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Qualitative Evaluation of Cardiovascular Diseases Management in Family Medicine Team in One Year Level

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ABSTRACT

Introduction: Cardiovascular diseases (CVD) are the leading death cause in modern world and are the most public health problem. WHO program for CVD contains: *prevention, command and follow up of CVD in global level*. **Aim:** Investigate CVD frequency in family medicine team in 2012.year (one year period of time) and qualitative management prevention and clinical services management quality of CVD together with recommended standards. **Patients and methods:** clinical revision of clinical standard practice patients with CVD was provided in Family medicine team in Public Health Centre Tuzla for the period of time from January 01 2012 - December 31 2012. For quality of realized services, AKAZ standards were based for: chapter 2. Health promotion and diseases prevention 2.5.preventive clinical services; chapter 3. Clinical services, standard 3.1.Coronary diseases and standard 3.2. TIA and Stroke. From CVD register next parameters had been used: age, gender, disease diagnose, therapy, blood pressure values, total cholesterol values, β blockers therapy, anticoagulant therapy prescription, smoker status, stop smoking recommendation and influenza vaccination recommendation. **Statistical approach:** All results were taken in Excel program and statistically analyzed. Descriptive standard tests were taken with measurement of central tendency and dispersion. For significant differentials achieved with χ^2 chances relation was taken (Odds Ratio-OR) with 95% relevant security. All tests were leveled in statistical significant from 95% ($p < 0,05$). **Results:** Considering total registered habitants number 1448 (males 624 females 824) total diseases of usually CVD in Team 1 family medicine 531 (36,67%). The most frequent disease was hypertension which was presented in 30,31% of registered patients but in total CVD illness was present in 82,67%. In relation with total patients number (531), female prevalence from CVD 345:186 males vs. 65%:35%; $P=0,001$ and was statistically significantly higher. Almost patients were in age from ≥ 65 years. Nearly all the standards for chapter 2. Health promotion and diseases prevention and chapter 3. Clinical services, standard 3.1.Coronary diseases and standard 3.2. TIA and Stroke are met in larger percentages than the minimum, however, bad quality signs we have found in total cholesterol control were values of total cholesterol were ≤ 5 mmol/l achieved only in 27.58% patients with CVD. Stop smoking recommendation in smokers with TIA and Stroke (total 10 smokers) was registered in 20,00% patients. Indicator was not achieved,(min level 25%). **Conclusion:** Role of family medicine team is extremely important in patient care who suffer from chronically noncontagious diseases such as CVD, as one of them. Considering that in our country preventive programs for CVD are at small level, results of this study are acceptable. Our plans for personal continuous educations and patient educations about healthy life style are pointed for higher or average of achieved standards and of course everything what have to be done should be written in personal dates of patients.

Key words: cardiovascular diseases, quality, management of cardiovascular diseases, family medicine team.

1. INTRODUCTION

Economic transition, urbanization, industrialization and globalization bring changes in life style which is in correlation with higher heart diseases prevalence. Therefore the risk factors are higher because of tobacco usage,

body inactivity, stress and unhealthy food. Expecting life duration in developing countries, the time of risk factors exposure rates. Because of that new approaches to Cardiovascular diseases (CVD) risk factors such as: lower delivery weight, folate insufficiency and infections are the

most presented in the third world countries and in the countries with low and middle financial incomes (1, 2).

Cardiovascular diseases (CVD) are the leading factor in modern world mortality and very important public health problems. According to World Health Organization (WHO), in the year 2008, CVD were cause of death in 17,3 million people in the world, 7,3 million ischaemic heart diseases, and 6,2 million from cerebrovascular diseases. In the age of 60 years more than 3 million deaths were caused by CVD. It is estimated that during the year 2030 because of CVD will died 23, 6 million people. Leading factors CVD are: tobacco usage, physical inactivity, unhealthy food and alcohol abuse (2, 3).

In Europe region CVD are responsible for 4, 3 million death by year, which means 48% of all death causes (54% female deaths and 43% male deaths). In European Community Country (ECC) are responsible for 42% deaths. CVD are the main cause in male's death in Europe as well except Spain, France and Netherlands (3). Less than half of CVD deaths is caused by ischaemic hart diseases and one third by cerebrovascular diseases. Last thirty years in most European countries, West and South Europe mortality, incidence and lethality of CVD are decreased instead in East and Middle Europe where are increased. Countries with higher CVD are countries with bad economic development (3, 4).

Death causes in Bosnia and Herzegovina Federation (FB&H) with huge CVD influence are: unhealthy food, smoking and/or physical inactivity. Five the most present death causes in FB&H in 2011 are the same as last year: stroke (I63), cardiomyopathy (I42), cardiac arrest (I46), acute myocardial infarct (I21) and essential hypertension (I10). Leading causes of females death in 2011, same as in 2010, were: 11,4% stroke, 9,4% cardiomyopathy, 8,7% cardiac arrest, 5,6% myocardial infarct. Therefore there is slow decrease mortality comparing previous years (5). Males were in bigger number of deaths in 2011: 8% stroke, 7,8% acute myocardial infarct, 7,6% cardiomyopathies and 8,1% bronchial and lung carcinomas. Increased respiratory tract malignoma comparing 2010, could be in correlation with life style, smoke, life and working environmental pollution and other risk factors (5).

Cardiovascular diseases are preventable in large number of patients. World Health Organization (WHO) estimated that middle stage of blood pressure reduction, obesity, cholesterol and tobacco usage, in population level, more than half reduced CVD incidence (2). Action frame for prevention CVD area is based on good established aims, choose by management strategy and capacity development for their realization. Known methods for leading CVD programs contain almost frame aims: hearth health promotion in whole population, symptoms of CVD prevention, life promotion without tobacco, regular body exercise, hypertension risk factors eradication, lowering higher lipids level, fight against abdominal type obesity and diabetes, exact diagnostically procedures, CVD control and therapy, program against relapse of CVD, without stress life, healthy food and healthy and comfortable environment (6). Global strategy is the final aim of these actions to achieve less frequency in morbidity and mortality from CVD with lower CVD risks and their deter-

minants, to develop rational and equal health innovations for CVD managing, CVD trend follow up and their risk factors from modern world (1, 3).

Aims of this study are a) to exam frequency of CVD diseases in family doctor team in the year 2011 (one year period); b) to investigate if CVD the management in coordination with recommended standards and c) to investigates if CVD clinical services are coordinated with recommended standards.

2. PATIENTS AND METHODS

Clinical CVD follow-up is expensive and for long period of time. Therefore CVD management quality achievement is imperative in primary health care system. CVD have influence in patients middle age years destroying future of their financially depended families, destroying society development without human resources in their the most predictable years. In modern world lower socioeconomic groups have higher prevalence CVD risk factors, higher frequency and mortality. In countries in transition we could talk about CVD epidemic of lower socioeconomic groups (1, 2).

Our aim is to achieve efficacy and control cardiovascular risks and makes lower epidemiology trend of CVD especially in our country (our country is in development) qualitative management in family medicine. The mean working tasks are: importance in lower (mayor) CVD risks with using integrated program for noncontagious disease prevention.

CVD cases management in standard of prevention are important in strategy development (1, 2).

It concerns development of management quality evaluation and mayor CVD risk factor trends, preventive standard evaluation and initiative control (1). Therefore standard clinical practice with patients with CVD has been evaluated by revision in family doctor team in Public Health Center Tuzla in the period from 01.01.2012 - 31.12.2012. Management quality has been evaluated according to established and recommended standards of Agency for Accreditation and Quality in Health FB&H (AKAZ) (7). For quality services evaluation, have been used standards of AKAZ: for chapter 2. Health promotion and disease standard prevention 2.5. Preventive clinical services; chapter 3. Clinical services standard 3.1-Coronary hearth disease and standard 3.2. TIA and stroke. Realized services quality in patients with CVD has been qualified according to standards of AKAZ in chapter 2 (health promotion and prevention of diseases), standard 2.5. (Clinical services prevention), 2.5.1. (Hypertension prevention, evaluated in chapter clinical services); 2.5.2. (Smoking prevention-smoker status and stop smoking recommendation) 2.5.3. (Higher cholesterol prevention) in 2.5.4. (Prevention and vaccination of flu) and chapter 3. (Clinical services), standard 3.1.-3.8. (Coronary heart diseases and left hearth insufficiency).

Next parameters from CVD diseases register had been used: age, gender, disease diagnose, therapy, blood pressure values, cholesterol values, β blockers therapy, inhibitors of angiotensin converting enzymes (ACE inhibitors), anticoagulants therapy prescription, smoking status, and flu prevention vaccination. Registered patients number

in family doctor team was 1448 (624 males and 824 females) but total number of patients with CVD was 531 (186 males and 345 females).

Statistical methods

All dates were taken in Excel program and statistically evaluated. Standard tests of descriptive statistics with central tendency and dispersion were used. All variables with Kolomogorov-Smirnov test showed normal or abnormal dispersion. Quantitative variables were tested with Student's test if distribution was normal and Mann-Whitney- test if distribution was asymmetrical. Qualitative variables were tested with χ^2 test with continue correction. For significant differences achieved with χ^2 test-chances relation was taken (Odds Ratio – OR) with 95-percentage confidence values. All tests were analyzed with statistical difference values of 95% (p<0.05)..

3. RESULTS

Comparing total number of CVD patients and all registered population 1448 (males 624, females 824), total number of most frequent CVD in Team 1 Family doctor was 531 (36.67%) showed in Figure 1. Hypertension was the most presented disease 30.31% of registered population and in all CVD was presented in 82.67%. Transitory ischaemic attack (TIA) and stroke were presented in 2.76%, Angina pectoris and myocardial infarct were in 2.00% and heart failure in 1.58% patients comparing to all registered population number (Figure 1).

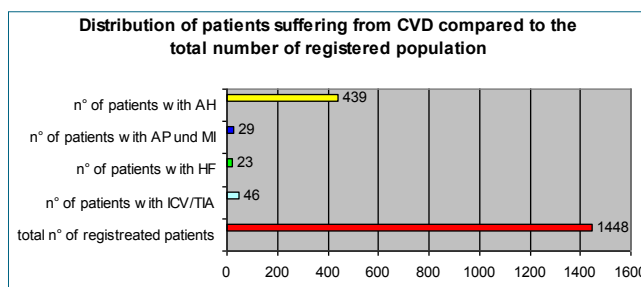


Figure 1. Distribution of patients suffering from CVD compared to the total number of registered population

Total patients number is 531, women disease prevalence from CVD 345:186 male vs. 65% : 35%; P=0.001 is statistically much bigger. The most frequent number of patients belonged to age group ≥65 years, but there is no

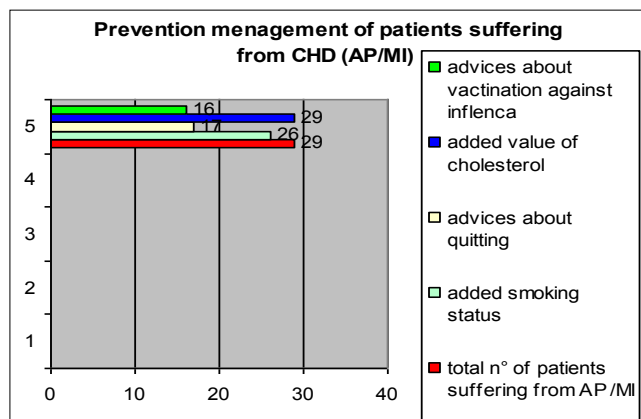


Figure 2. Assessment of quality of management of prevention of coronary heart disease: angina pectoris and myocardial infarction (n = 1448)

statistically significant difference according to age 20-64 years (Figure 2).

Health promotion of CVD

Standard 2.5.2. - Patients percentage with CVD hearth with smoking status for last 15 months (accept for non-smokers with one control) with 90%. Indicator is filled with maximum % (min. level 25%). Consulting about quit smoking for smoker patients with CVD (total 17) is registered in 88.23% patients. Standard 2.5.3. - Patient percentage with CVD with total cholesterol value in last 15 months was 100%. Standard 2.5.4. - Percentage patients with CVD documented in patient's files about flue vaccination in period of time from 01.09. to 31.03. was 55.17% (min. was 25%, and max. level was 85%). Standard 2.5.3.- CVD percentage with total cholesterol values registration in patient's files in last 15 months was 100%. Standard 2.5.4.- CVD patient's percentage in files registered flu vaccination recommendation in period from 1. September to 31. March was in 55.17% (min. 25%, and max. level was 85%) (Figure 3).

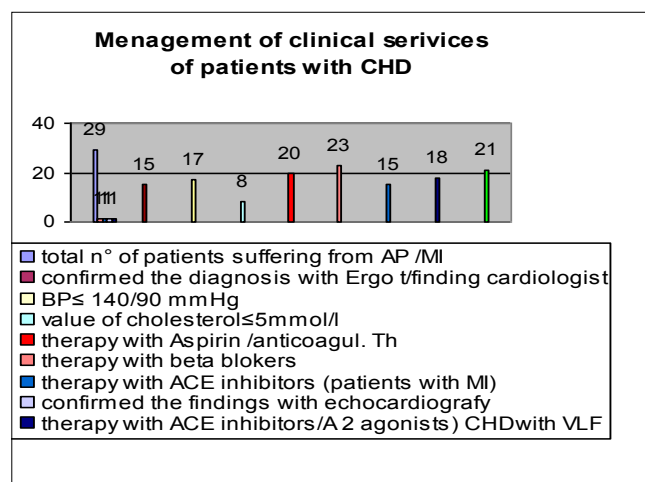


Figure 3. Assessment of quality of management of clinical services of patients with CHD

Clinical services for CVD

Team is ready to realize clinical services for CVD patients according to relevant clinical agendas and protocols. Patients percentage with angina pectoris new diagnose sent in ergometry and/or cardiologist exam was in 51.72%. (Min. level was 25%, max. level was 90%) (standard 3.1, CVD management indicator for CVD prevention is blood pressure ≤ 140/90 mmHg and last measurement of total cholesterol ≤ 5mmol, and measured in last 15 months (criteria's3.2. and 3.3.). Patient's percentage with CVD with last blood pressure measurements in last 15 months were ≤ 140/90 was in 58.62%, and last total cholesterol measurements ≤ 5mmol/l in 27.58% patients. Indicator was filled up if the smallest level of blood pressure measurement was ≤150/90 and cholesterol ≤ 5 mmol/l, measured in last 15 months was 25%, (max. level 70% for BP and 60% for cholesterol). Indicator for adequate administrated Aspirin or alternative anticoagulative therapy (criterias 3.4.) related to patients with CVD were in files in last 15 months registered Aspirin or alternative anticoagulation therapy (except were clear contraindications). Indicator was filled up with 68.96% (according to acridi-

tation standards the smallest level in Aspirin therapy or anticoagulant therapy in last 15 months was 25%, max level 90%). Patients percentage with CVD treated with β -blockers in last 15 months (excluded if there were clear contraindications or nus effects) was 79.31% (min. level 25%, maximal level was 80%) (criteria 3.5). Patient's percentage with myocardial infarct history treated with ACE inhibitors was 51.72%. Indicator was filled up when the smallest level of registered therapy with ACE inhibitors in patients with heart infarct was 25% (max. level 70%) (Criteria 3.6.). CVD management and left heart failure included percentage of patients with CVD and left heart failure confirmed with echocardiography. In our patients was 60.86% (min. level 25%, max. level 90%). Patient's percentage with CVD and left heart failure actually treated with ACE inhibitors or A2 antagonists was 73.91 %. Indicator is filled up when the lowest level of CVD patients and left heart failure treated with ACE inhibitors or A2 antagonists is 25% (max.level is 70%) (Figure 4).

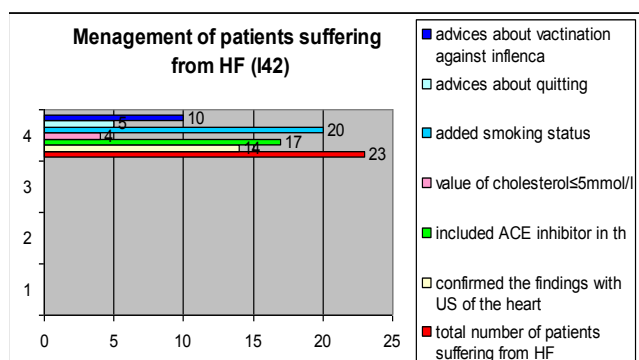


Figure 4. Assessment of quality of management of heart failure

TIA and stroke

Patient percentage with TIA and stroke where smoke status in last 15 months (except non smokers where one check was enough) was 90%. Indicator was filled up maximal (min. level was 25%). Quit-smoking consulting in smokers with TIA and stroke (total 10) is registered in 20.00% patients (indicator is not filled up, min level is 25%; Standard 2.5.2.). Patient's percentage with TIA and stroke with total cholesterol in last 15 months was 100% (Standard 2.5.3.). Patient's percentage with TIA and stroke in files are registered with flu vaccination suggestions in period of time from 1. September to 31. March. Indicator is filled up in 70% (min.level is 25%, a max.level is 85%) (Standard 2.5.4.). Team offer clinical services to patients with TIA and stroke according to relevant clinical protocols and agendas (Figure 5).

Management of suspected stroke

New patients percentage with suspected stroke sent to CT or NMR was 87.5%. Indicator is filled up if the lowest level of patients sent for CT or NMR because of diagnoses confirmation is 25% (max.level 80%; Standard 3.2.1.). Patients' percentage with TIA and stroke where the last blood pressure was \leq 150/90 mmHg measured in last 15 months was in 70.00%, and total cholesterol \leq 5 mmol in 42.50% patients. Indicator is filled up when the lowest level of last blood pressure was \leq 150/90 and total cholesterol was \leq 5 mmol, measured in last 15 months was 25%

(max. level is 70% for blood pressure and for cholesterol 60%) (Standard 3.2.2. and 3.2.3., Figure 5).

Patients' percentage with TIA in files or unhaemorrhagic stroke in last 15 months registered with aspirin or alternative anticoagulative or antitrombocytes therapy (except with clear contraindications) was 60%. Indicator is filled up when the lowest level of aspirin or proper alternative therapy registered in last 15 months was 25% (max. level is 90%; Standard 3.2.4., Figure 5).

4. DISCUSSION

Team family doctor role is very important in patient care who suffer from chronic noncontagious diseases where are CVD as well. It is very important to point out there team work in primary and secondary CVD prevention and in prevention of acute stroke, as well. Family medicine doctor is the first doctor who can see patient with his symptoms and doctor has to be educated to evaluate symptoms, to takes first therapeutic steps and to be aware of urgent criteria therapeutic procedures. How qualitative our practice has been done it is possible simply to do revision or checking out or revision (audit) of clinical practice for the most common diseases in practice. Family doctor team in registered in 1500-1800 habitants in average, but in our cases almost are patients not habitants.

In our study CVD management quality was explored in family doctor team where is registered 1448 patients. Number of CVD patients was 36.67%, with statistically significant women diseases such as hypertension, stroke and heart failure thus angina pectoris and myocardial infarction are diseases equal in both gender. According to Federal Statistic Department (2012) number of mortality was bigger considering females than males. Saxena and colleagues research (8) about coronary diseases in primary health service was about 34.61%. Our research results were the same like other authors studies.

Preventive clinical services quality indicators for CVD (in patient's file registered smoker status or stop smoking advice, total cholesterol values, flu vaccination recommendation) are realized in high percentage, which showed good quality of preventive clinical services of these illnesses. Recommendation for better work in future-to recommend stop smoking and flu vaccination recommendation of CVD patients because that indicator was filled in 55.17%. According to CVD risk quality management realized in some European countries (181practice and 2960 patient's files), flu vaccination was done in 70% patients with CVD (9). This shows differences in quality indicators in some countries but our quality indicator was only registered advice about flu vaccination.

In our study all CVD indicators of clinical services management are filled with higher percentage of minimal level which showed that in family doctor team, quality clinical services management is good but could be even better. New patients with angina pectoris percentage sent to ergometry or/and cardiologist was in 51.72%, blood pressure values \leq 140/90 achived in 58.62% patients. Total cholesterol values \leq 5 mmol/l was achieved only in 27.58% patients, what is minimal filled up level and it is necessary to work in patients education about healthy life style, healthy food and better individual health care. In British

national study about CVD, hypertension and stroke patients quality care in primary health care, 71.4%-88.6% patients with new diagnose of AP were sent to ergo test or cardiologist, what was better diagnose confirmation quality management of AP (7).

Patients with CVD evaluation with patient's file registration Aspirin therapy administration in last 15 months or alternative anticoagulant therapy (except with clear contraindications) were in 68.96% (according to accredited standards min.25%, max level was 90%). Similar results were presented in study (9) about CVD risk quality management realized in primary health care in some European countries which showed that 80% patients with cardiac failure were with anticoagulant therapy. Patients with CVD percentage treated with β -blockers in last 15 months were in 79.31%. Indicator is filled up what showed good quality management therapy of CVD (min. 25%, max levels was 80%). According to Brenan and others study, showed that even half of acute myocardial infarct patients did not receive Aspirin or β -blockers, and mistakes could be fatal and could be priceless and cause more costs than life and could be result of irresponsible practice (10).

Patients percentage with infarct myocardium history actually treated with ACE inhibitors was 51.72%. Indicator was significant when the smallest level of registered therapy by ACE inhibitors in patients with myocardium infarct was 25% (max. level was 70%). Cardiac failure in last ten years shows frequency in 1-2% in total population and in > 10% older population (11). In our study, results shows that statistically from cardiac failure women are more frequent what is the same comparing with other studies results (1-2; 4,6). Euro Heart Failure research program (12) about care quality among European patients with cardiac failure, more then half were women in age >75years, and diagnose was established by echocardiography in 84% patients. According to care patient quality with CVD, hypertension and stroke in primary health care in 73,3%-89,3% patients with coronary diseases and left hearth dysfunction and diagnose was taken by echocardiogram (8). Our research showed that diagnose quality management in CVD and left hearth diagnose was confirmed by echocardiography in 60.86% and was so similar to others authors and was acceptable according our conditions.

For TIA and stroke quality prevention measurements evaluation according to AKAZ standards, quality indicator was smoker status registered in last 15 months (except for nonsmokers with only one control) and in our study result was in maximum 90% (minimum level 25%), cholesterol values were registered in 100% patients, flu vaccination recommendation was in 70% patients. Although stop smoking recommendation was indicator for smokers with TIA and stroke (total 10) it was registered that only 20% minimum level was not realized in 25% patients. This is not acceptable because of prevention importance in TIA and stroke prevention in smoker patients (9).

According to Saxen and others, 63%-86% of patients suffered from stroke were sent to CT or MRI (8). Our results are similar to literature facts. Quality management of clinical services evaluation in TIA or stroke showed that blood pressure $\leq 150/90$ mmHg measured in last 15 months were registered in 70.00% ill patients, and total

cholesterol ≤ 5 mmol was founded in 42.50% patients. Aspirin therapy or alternative antitrombocyte or anticoagulant therapy were recommended in 60% patients. Cardiovascular risk management research in patients with coronary diseases in primary health care protection (9) showed targeted blood pressure (BP) reached in 46-86% of patients and targeted cholesterol values were in 80%, what suggested that in western countries more tasks are posted in preventive programs.

5. CONCLUSION

Huge number of CVD patients as noncontagious chronic diseases are treated in primary health center. Family doctors have very important role in cardiovascular risk management. Considering that in our country preventive programs are not at acceptable level, results of our study are acceptable. Number of CVD patients in family doctors teams has very important place in morbidity total number of health services users. Management CVD quality in family doctor team is acceptable, all indicators are filled almost in huge percentage, what presents very acceptable prevention CVD management and quality of clinical services, as well. Our plans with personal continuing education and patient education about health life style are to make in higher level or take at same level and of course everything what will be done to be registered in patient's file.

CONFLICT OF INTEREST: NON DECLARED.

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