

Smoking prevalence in coronary patients from EuroAspire III Romania

Laura Crăciun¹, Adina Avram², Stela Iurciuc¹, Cristian Sarău¹, Claudiu Avram²,
Mădălina Căprariu², Gabrijela Gojka², Dan Gaiță¹, Silvia Mancaș¹

¹Department of Medical Polyclinic and Medical Emergencies, Victor Babeș University of Medicine and Pharmacy,
Timișoara, ²Department of Internal Medicine, Municipal Hospital Timișoara

REZUMAT

Prevalența fumatului la pacienții coronarieni din studiul EuroAspire III România

Obiective: Evaluarea incidenței fumatului, a complianței și a beneficiului renunțării la fumat la pacienții coronarieni incluși în proiectul EuroAspire III România.

Material și metodă: Am analizat incidența evenimentelor cardiovasculare acute la 530 pacienți cu diagnostic clinic inițial sau repetat de boală coronariană sau cu intervenții pentru boală coronariană, identificați retrospectiv din registrele de internare ale IBCV Timișoara. Identificarea s-a făcut în mod consecutiv la minim 6 luni și maxim 3 ani față de evenimentul coronarian pentru care s-a făcut internarea: by-pass aorto coronarian (CABG), angioplastie coronariană percutană (PTCA), infarct miocardic acut (IMA) sau angină instabilă (AI). Pacienții au fost împărțiți în trei grupe în funcție de condiția de fumător, fost fumător și nefumător.

Rezultate: Incidența fumatului anterior internării pentru evenimentul coronarian a fost de 68.3%, iar post-eveniment de 10%. Procentul fumătorilor de sex masculin (77.15%) a predominat față de cel feminin (42.64%) ($p < 0.05$, OR = 4.54) iar fumătorii bărbați (67.25%) au fost mai complianți la recomandările de renunțare la fumat față de femei (32.35%) – $p = 0.04$, OR = 2.16; nu au existat diferențe semnificative statistic între cele două sexe în ceea ce privește incidența fumatului la momentul interviului ($p > 0.05$). Pacienții care au continuat să fumeze post-eveniment coronarian au prezentat o frecvență mai crescută a incidenței evenimentelor cardiovasculare acute (MACE) față de nefumători ($p = 0.043$; OR = 1.98). Pacienții care au fumat la momentul evenimentului coronarian au prezentat un risc mai mare față de nefumători în ceea ce privește reintervenția prin PTCA ($p = 0.017$; OR = 4.28) și incidența IMA ($p = 0.01$; OR = 4.89). Incidența MACE a fost mai mare la fumătorii activi versus pasivi, dar diferența nu a fost semnificativă statistic ($p > 0.05$).

Concluzii: Majoritatea pacienților coronarieni au renunțat la fumat după experiența primului eveniment cardiovascular, o mică parte au continuat să fumeze. Pacienții care au continuat să fumeze post evenimentul coronarian au avut o incidență mai mare a MACE față de fumătorii activi sau foști fumători ($p < 0.05$). Incidența MACE a fost mai mare la fumătorii activi versus pasivi, dar diferența nu a fost semnificativă statistic între cele două grupuri ($p > 0.05$).

Cuvinte cheie: boală coronariană, fumat, eveniment cardiovascular acut.

ABSTRACT

Objective: Evaluating smoking incidence, the compliance to smoking cessation recommendation and benefits of quitting smoking in coronary patients included in EuroAspire III Romania survey.

Materials and methods: We evaluated the acute cardiovascular events (MACE) incidence in 530 consecutive coronary patients (≥ 18 years and < 80 years at the time of identification) with first or recurrent clinical diagnosis or treatments for coronary heart disease, retrospectively identified from diagnostic registers or hospital discharge lists. The coronary events for hospital admission were: elective or emergency coronary artery by-pass graft (CABG), elective or emergency percutaneous transluminal coronary angioplasty (PTCA), acute myocardial infarction (AMI) and unstable angina (UA). The starting date for identification was not less than 6 months and not more than 3 years prior to the expected date of interview. Patients were divided in three groups according to their condition of smoker (smoking at interview moment), ex-smoker (quitting smoking prior to interview moment) and no smoker (never smoking).

Results: Smoking incidence before hospital admission for coronary event was 68.3% and 10% after hospital discharge. Prior the coronary event, percentage of male smokers (77.15%) predominated by female smokers (42.64%) – $p < 0.05$, OR = 4.54. Male smokers (67.25%) were more compliant to smoking cessation recommendation compared to females (32.35%) – $p = 0.04$, OR = 2.16; there was no significant difference between the two sexes concerning smoking incidence at interview moment ($p > 0.05$). Patients who continued smoking after hospital discharged presented an increased frequency of MACE compared to non smokers ($p = 0.043$, OR = 1.98). Also, patients who continued smoking till hospitalization for coronary event, presented a higher risk compared to non smokers concerning re-intervention by PTCA ($p = 0.017$, OR = 4.28) and AMI incidence ($p = 0.01$, OR = 4.89). The MACE incidence was higher in active smokers versus passive smokers, but there was no significant differences between the two groups ($p > 0.05$).

Conclusion: Majority of coronary patients renounced smoking after their first experience with cardiovascular events, a small part continued smoking. Patients who continued smoking after the acute event had higher incidence of MACE compared to non-smokers or ex-smokers ($p < 0.05$). Also, MACE incidence was higher in active smokers versus passive but the difference was not significant between the two groups ($p > 0.05$).

Key words: coronary heart disease, smoking, acute cardiovascular event.

Introduction

The main objectives of coronary heart disease (CHD) prevention are to reduce morbidity and mortality, improve quality of life and increase the chances of a longer life expectancy^{1,3}. The influence of cigarette smoking on the development of CHD has been well documented⁵. The main concern nowadays is not so much the evidence to prove the point, but the strategy to tackle this habit². A wealth of scientific evidence from observational studies and randomized controlled trials now support a lot of interventions in relation to smoking cessation. Quitting smoking reduces overall mortality more than other forms of secondary prevention, including aspirin, β -blockers, angiotensin-converting enzyme inhibitors and cholesterol lowering statins². In the wake of such evidence-based findings, the ESC prevention guidelines recommend complete smoking cessation for secondary prevention of CHD in coronary patients¹. The comparison of EuroAspire I and II survey showed adverse lifestyle trends especially the substantial increase in smoking among younger patients in every country. Our main objective was to evaluate the smoking prevalence in coronary patients included in EuroAspire III Romania survey, their compliance to smoking cessation recommendation and benefits of quitting smoking.

Materials and methods

We evaluated consecutive coronary patients, men or women (≥ 18 years and < 80 years at the time of identification), with first or recurrent clinical diagnosis or treatments for coronary heart disease were retrospectively identified from diagnostic registers, hospital discharge lists or other sources. The starting date for identification was not less than 6 months and not more than 3 years prior to the expected date of interview. Patients could fulfill more than one of the following diagnostic criteria: elective or emergency coronary artery by-pass graft (CABG) operation; elective or emergency percutaneous transluminal coronary angioplasty (PTCA); acute myocardial infarction (AMI) with ST elevation and non ST elevation MI; unstable angina (UA) but no evidence of infarction (troponin negative). Patients were divided in three groups according to their condition of: active smoker (smoking at interview moment), ex-smoker (quitting smoking prior to interview moment) and non-smoker (never smoking). In order to evaluate the cardiovascular risk, we analyzed the incidence of acute cardiovascular events (MACE) defined as necessity of hospitalization for: revascularization re-intervention (CABG/PTCA), acute myocardial infarct (AMI), stable angina (SA), unstable angina (UA), stroke and peripheral artery disease (PAD) between the three groups. We used the Smokerlyzer System in order to quantify the breath CO level (expressed in ppm), smoking habit and nicotine dependence; we noticed that the technique was up to the standards. In order to quantify the smoker's determination in smoking cessation, we used the questionnaire method. *Statistics:* Variables were expressed as mean value $\pm$ standard deviation; percentage was calculated. Using Chi Square Test for categorical variables subgroup comparison was validated; $p < 0.05$ was considered statistically significant. Statistical analysis was performed using the Epi Info 6 (version 6.04d) program.

Results

Smoking incidence in 530 coronary patients included in Euro Aspire III Romania, prior hospital admission for elective or emergency coronary event was 68.30% and decreased at 10% after hospital discharge.

Percentage of 58.30% patients (59.52 ± 9.77 years) gave up smoking before their first coronary event; they smoked for a period of approximately 26 ± 12.31 years and they were about 50.45 ± 10.72 years old at the moment when they renounced smoking. A part of 53 patients (55.79 ± 9.63 years) continued smoking 9.49 ± 7.8 cigarettes/day after hospital discharge for coronary event (breath CO level of 11.45 ± 6.06 ppm at interview moment); From those, 52.83% tried to give up smoking for a minimum of 24 hours in approximately 4 times in the last year.

In order to quantify the smoker's determination in smoking cessation, we used a questioner method in patients who continued smoking after hospital discharge (34% had the intention to stop smoking following 30 days, 26.4% in the following 6 months, 11.3% didn't want to stop smoking and 28.3% were undecided). Before the coronary event, male smokers (77.15%) predominated by female smokers (42.64%) – $p < 0.05$; OR=4.54; IC=2.94-7.02. Also, male smokers were more compliant to smoking cessation recommendation compared by females (32.35%) – $p = 0.04$; OR=2.16; IC=1.02-4.52. There were no significant differences between the two sexes in smoking at the interview moment: 9.89% males and 10.29% females – $p = 0.97$, OR=0.96; IC=0.48-1.92; (figure 1).

Percentage of 61.6% coronary smokers were indicated for PTCA and respectively 26% for CABG. No statistic differences were observed from quitting smoking at the coronary moment between two groups: CABG (37.23%) versus PTCA (45.29%) – $p = 0.62$; OR=0.32, IC=0.1-1.05; (figure 2).

Patients who continued smoking after hospital discharge for coronary event presented a higher frequency of MACE compared to non smokers ($p = 0.043$; OR=1.98; IC=0.96-4.07). At the same time, patients who continued smoking after coronary event, presented a higher risk compared to non-smokers concerning the necessity of re-intervention by PTCA ($p = 0.017$; OR=4.28) and the incidence of AMI ($p = 0.01$; OR=4.89). No significant differences was observed in acute event risk between active smokers versus non smokers and ex-smokers in incidence of stroke, unstable angina and the need of surgical revascularization (table I). Percentage of 23.96% non smokers patients were passive smokers (72.4% male and 27.6% female; 49.6% – at home, 41.7% – other location, 29.1% – work place) at interview moment (CO breath level 2.73 ± 1.97 ppm). No significant differences were observed in MACE incidence between passive smokers (25.19%) and active smokers (35.84%) – $p = 0.206$; OR=1.66; IC=0.79-3.50 (figure 3).

Discussions

The recent EUROASPIRE study on the status of secondary prevention of coronary heart disease in 22 European countries has shown, however, that success in smoking cessation among coronary heart disease patients is far from satisfactory. In this era of evidence-based medicine, information from systematic reviews of published studies should guide phy-

sicians and other health professionals advising patients in smoking cessation^{8,9}.

In Romania smoking incidence after coronary event decreased more compared to other countries included in EuroAspire, despite of suboptimal representation at national level of specialized clinics for smoking intervention; firm and clear messages of smoking cessation sent by cardiac surgeons and interventional cardiologists might be the explanation for the increased percent of coronary patients who stopped smoking after coronary event¹⁷⁻¹⁸.

Clinical data demonstrated that people who maintained smoking abstinence after coronary artery by pass surgery were more likely to avoid angina and repeat revascularization than patients who continued to smoke¹⁰. Similar results suggest that patients who continued smoking at follow-up, had a worse prognosis compared to those who stopped smoking after an acute myocardial infarction⁹⁻¹⁰. In our study patients who continued smoking after hospital discharge for elective or emergency coronary event presented a higher frequency of MACE compared to non smokers¹¹.

Innumerable epidemiological, clinical and laboratory studies have noticed the role of cigarette smoking as a major risk factor in CHD^{13,14}. The main concern nowadays is not so much the evidence to prove the point, but the strategy to abort this habit.

It is generally accepted that it is the physician's task to repeatedly draw the patient's attention to his/her unhealthy behaviour. In the new recommendations of the European Task Force on coronary prevention, it is stated that patients should be encouraged *and* supported to stop smoking. However, making patients stop smoking is a difficult task. It is important to identify at what stage patients are to be given

appropriate support. Prochaska *et al.* divided smokers' intentions to change in five continuous stages: pre-contemplation (do not want to stop), contemplation (consider stopping), preparation (make preparations to stop), action (attempt to stop) and maintenance (sustain non-smoking). With a few simple questions a patient's stage of change can be assessed. Matching cessation interventions to the stage of change improves its success⁶⁻⁹. Unfortunately, it is very difficult to offer help to smokers who do not wish to stop smoking. Subsequently, smoking intervention can be offered to enlarge motivation, so that preparations can be made to set a date to stop smoking. In addition to regular smoking cessation counseling, written material and possibly nicotine substitution could be offered to those heavily addicted. Individual support should also be considered, especially in patients with psychological or other personal problems, social support and involvement by the family could be profitable⁹⁻¹⁵. Research on how to help coronary patients who continue to smoke is scarce. Studies performed so far are promising, but intervention programs need further elaboration to assess which intervention is most effective for whom.

Conclusions

- Majority of coronary patients quit smoking after their first experience with cardiovascular events, a small part continued smoking. Secondary prevention measures in smoking cessation are poor implemented.
- Patients who continued smoking after the acute event had higher incidence of MACE compared to active smokers or ex-smokers ($p < 0.05$).
- MACE incidence was higher in active smokers versus passive but the difference was not statically significant between the two groups ($p > 0.05$).

Figure 1.
Smoking incidence by sex

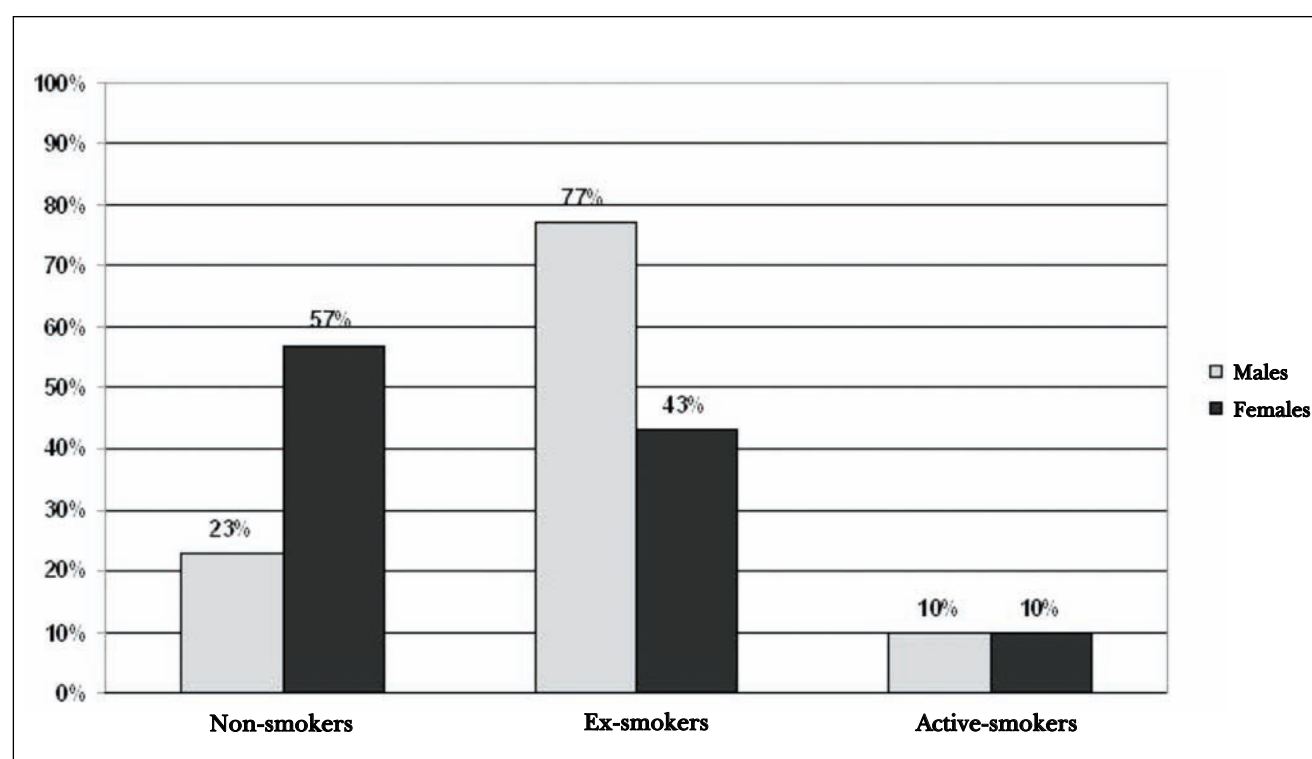


Figure 2.
Smoking incidence by hospital admission criteria

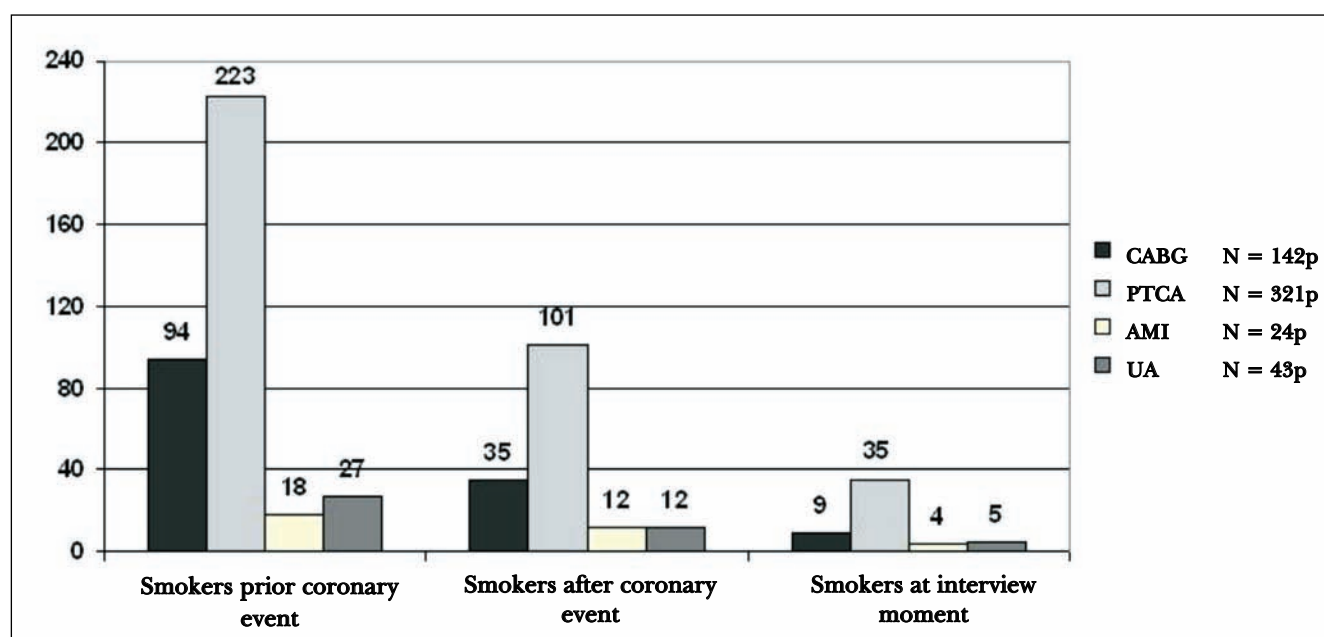


Figure 3.
Passive smoking incidence

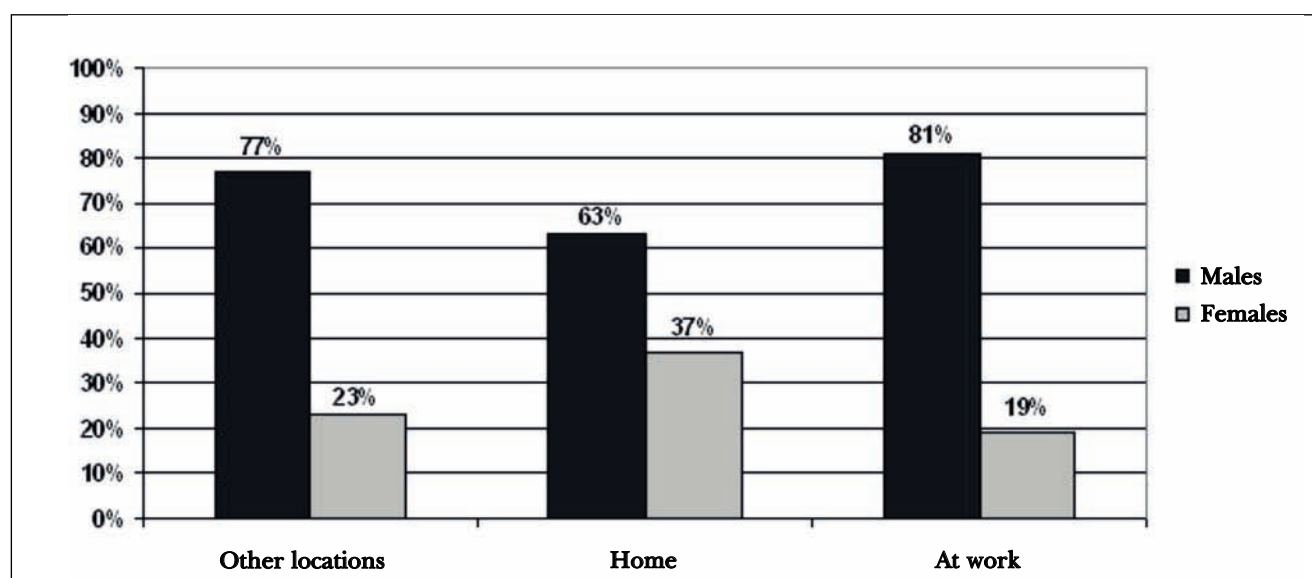


Table I.
MACE incidence in smokers vs non-smokers

MACE	Non-smokers (%)	Active smokers (%)	p	OR
CAGB	5	11	0.1	8.35
PTCA	11	17	0.021	4.86
AMI	8	22	0.012	6.61
UA	8	6	0.58	0.63
SA	65	75	0.047	3.55
stroke	8	17	0.32	2.13
PAD	16	45	0.049	3.73

CAGB – coronary artery by-pass graft;
PTCA – percutaneous transluminal coronary angioplasty;
AMI – acute myocardial infarction;

UA – unstable angina;
SA – stable angina;
PAD – peripheral artery disease

References

1. Graham I., Atar D., Borch-Johnsen et al. European Guidelines on Cardiovascular Prevention: Fourth Joint European Societies Task Force on Cardiovascular Disease Prevention in Clinical Practice. Executive Summary. *European Journal of Cardiovascular Prevention and Rehabilitation* 2007; 4 (suppl.2).
2. Steven Thomas Thom, Nancy Haase, Wayne Rosamond, Virginia J Howard et al. Heart Disease and Stroke Statistics—2006 Update: A Report From the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation* 2006; 113:e85-e151
3. Dorothee Twardellaa, Jutta Kupper-Nybelena, Dietrich Rothenbachera et al. Short-term benefit of smoking cessation in patients with coronary heart disease: estimates based on self-reported smoking data and serum cotinine measurements. *European Heart Journal* 2004; 25: 2101–2108.
4. Deckers JW. Smoking and survival in acute coronary syndrome: the fog is clearing. *European Heart Journal* 2001; 22:724–726.
5. Wilma Scholte op Reimer, Esther de Swart, Dirk De Bacquer et al. Smoking behaviour in European patients with established coronary heart disease. In: *European Heart Journal* 2006;
6. Abdullah Al Mamuna, Anna Peetersb, Jan Barendregt et al. Smoking decreases the duration of life lived with and without cardiovascular disease: a life course analysis of the Framingham Heart Study. *European Heart Journal* 2004; 25:409–415.
7. Andrikopoulos GK, Richter DJ, Dilaveris PE et al. In-hospital mortality of habitual cigarette smokers after acute myocardial infarction. The 'smoker's paradox' in a countrywide study. *European Heart Journal* 2001; 22: 776–784.
8. Centers for Disease Control and Prevention (CDC). Cigarette smoking among adults—United States, 2003. *MMWR*. 2004; 54:1121–1124.
9. Dan Gaiță, Claudiu Avram. Recuperarea cardiovasculară – între concept și practică. Editura Brumar 2007
10. Goldenberg I, Jonas M, Tenenbaum A, et al for the Bezafibrate Infarction Prevention Study Group. Current smoking, smoking cessation, and the risk of sudden cardiac death in patients with coronary artery disease. *Arch Intern Med*. 2003;163:2301–2305.
11. Anthonisen NR, Skeans MA, Wise RA, Manfreda J, Kanner RE, Connett JE, for the Lung Health Study Research Group. The effects of a smoking cessation intervention on 14.5-year mortality: a randomized clinical trial. *Ann Intern Med*. 2005; 142:233–239.
12. Mokdad AH, Marks JS, Stroup DF, et al. Actual causes of death in the United States, 2000. *JAMA* 2004; 291:1238-245
13. U.S. Department of Health and Human Services. The health consequences of involuntary exposure to tobacco smoke: a report of the Surgeon General, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.
14. Ludvig J, Miner B, Eisenberg MJ. Smoking cessation in patients with coronary artery disease. *Am Heart J* 2005; 149:565-72.
15. Mancas Silvia. Factorii de risc cardiovascular in practica medicului de familie. Editura Mirton 2001
16. Treating Tobacco Use and Dependence: 2008 Update. Clinical Practice Guideline. www.ahrq.gov/path/tobacco.htm#Clinic.
17. Kornelia Kotseva, David Wood, Guy de Backer, Dirk de Bacquer on behalf of the EUROASPIRE Study Group – EuroAspire III: a survey on the lifestyle, risk factors and use of cardioprotective drug therapies in coronary patients from 22 European countries. *European Journal of Cardiovascular Prevention and Rehabilitation* 2009.
18. Kornelia Kotseva, David Wood, Guy de Backer – Cardiovascular prevention guidelines in daily practice: a comparison of EuroAspire I, II and III surveys in eight European regions. *Lancet* 2009; 373:929-874;