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Characteristics and Management of Coronary Heart Disease in Greek Elderly Patients

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The aim of our study was to determine the special characteristics of clinical presentation and management of coronary heart disease (CHD) in elderly patients. During a one-year period, 108 consecutive elderly patients, 32 male, 76 female, mean age 83 ± 5 years, range 77–100 years, who were admitted to the cardiology department because of myocardial infarction (MI), stable or unstable angina entered into our study. All patients were examined for other diseases, which contribute to clinical presentation or deterioration of coronary heart disease (anaemia, thyroidopathy). They were treated conservatively with pharmacotherapy and management of possible risk factors, while all patients discharged with advise for further medical examinations (exercise tolerance test, coronary arteriography) and probable interventional and/or surgical treatment of their CHD.

12/108 (11 %) patients admitted with acute myocardial infarction (MI), 84/108 (78 %) patients had stable angina and 12/108 (11 %) had unstable angina. 96/108 (89 %) patients had concomitant symptoms of congestive heart failure (HF) upon admission. At admission, the ECG showed atrial fibrillation in 20 patients, LBBB in 8, RBBB in 12, left ventricular strain in 16, pacemaker pulse in 2, ischaemic lesions in 38 and normal findings in 12 patients. Thorax X-ray revealed HF findings in 58/108 (54 %) patients. Iron deficient anaemia (Ht < 35 %, serum iron < 45 mg/dl, normal values > 50 mg/dl), was found in 36/108 (33 %) patients, while 20/108 (19 %) patients had clinical and laboratory findings of hyperthyroidism and 8/108 (7,5 %) hypothyroidism. 12/108 (11 %) patients had taken blood transfusion. Only two patients agreed to perform bypass, while all the other patients refused further examinations or interventional management of their CHD.

In the majority of elderly patients (89 %), CHD manifested with concomitant HF, while the presence of systematic disease, (anaemia 33 %, hyperthyroidism 19 %, hypothyroidism 7,5 %), played a significant role in the clinical manifestation of CHD in this age group. Only two elderly patients agreed to perform bypass, while the rest refused further interventional management of their CHD. *J Clin Basic Cardiol* 2001; 4: 221–223.

Key words: coronary heart disease, octogenarians, heart failure

Coronary atherosclerosis is very common in the elderly population with autopsy studies demonstrating the prevalence to be at least 70 % in persons over the age of 70. These autopsy findings may be coincidental, with the disease clinically silent throughout the person's life, although 20 % to 30 % of persons over age 65 years will demonstrate clinical manifestations of coronary heart disease [1]. In most elderly persons, the disease will have manifested itself much earlier in their lives, however, in others the disease will be entirely silent until the person reaches his or her 70s or 80s [1, 2].

Furthermore, coronary heart disease in elderly persons may remain undiagnosed or underdiagnosed, while they are more likely to have comorbid conditions, atypical presentations and unfavourable outcomes than their younger counterparts [2–4]. Some of these differences are undoubtedly related to the structural and functional changes in the cardiovascular system associated with aging [4, 5].

The available data suggest that standard pharmacological, thrombolytic, and definitive revascularization techniques play important roles in the therapy of geriatric patients with cardiovascular disease, but have been underused, creating a large "treatment gap" between recommended therapies and the care that they are finally receiving [5, 6].

The aim of our study was to determine the special characteristics of clinical presentation and management of coronary heart disease in Greek elderly patients, in order to evaluate the quality of care.

Patients and Methods

During a one-year period, from 12/1999 to 12/2000, 108 consecutive elderly patients, 32 male, 76 female, mean age 83 ± 5 years, range 77–100 years, who were admitted to the cardiology department because of myocardial infarction (MI), stable or unstable angina entered into our study. A detailed history was obtained from all patients, as far as the duration, clinical presentation and current treatment of their coronary heart disease was concerned. Moreover, all patients were examined for other diseases which could contribute to clinical presentation or deterioration of coronary heart disease, such as anaemia or thyroidopathy and also for other drugs. Patients with known history of other cardiovascular diseases, such as valvular heart disease, cardiomyopathy, congenital heart disease, end-stage heart failure and patients with severe chronic renal or liver failure, severe cerebrovascular disease and malignant diseases were excluded from the study.

All patients were under electrocardiographic (ECG) monitoring, while haematological and blood chemistry examinations (cardiac enzymes) were obtained from all of them, who revealed coronary heart disease. Additionally, chest roentgenogram, thyroid hormones (FT4, FT3 and TSH), serum iron and ferritin levels were also obtained from all patients.

They were conservatively treated for their coronary heart disease with the following major drug categories: nitrates, diuretics, angiotensin converting enzyme inhibitors (ACE), diltiazem, small molecular weight heparin and aspirin or ticlopidin. Possible risk factors were also treated, and all patients were discharged with advise for further medical examinations (exercise tolerance test, coronary arteriography) and

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probable interventional and/or surgical treatment of their coronary heart disease.

Chi-square-test was used for statistical analysis.

Results

According to our study, from a total of 108 elderly patients with coronary heart disease admitted to our cardiology department, 12 (11 %) had acute myocardial infarction, 84 (78 %) had stable angina and 12 (11 %) had unstable angina (Fig. 1). Upon admission, 96 patients (89 %) had concomitant symptoms of congestive heart failure. In 44 % of patients coronary heart disease was present with dyspnoea and/or chest discomfort only, without typical angina (Fig. 2).

At admission ECG showed ischaemic lesions in 38 patients, atrial fibrillation in 20, left ventricular strain in 16, RBBB in 12, LBBB in 8, pacemaker pulse in 2, and normal findings in 12 patients. Chest X-ray revealed findings of congestive heart failure in 58 patients (54 %).

As far as other concomitant diseases, which could contribute to clinical presentation or deterioration of coronary heart disease in elderly patients, are concerned, 36 patients (33 %) exhibited iron deficient anaemia (Ht < 35 %, serum iron < 45 mg/dl, normal values > 50 mg/dl), while 20 (19 %) and 8 (7,5 %) elderly patients had clinical and laboratory findings of hyperthyroidism and hypothyroidism respectively (Fig. 3). Twelve from 108 (11 %) patients received blood transfusion because of iron deficient anaemia.

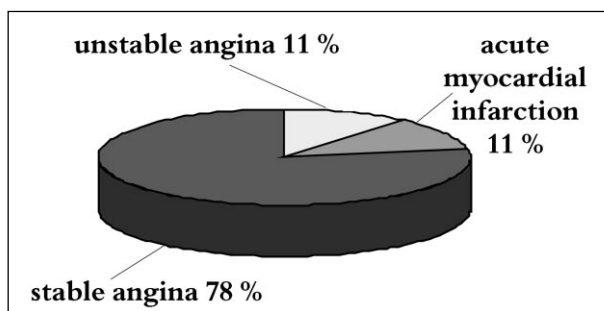


Figure 1. CHD presentation in Greek elderly patients

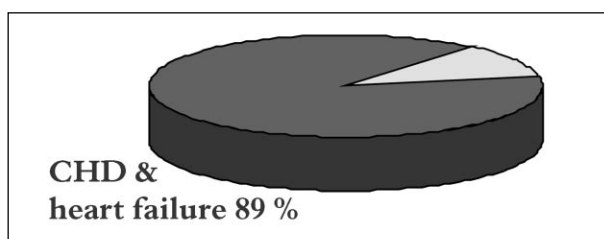


Figure 2. Concomitant heart failure in elderly patients with CHD

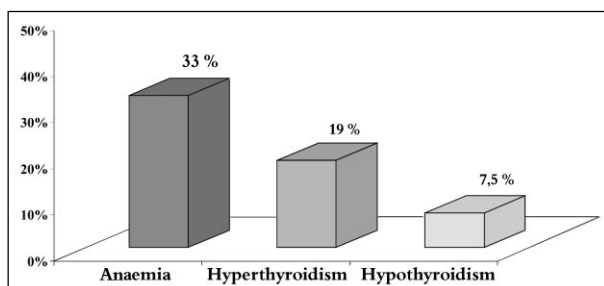


Figure 3. Comorbid diseases in elderly patients with CHD

As far as the management of coronary heart disease is concerned, only two female patients agreed to perform bypass, while all the other patients refused further examinations and/or interventional management of their coronary heart disease, contrary to cardiologist's advice.

There was no statistically significant difference found related to gender as far as the manifestations and management of coronary heart disease and other concomitant diseases are concerned, although acute myocardial infarction was more common in males and congestive heart failure concomitantly with coronary heart disease was more common in females. Particularly 16 % (5/32), 72 % (23/32) and 12 % (4/32) of male and 9 % (7/76), 80 % (61/76) and 11 % (8/76) of female patients had acute myocardial infarction, stable and unstable angina, respectively (NS, $p > 0.5$). Clinical manifestations of congestive heart failure concomitantly with coronary heart disease were found in 93 % (71/76) of female and 78 % (25/32) of male patients (NS, $p = 0.28$).

Iron deficient anaemia was found in 39 % (30/76) of female and in 19 % (6/32) of male patients (NS, $p = 0.23$), hyperthyroidism in 21 % (16/76) of females and in 12.5 % (4/32) of males, and hypothyroidism in 7.9 % (6/76) of females and in 6.25 % (2/32) of males (NS, $p > 0.5$).

Finally, as far as risk factors for coronary heart disease in elderly patients are concerned, 9 % (10/108) of our patients were heavy smokers, 7.4 % were obese (BMI > 25 kg/m²), 50 % (54/108) had hypertension and 20 % (22/108) had diabetes mellitus type II. Mixed hyperlipidaemia was found in 15 % (16/108) of our elderly patients, 31 % of patients had hypercholesterolaemia and 20 % had hypertriglyceridaemia.

Discussion

The elderly, over 75 years old, represent an increasingly important and challenging subset of the population of ischaemic heart disease patients, with some special particularities due to advanced age. Moreover, according to results from autopsy as well as from clinical studies, coronary atherosclerosis is very common in the elderly population, 20 % to 30 % of persons over age 65 years will demonstrate clinical manifestations of coronary heart disease [1–2]. Additionally, the elderly are more likely to have comorbid conditions, atypical presentations and unfavourable outcomes than their younger counterparts. Some of these findings are undoubtedly related to the structural and functional changes in the cardiovascular system associated with advanced age [2–5].

According to our study, in the majority of old patients, most of them octogenarians, coronary heart disease was entirely silent until the person reached his or her 80s and the majority of them (44 %) did not report a previous history of classical precordial pain (angina). In contrary, most of them came because of chest discomfort due to heart failure, while in 89 % of patients the protuberant symptoms were due to congestive heart failure as a consequence of coronary heart disease, which was subsequently proved by ECG changes in combination with alterations in cardiac enzymes. Our results are in accordance with other studies, which referred to atypical presentation of coronary heart disease in the elderly [1–8].

The problem of coronary atherosclerosis in advanced age becomes more complicated if we take into account the fact that coronary heart disease, although very common among the elderly, may be undiagnosed, underdiagnosed or misdiagnosed or even it may be silent until the age of 70–80 years [1, 2].

Furthermore, it is obvious from our study that the coexistence of systemic disease plays an important role in the manifestation of coronary heart disease in elderly patients, which is in accordance with other results from the literature. Par-

ticularly hypothyroidism is often related to hypercholesterolaemia and to increased risk of atherosclerosis, while hyperthyroidism precipitates angina or acute myocardial infarction in coronary heart disease patients [9–11]. Moreover, in our patients the presence of iron deficient anaemia (33 %) and thyroidopathy, hyperthyroidism (19 %) as well as hypothyroidism (7.5 %) were definite factors for the manifestation of coronary heart disease in them. However, although hypothyroidism is related to disturbances in lipid profile (hyperlipidaemia), which is a known risk factor for coronary atherosclerosis and in contrast to results of our study, other studies did not show a statistically significant relation between coronary heart disease and hypothyroidism [10–11]. It is supposed that diminished cardiac supplements due to advanced age, in combination with anaemia or hyperthyroidism, which increase the myocardium energy requirements, resulted in the manifestation of coronary heart disease. So it is possible that our patients did not suffer from real coronary insufficiency from an angiographic point of view, but the combination of systemic disease, diminished cardiac supplements due to advanced age and some degree of coronary stenosis resulted in coronary heart disease symptoms. Unfortunately, in almost all patients of our study, coronary angiography was not performed [12].

According to our study there were no statistically significant differences between the two genders, although acute myocardial infarction was more common in males (16 % vs 9 %, NS) than in females, while congestive heart failure concomitant to coronary heart disease (93 % vs 78 %, NS), iron deficient anaemia (39 % vs 19 % NS), hyperthyroidism (21 % vs 12.5 %, NS) and hypothyroidism (7.9 % vs 6.25 %, NS) were more common in females than in males. Similar results have been also reported from other studies [7, 8, 13, 14].

The coexistence of other concomitant diseases in combination with diminished cardiac supplements due to advanced age played an important role in the atypical presentation of coronary heart disease in our elderly patients, who predominantly manifested symptoms of heart failure instead of precordial pain.

As far as the risk factors for coronary atherosclerosis in elderly patients are concerned from our study is clear that smoking, obesity and hyperlipidaemia were not significant risk factors in very old patients (9 % were heavy smokers, 7.4 % were obese, 15 % had mixed hyperlipidaemia), results which are in accordance with other data as far as smoking and obesity are concerned [8, 11] but not as far as hyperlipidaemia is concerned, which in contrary is reported to be a significant (52 %) risk factor for coronary heart disease in elderly patients [11, 15–17]. On the other hand it is obvious that more hypertension (50 %) and less diabetes mellitus type II (20 %) were significant risk factors for coronary heart disease in elderly, in accordance also to other literature reports [8, 10–12].

Finally, as far as the management of coronary heart disease in elderly patients is concerned, we found that although the patients and their relatives were explicitly informed about the necessity of further management with exercise tolerance test, coronary arteriography and probable interventional and/or surgical treatment of their coronary heart disease, only two patients (1.9 %) finally consented to intervention, while the rest refused further diagnostic and/or probable interventional management.

However, the outcome of coronary heart disease in the elderly population of our study was satisfactory [18]. Despite the necessity of regular admissions to a cardiology department due to their coronary heart disease, 90 % of patients were still alive after the two years study period [19]. These

results are in accordance to other data from other countries, which suggest that although standard pharmacological, thrombolytic, and definitive revascularization techniques play important roles in the therapy of geriatric patients with cardiovascular disease, these have been underused, creating a large "treatment gap" between recommended therapies and the care that they are finally receiving [6, 18–19].

Conclusively cardiovascular disease in the majority of elderly patients has atypical presentation (in 89 % of cases with symptoms of congestive heart failure), while the cardiological care of the geriatric population of our study was only confined to pharmacologic treatment in combination with management of comorbid diseases (management of iron deficient anaemia with blood transfusions and iron supplements and management of thyroidopathy), with satisfactory outcome in 90 % of cases.

References

- Keller NM, Feit F. Coronary artery disease in the geriatric population. *Prog Cardiovasc Dis* 1996; 38: 407–18.
- Tresch DD, Aronow WS. Clinical manifestations and diagnosis of coronary artery disease. *Clin Geriatr Med* 1996; 12: 89–100.
- Pearson TA, Peters TD. The treatment gap in coronary artery disease and heart failure: community standards and the post-discharge patient. *Am J Cardiol* 1997; 30: 45H–52H.
- Wennberg DE, Makenka DJ, Sengupta A, Lucas FL, Vaitkus PT, Quinton H, O'Rourke D, Robb JF, Kellett MA jr, Shubrooks SJ jr, Bradley WA, Hearne MJ, Lee PV, O'Connor GT. Percutaneous transluminal coronary angioplasty in the elderly: epidemiology, clinical risk factors, and in-hospital outcomes. The Northern New England Cardiovascular disease Study Group. *Am Heart J* 1999; 137: 639–45.
- Sorell VL, Nanda NC. Role of echocardiography in the diagnosis and management of heart failure in the elderly. *Clin Geriatr Med* 2000; 16: 457–76.
- Ragosta M, Beller GA. The assessment of patients with congestive heart failure as a manifestation of coronary artery disease. *Coron Artery Dis* 1998; 9: 645–51.
- Rajzer M, Curylo A. Certain characteristics of myocardial infarction in young patients as compared with those over 65 years old. *Pol Tyg Lek* 1993; 48: 68–70.
- Teng JK, Lin LJ, Tsai LM, Kwan CM, Chen JH. Acute myocardial infarction in young and very old Chinese adults: clinical characteristics and therapeutic implications. *Int J Cardiol* 1994; 44: 29–36.
- Sundaram V, Hanna AN, Koneru L, Newman HA, Falko JM. Both hypothyroidism and hyperthyroidism enhance low-density lipoprotein oxidation. *J Clin Endocrinol Metabol* 1997; 82: 3421–4.
- Lindeman RD, Schade DS, LaRue A, Romero LJ, Liang HC, Baumgartner RN, Koehler KM, Garry PJ. Subclinical hypothyroidism in a biethnic, urban community. *J Am Geriatr Soc* 1999; 47: 703–9.
- Chadarevian R, Bruckert E, Ankri A, Beucler I, Giral P, Turpin G. Relationship between thyroid hormones and plasma D-dimer levels. *Thromb Haemost* 1998; 79: 99–103.
- Garoufalos S, Kouvaras G, Vitsias G, Perdikouris K, Markatou P, Hatzisavas J, Kassinos N, Karidis K, Foussas S. Comparison of angiographic findings, risk factors and long term follow-up between young and old patients with a history of myocardial infarction. *Int J Cardiol* 1998; 67: 75–80.
- Vaccarino V, Chen YT, Wang Y, Radford MJ, Krumholz HM. Sex differences in the clinical care and outcomes of congestive heart failure in the elderly. *Am Heart J* 1999; 138: 835–42.
- Goldberg R, Goff D, Cooper L, Luepker R, Zapka J, Bittner V, Osganian S, Lessard D, Cornell C, Meshack A, Mann C, Gilliland J, Feldman H. Age and sex differences in presentation of symptoms among patients with acute coronary disease: the REACT Trial. *Rapid Early Action for Coronary Treatment*. *Coron Artery Dis* 2000; 11: 399–407.
- Corti MC, Guralnik JM, Salive ME, Harris T, Ferrucci L, Glynn RJ, Havlik RJ. Clarifying the direct relation between total cholesterol levels and death from coronary heart disease in older persons. *Ann Intern Med* 1997; 126: 753–60.
- Heiat A, Vaccarino V, Krumholz HM. An evidence-based assessment of federal guidelines for overweight and obesity as they apply to elderly persons. *Arch Intern Med* 2001; 161: 1194–1203.
- Hunt D, Young P, Simes J, Hague W, Mann S, Owensby D, Lane G, Tonkin A. Benefits of pravastatin on cardiovascular events and mortality in older patients with coronary heart disease are equal to or exceed those seen in younger patients: Results from the LIPID trial. *Ann Intern Med* 2001; 134: 931–40.
- Ryan C, Shaw R, Plam M, Zapolanski AJ, Murphy M, Valle HV, Myler R. Coronary heart disease in Filipino and Filipino-American patients: prevalence of risk factors and outcomes of treatment. *J Invasive Cardiol* 2000; 12: 134–9.
- Walker AR. With increasing ageing in Western populations, what are the prospects for lowering the incidence of coronary heart disease? *QJM* 2001; 94: 107–12.

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