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Mortalitet i morbiditet od akutnog infarkta miokarda u Hrvatskoj

Mortality and morbidity of acute myocardial infarction in Croatia

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SAŽETAK: *Koronarna bolest srca i akutni infarkt miokarda (AIM) predstavljaju vodeći javnozdravstveni problem suvremenog svijeta. U Hrvatskoj je AIM vodeći pojedinačni uzrok smrtnosti u muškaraca, a u žena je na četvrtom mjestu. Usporedna analiza dobno specifičnih stopa mortaliteta i hospitalizacija od AIM za 1991. te 2005. i 2006. godine ukazuje na značajno smanjenje stopa smrtnosti po dobi, ali i porast stopa hospitalizacija. Stoga treba intenzivno raditi na programima promicanja zdravlja i prevencije bolesti uz snažniju suradnju svih razina zdravstvene zaštite, ali i osigurati odgovarajuću zdravstvenu skrb.*

KLJUČNE RIJEČI: *akutni infarkt miokarda, bolničko liječenje, smrtnost, Hrvatska.*

ABSTRACT: *Coronary heart disease and acute myocardial infarction (AMI) represent the major public health problems of the modern world. In Croatia, AMI is the major cause of mortality in men and it takes the fourth place for mortality in women. The comparative analysis of specific aged-based mortality rates and hospitalization from AMI for 1991, 2005 and 2006 indicate a significant fall in mortality rates by age groups, but also the rise in hospitalization rates. Therefore, we need to actively work on programs relating to promoting health and prevention of diseases with a stronger cooperation of all levels of healthcare services, and ensure an adequate healthcare.*

KEYWORDS: *acute myocardial infarction, hospitalization, mortality, Croatia.*

Koronarna bolest srca (KBS) vodeći je uzrok smrtnosti u većini europskih zemalja, tako i u Hrvatskoj. U Europi je nešto manje od polovine smrti od kardiovaskularnih bolesti (KVB) uzrokovano KBS, a u Hrvatskoj 36,5%, odnosno 9.676 osoba[1,2].

Coronary heart disease (CHD) is a leading cause of death in the most European countries and in Croatia as well. Europe has recorded somewhat less than one half of deaths from cardiovascular diseases (CVD) caused by CHD and in Croatia, there are 36.5%, or 9.676 of such persons[1,2].

Akutni infarkt miokarda (AIM) među najčešćim je pojedinačnim dijagnozama i u mortalitetu i bolničkom morbiditetu, te predstavlja značajan javnozdravstveni problem, kako zbog učestalosti, tako i posljedica kao što su smrt, odnosno prijevremena smrt, radna nesposobnost, invaliditet, te visoki troškovi liječenja. To je i primjer bolesti koja zahtijeva visoki stupanj hitnosti zbrinjavanja bolesnika, o čemu uvelike ovisi ishod liječenja[3]. S druge strane AIM je u velikoj mjeri preventabilna bolest, kao i većina drugih KVB čija je osnovna patologija uglavnom ateroskleroza, što je u čvrstoj vezi sa životnim navikama i promjenjivim fiziološkim čimbenicima, a dokazano je da promjena čimbenika rizika smanjuje smrtnost i pobol.

U većini zemalja sjeverne, zapadne i južne Europe mortalitet, incidencija i letalitet od KBS, a tako i AIM, opadaju zadnjih desetljeća, dok u zemljama srednje i istočne Europe još uvijek rastu ili stagniraju. Postoje mnogi razlozi za takve regionalne različitosti u pojavnosti KBS između i unutar pojedinih zemalja. Oni uključuju razlike među populacijama u "klasičnim" čimbenicima rizika kao što su hipertenzija, hiperlipidemija, dijabetes, pretilost, razlike u životnim navikama (prehrani, tjelesnoj aktivnosti, pušenju, konzumaciji alkohola), socioekonomskim čimbenicima (obrazovni status, zaposlenost, dohodak), psihosocijalnim čimbenicima (stres, depresija) te čimbenicima okoliša, genetskoj podlozi i zdravstvenoj skrbi[1,4].

U Republici Hrvatskoj postoji nekoliko izvora podataka koji se mogu koristiti u epidemiološkim analizama AIM. To su podaci o mortalitetu iz rutinske mortalitetne statistike, te podaci o bolničkom i izvanbolničkom morbiditetu iz rutinske zdravstvene statistike. Za područje grada Zagreba postoji Registar AIM uspostavljen 1979. godine, koji je kao najbolji (ali i vrlo kompleksan zdravstveno — statistički instrument) izvor pokazatelja koje ne možemo dobiti iz rutinske statistike (incidencija, prevalencija, letalitet, i sl.).

U Hrvatskoj je 2007. godine umrlo 3.807 osoba od AIM (MKB 10 I21), što predstavlja 14,4% smrti od kardiovaskularnih bolesti, a od toga je bilo 59,9% (2.281) muškaraca i 40,1% (1.526) žena (**tablica 1**). Opća stopa smrtnosti iznosila je 85,8/100.000 stanovnika. U dobi 0- 64 godine umrlo je 970 osoba ili 25,5% umrlih od AIM (35,2% u muškaraca i 11% u žena). Poznato je da su stope i mortaliteta i morbiditeta značajno više u muškaraca nego u žena, da rastu s dobi, te da u muškaraca intenzivniji porast stopa počinje u dobi 45-49 godina, a u žena desetak godina kasnije (**slika 1**).

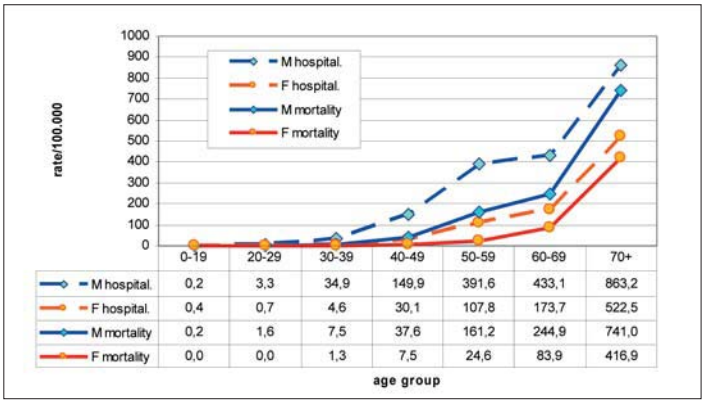
Acute myocardial infarction (AMI) is one of the most frequent diagnoses according to both mortality and in-hospital morbidity, and represents an important public health problem, not only due to frequency, but also as consequences such as death, or early death, work incapability, disability and high treatment expenses. This is an example of a disease requiring a high degree of urgency of managing patients, on which an outcome of treatment is greatly dependent[3]. On the other hand, AMI is the disease that may be prevented, such as many other CVDs whose main pathology is atherosclerosis, which is closely connected with life habits and variable physiological factors, and it has been proved that a change to risk factors results in reduced mortality and morbidity.

In the most of the northern, western and southern European countries, mortality, incidences and lethality of CHD and AMI as well, have been decreasing in the last ten years, while in the central and eastern European countries they are still increasing or have become stable. There are many reasons for such regional differences in incidence of CHD among and within specific countries. They include differences among populations in "traditional" risk factors, such as hypertension, hyperlipidemia, diabetes, obesity, differences in life habits (nutrition, physical activity, smoking, alcohol consumption), socioeconomic factors (educational status, employment, income), psychosocial factors (stress, depression) and environmental factors, genetic material and medical care[1,4].

In the Republic of Croatia there are several sources of information that may be used in epidemiologic analyses for AMI. These is the information on mortality taken from routine mortality statistics, and information on in-hospital and out-patient morbidity from routine medical statistics. For the area of the City of Zagreb there is a AMI registry established in 1979, which is the best (but also very complex medical — statistical instrument) source of indicators that may not be obtained from the routine statistics (incidence, prevalence, lethality etc.).

In Croatia, during the year 2007, 3.807 persons died of AMI (ICD-10 121), which represents 14.4% deaths of CVD, out of which there were 59.9% (2.281) men and 40.1% (1.526) women (**table 1**). General mortality amounted to 85.8/100.000 inhabitants. 970 persons or 25.5% (35.2% in men and 11% in women) died of AMI at the age of 0-64 years. It is known that mortality and morbidity rates are significantly higher in men than in women, they are rising with age, and that in men some faster increase in rate starts at the age of 45-49 years, and in women some ten years later (**figure 1**).

Figure 1. *Acute myocardial infarction (I21) mortality and hospitalizations by age and sex in Croatia, 2007.*



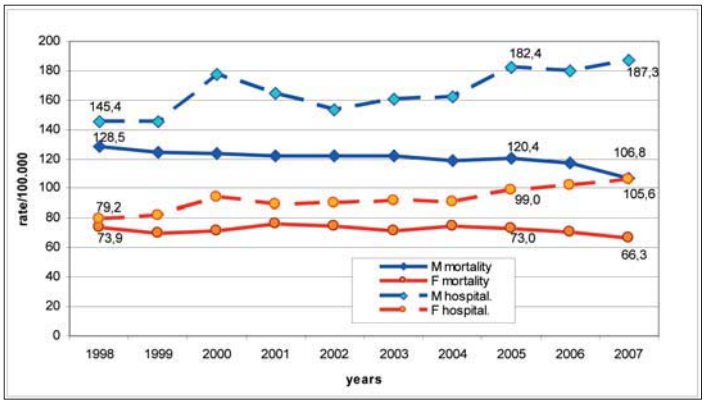
	0-19	20-29	30-39	40-49	50-59	60-69	70+
M hospital.	0,2	3,3	34,9	149,9	391,6	433,1	863,2
F hospital.	0,4	0,7	4,6	30,1	107,8	173,7	522,5
M mortality	0,2	1,6	7,5	37,6	161,2	244,9	741,0
F mortality	0,0	0,0	1,3	7,5	24,6	83,9	416,9

Source: Croatian National Institute of Public Health, Croatian Central Bureau of Statistics.

Analizira li se kretanje opće stope smrtnosti od AIM u Hrvatskoj zadnjih deset godina uočava se kontinuirano smanjenje stopa smrtnosti u muškaraca (1998. god. 128,5/100.000, a 2007. god. 106,8/100.000 stanovnika), dok kod žena stopa lagano oscilira od 1998. do 2005. god., a tek zadnje dvije godine bilježi se lagani pad (1998. god. 73,9/100.000, a 2007. god. 66,3/100.000) (**slika 2**).

If we analyze the movement of crude mortality rate from AMI in Croatia, in the last ten years we are witnessing a continuous decrease in mortality rates in men (in 1998 there were 128.5/100.000, and in 2007 there were 106.8/100.000 inhabitants), while this rate was slightly oscillating in women from 1998 to 2005, and only during the last two years there has been a slight fall recorded (in 1998 there were 73.9/100.000, and in 2007 there were 66.3/100.000) (**figure 2**).

Figure 2. *Crude mortality and hospitalizations rates of acute myocardial infarction in Croatia by sex, 1998-2007.*



Source: Croatian National Institute of Public Health, Croatian Central Bureau of Statistics.

Analizom kretanja stopa hospitalizacija od AIM u istom razdoblju vidimo trend porasta hospitalizacija, kako u muškaraca tako i u žena, s time da su stope u muškaraca veće. Tako je stopa hospitalizacija u žena porasla od 79,2/100.000 tijekom 1998. god. na 105,6, a u muškaraca od 145,4 na 187,3/100.000 tijekom 2007. godine (**slika 2**).

Kod tumačenja stopa hospitalizacija treba uzeti u obzir da se ne radi o broju bolesnika liječenih od AIM već o broju ležanja (hospitalizacija) u bolnici, budući jedan bolesnik može tijekom godine biti više puta hospitaliziran, odnosno premješten iz jedne bolnice u drugu gdje može biti podvrgnut intervencijskom zahvatu. No, isto tako trend porasta stopa hospitalizacija prisutan je i u drugim zemljama Europe, što se može objasniti starenjem stanovništva, odnosno sve većim udjelom starije populacije, ali i učinkovitijim preventivnim i terapijskim postupcima i boljim preživljenjem bolesnika, što opet rezultira većom prevalencijom bolesti[1].

Godine 2007. u Hrvatskoj je ukupno bilo 6.420 hospitalizacija od AIM, od toga 4.000 hospitalizacija muškaraca (62,3%) i 2.420 žena (37,7%). Opća stopa hospitalizacija iznosila je 144,7/100.000 stanovnika (187,3 za muškarce i 105,6 za žene). Analizirajući bolnički morbiditet prema dobi vidimo da je čak 52,6% hospitaliziranih muškaraca u dobi do 64 godine, dok je u žena 24,9% hospitalizacija u dobi do 64 godine. Dakle, gotovo dvije trećine bolesnika su muškog spola, a više od pola njih su u trenutku AIM mlađi od 64 godine (**tablica 1**).

The analysis of hospitalization rate from AMI during the same period indicates the rising trend of hospitalizations not only in men, but also in women, whereas the rates are greater in men. So, the hospitalization rate in women rose from 79.2/100.000 during 1998 to 105.6 and in men from 145.4 to 187.3/100.000 during the year 2007 (**figure 2**).

When interpreting the hospitalization rates, we should consider the fact that it is not about the number of patients treated of AMI, but a number of hospitalizations, since one patient may be hospitalized for several times during the year, or transferred from one hospital to another when he may undergo an intervention. However, the rising trend of hospitalizations is present in other European countries as well, which may be explained by the aging population, or ever greater share of elderly population, but also efficient preventive and therapeutic procedures and better survival of patients resulting in a greater prevalence of disease[1].

In 2007 there was a total 6.420 hospitalizations of AMI in Croatia out of that 4.000 men were hospitalized (62.3%) and 2.420 women (37.7%). The general hospitalization rate amounted to 144.7/100.000 inhabitants (187.3 for men and 105.6 for women). Analyzing the hospital morbidity according to age, we can see that even 52.6% of hospitalized men were not over 64, while 24.9% of women were hospitalized at the age up to 64. So, so two thirds of patients are male, and more than a half of them were at the time of AMI under 64 years of age (**table 1**).

Table 1. *Acute myocardial infarction mortality and hospitalizations by age and sex in Croatia, 2007.*

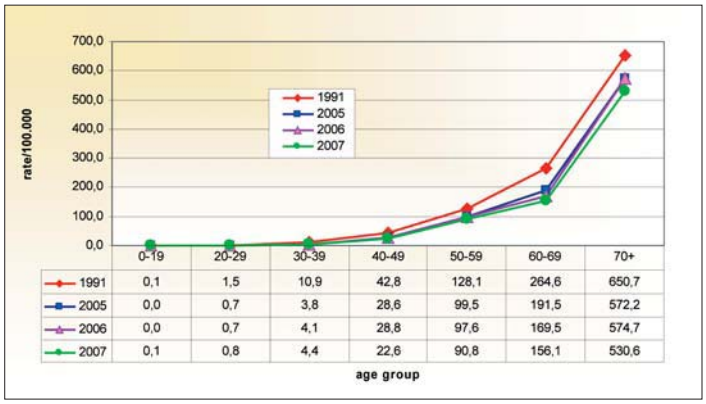
Age group	Mortality				Hospitalizations			
	Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%
0-34	13	0.6	0	0	28	0.7	10	0.4
35-44	60	2.6	16	1.1	273	6.8	41	1.7
45-54	259	11.4	38	2.5	821	20.5	207	8.6
55-64	470	20.6	114	7.5	967	24.2	344	14.2
65-74	768	33.7	542	35.5	1113	27.8	789	32.6
>74	711	31.2	930	60.9	760	19.0	1008	41.7
Unknown	0	0	0	0	38	0.9	21	0.9
Total	**2281**	**100.0**	**1526**	**100.0**	**4000**	**100.0**	**2420**	**100.0**

Source: Croatian National Institute of Public Health, Croatian Central Bureau of Statistics.

Usporednom analizom dobno specifičnih stopa mortaliteta i hospitalizacija od AIM za 1991., te 2005., 2006. i 2007. god. vidimo da je došlo do značajnog smanjenja stope mortaliteta u svim dobnim skupinama u odnosu na 1991. godinu, posebice zadnje 2007. god.. Izuzetak je dobna grupa do 39 godina gdje zadnje tri godine stopa neznatno raste, što je zbog vrlo malog broja umrlih u toj dobi teško interpretirati (**slika 3**). Međutim, usporedna analiza dobno specifičnih stopa hospitalizacija za AIM pokazuje značajniji porast od dobne skupine 40-49 godina (30,8%), a što je posebno izraženo od 70. godine nadalje (**slika 4**). Porast stopa hospitalizacija u mlađim dobnim skupinama može ukazivati na raniji početak oboljevanja, bolju dostupnost zdravstvene zaštite, te premještaj bolesnika iz županijskih bolnica u intervencijske centre, što se bilježi kao dvije ili čak tri hospitalizacije, ali i na smanjenje prehospitalne smrtnosti. Budući da su se stope smrtnosti u tim dobnim skupinama znatno smanjile u promatranom razdoblju, posebice 2007. god. (za dob 40-49 godine stopa je manja za 47,2%), možemo zaključiti da je razlog tome brza i učinkovitija dijagnostika i terapija, dostupnija zdravstvena zaštita, odnosno umrežavanje kardioloških intervencijskih centara s pripadajućim županijskim bolnicama.

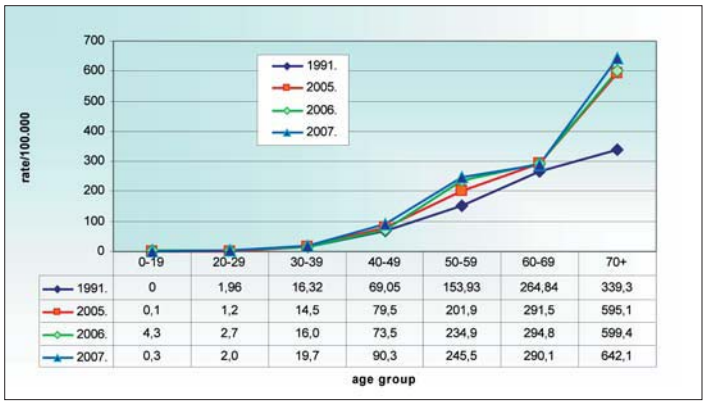
The comparative analysis of age-specific mortality rates and hospitalizations of AMI for the year 1991, 2005, 2006 and 2007 shows that mortality rate in all age groups was greatly reduced compared to the year 1991, especially for the year 2007. The exception was the group up to 39 years of age where during the last three years, the rate has slightly been rising, which is hard to explain due to a small number of those who died at that age (**figure 3**). However, the comparative analysis of age-specific hospitalization rates and for AMI shows a slight rise of the age group 40-49 (30.8%), which is more emphasized with the age group of >70 year (**figure 4**). The rise in hospitalization rates in young age groups indicates an early start of disease, a better accessibility of healthcare and transfer of patients from county hospitals to interventional centres, which is recorded as two or three hospitalizations, abut also fall in prehospital mortality. Since the mortality rates have greatly decreased in the observed period for such age groups, especially in 2007 (for the age 40-49 the rate has been reduced by 47.2%), we can conclude that the reason for that is a fast and efficient diagnostics and therapy, more accessible healthcare, or networking of cardiac interventional centers with related county hospitals.

Figure 3. *Age-specific mortality rates of acute myocardial infarction in Croatia, 1991, 2005, 2006, 2007.*



Source: Croatian National Institute of Public Health, Croatian Central Bureau of Statistics.

Figure 4. *Age-specific hospitalizations rates of acute myocardial infarction in Croatia, 1991, 2005, 2006, 2007.*



Source: Croatian National Institute of Public Health, Croatian Central Bureau of Statistics.

Dakle, možemo zaključiti da je usprkos porastu stopa hospitalizacija došlo do smanjenja smrtnosti od AIM u svim dobnim skupinama kroz promatrano razdoblje. To je i u skladu s podacima Registra za AIM za grad Zagreb koji

So, we can conclude that despite the rise in hospitalization rate the mortality rate from AMI has been reduced in all age groups throughout the observed period. This is compliant with the data obtained from the Registry for AMI

pokazuju od 1993. godine pad dobno standardiziranih stopa smrtnosti, incidencije, prehospitalne smrtnosti i letaliteta za muškarce i žene, a smanjenje je značajnije u muškaraca[5]. Podaci Registara AIM i nekih drugih zemalja, npr. Švedske, pokazuju također znatniji pad smrtnosti i incidencije u muškaraca[6].

Iako je zahvaljujući metodama moderne dijagnostike i suvremenog liječenja, te mjerama prevencije i programima promicanja zdravijeg načina života, došlo do pada smrtnosti od AIM zadnjih godina, on još i dalje ostaje jedan od vodećih javnozdravstvenih problema. Stoga treba intenzivno raditi na programima promicanja zdravlja i prevencije bolesti uz snažniju suradnju svih razina zdravstvene zaštite, uključivanje drugih sektora u sprječavanje bolesti, ali treba osigurati i dostupnost odgovarajuće zdravstvene skrbi, što podrazumjeva brzu i točnu dijagnostiku, suvremenu terapiju i osiguranje liječenja intervencijskim zahvatima (primarna perkutana koronarna intervencija) na cijelom području Hrvatske.

Svrha je prevencije spriječiti prijevremenu smrtnost od AIM, odgoditi početak bolesti, smanjiti onesposobljenost i podići kvalitetu života. Ovo je moguće postići uz sustavno provođenje preventivnih programa kroz duže vremensko razdoblje, što pokazuju primjeri zemalja koje su u tome uspjele.

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for the City of Zagreb that since the year 1993 shows a fall in age standardized mortality rates, incidence, prehospital mortality and lethality for men and women, and reduction is more characteristic for men[5]. The data taken from AMI Registry from some other countries, such as Sweden, indicates a significant fall in mortality and incidence in men[6].

Although owing to modern diagnostics and treatment methods, prevention measures and programs for promoting a healthier way of life, mortality of AMI has been reduced in the last few years, still it remains one of the leading public healthcare problems. Therefore, we should actively work on programs related with promoting health and prevention of diseases by establishing a closer cooperation of all healthcare levels, including some other sectors in preventing the disease, but we also need to make an appropriate healthcare available, which includes a quick and precise diagnostics, modern therapy and ensuring treatment by undertaking intervention surgeries (primary percutaneous coronary interventions) in the entire region of the Republic of Croatia.

The purpose of the prevention is to stop early mortality of AMI, delay the start of the disease, reduce inability and improve the life quality. This may be achieved if we systematically implement preventive programs throughout a longer period of time, which is indicated by countries used as examples that succeeded in doing so.

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Ostalo

30. kongres Europskog kardiološkog društva

Other

30th ESC Congress

Mijo Bergovec, Hrvoje Vražić
Dubrava Clinical Hospital, Zagreb

Ovogodišnji kongres Europskog kardiološkog društva održao se u Münchenu u Njemačkoj od 30. kolovoza do 3. rujna 2008. godine. U pet dana održano je 363 blokova predavanja, kliničkih simpozija i seminara, s nešto malo manje od 5.000 prikazanih izlaganja. Broj sudionika je najveći do sada — 30.442 (uključuje aktivne sudionike i predstavnike industrije). Od oko 10.000 prijavljenih sažetaka 1.000 recenzenata izabralo je 3.532 koji su prihvaćeni za objavu na kongresu.

Za glavnu temu kongresa izabran je prikaz najnovijih dostignuća u području slikovnih metoda za prikazivanje kardiovaskularnog sustava. Naime, kako smo svjedoci sve bržeg razvoja slikovnih metoda koje nam danas pružaju

The ESC Congress was held in Munich, Germany this year, from 30th August to 3rd September 2008. In 5 days there were 363 lecture blocks, clinical symposiums and seminars were held, with somewhat less than 5000 lectures. We witnessed the largest number of participants at the Congress up to date — 30.442 (including active participants and industry representatives). From around 10.000 registered summaries, 1.000 reviewers selected 3.532 that were accepted for presentation at the Congress.

A review of the most recent achievements in the area of imaging methods for presenting cardiovascular system was selected as a main congress topic. Actually, since we have been witnessing ever faster development of imaging