gender, age, whether they vary by occupation, religious expression, etc. In addition, the data obtained are used to calculate specific rates by gender, age, marital status, occupation, social structure of the deceased, place of death and time of death. Then, to calculate the length of life of a population in a particular area to obtain data on the morbidity and changes in the incidence of certain diseases through time monitoring (month, year) or monitoring depending on seasons, weather changes, economic development, early childhood disease, cardiovascular disease and frequency of cause of death.

Also important is the proportion of total mortality covered by this cause, monitoring the dynamics of change by comparing causes of death over time periods in a particular area, and the difference in the structure of causes of death relative to areas, comparing each other. An analysis of the cause of death structure can also be used to calculate mortality from specific diseases (specific mortality). International studies indicate a decrease in the rate of mortality from coronary heart disease (acute myocardial infarction).

Intrahospital mortality from coronary heart disease varies from 4-7%, in some studies. In a study we did in 2010, the data obtained indicate that 20 (4.60%) patients died from acute myocardial infarction (1,2,3). The presence of overweight, diabetes, and extracorporeal vascular disease all influence the increase in intrahospital mortality (3,4). One-year intrahospital mortality in acute myocardial infarction often exceeds 10% (4,5).

Intrahospital mortality after cerebrovascular strokes in different studies also varies, by institution and state. This percentage is usually 8-56% (6,7,8). In a 2010 study, 99 (23.34%) patients died from a cerebrovascular incident. Compared to previous surveys (2008), more than 60 deaths were registered at the Internal Medicine Clinic, and more than 44 deaths compared to 2009

(9.10). In 2008, 2009 and 2010, cardiovascular disease was the first place in terms of deaths, with a total of 208 (41.68%), followed by cerebrovascular incidents with (n = 104; 20.84%). Gastrointestinal diseases ranked third (n = 62; 13.84%). There is a significantly lower percentage of deaths from respiratory failure (9). At the Internal Medicine Clinic in 2011, 6 488 were treated and a total of 451 patients died, representing

6.90%. According to the analysis of the most common causes of death by diseases of the affected systems, the following data were obtained: first place cardiovascular diseases (n = 208; 41.68% of deaths), second place cerebrovascular diseases (n = 104; 20.84% deaths) 312 (62.25%) died of cardio and cerebrovascular diseases together, while third place were gastrointestinal diseases (n = 62; 13.84%).

REFERENCES

1. McNamara RL, Wang Y, Nerrin J, Curtis JP, Bradley EH, Magid DJ et al. Door-to-Balloon Effect Time on Mortality in Patients With ST-Segment Elevation Myocardial Infarction. *Journal of the American College of Cardiology*. 2006; 47 (11): 2180-2186.
2. Chew DP, Amerena J, Coverdale S, Rankin J, Astley C, Brieger D. Current management of acute coronary syndromes in Australia: observations from acute coronary syndromes prospective audit. *Internal Medicine Journal*. 2007; (Online Early Articles).
3. Verein Outcome. Results of outcome measurements in hospitals in Switzerland. Unpublished data. www.vereinoutcome.ch
4. Anonymous. ACC / AHA 2007 Guidelines for Patient Management With Unstable Angina / Non-ST-Elevation Myocardial Infarction: A Report of the American College of Cardiology / American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients With Unstable Angina / Non-ST-Elevation Myocardial Infarction) Developed in Collaboration With the American College of Emergency Physicians, the Society of Cardiovascular Angiography and Interventions, and the Society of Thoracic Surgeons Academic Emergency Medicine. *Journal of the American College of Cardiology*. 2007; 50 (7): e1-157.
5. Schiele F, Meneveau N, Seronde MF, Caulfield F, Fouche R, Lassabe G et al. Compliance with guidelines and 1-year mortality in patients with acute myocardial infarction: a prospective study. *Eur Heart J* 2005; 26 (9): 873-880.
6. Ryglewicz D, Milewska D, Lechowicz W et al. Factors predicting early stroke fatality in Poland. *Neurological Sciences* 2003; 24: 301-304.
7. Wolfe CDA, Tilling K, Beech R et al. European Stroke Care Group Study. Variations in case fatality and stroke dependency in Western and Central Europe. *Stroke* 1999; 30: 350-356.
8. Wier NU, Sandercock PAG, Lewis SC, Signorini DF, Warlow CP. Variations in between countries in the outcome after the stroke in the International Stroke Trial (IST). *Stroke* 2001; 32: 1370-1377.
9. Baraković F, Tabaković M, et al., Mortality at the Clinic for Internal Diseases of the South-West University Clinical Center Tuzla in 2008. Book of abstracts. V Congress of Cardiologists and Angiologists of BiH, 2010
10. Baraković F, Tabaković M, et al., Mortality at the Clinical Internal Medicine University Clinical Center in Tuzla during 2008 *Med Arh* 2010; 64 (5): 278.