Učestalost neprepoznatog infarkta miokarda u bolesnika oboljelih od shizofrenije

Incidence of Unrecognized Myocardial Infraction in Patients with Schizophrenia

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SAŽETAK: *Uvod*: oko 0,5 % populacije obolijeva od shizofrenije, a izloženi su povećanom riziku od smrtnog ishoda. Rezultat poremećenih fizioloških procesa u organizmu jest smanjenje životnog vijeka i do dvadeset godina. Loše prehrambene navike i nezdravi životni stil uzrokuju učestaliju pojavu metaboličkog sindroma, a terapija neurolepticima jedan je od glavnih uzroka oboljevanja od dijabetesa i hiperlipidemije. Psihijatrijski bolesnici često su izloženi diskriminaciji, a rezultat toga jesu lošije prihvaćanje u društvu i lošija zdravstvena njega. Ovakve osobe često imaju niska ili nikakva primanja, nezaposlene su te su socijalno izolirane. Ovim istraživanjem želimo prikazati učestalost neprepoznatog infarkta miokarda u bolesnika oboljelih od shizofrenije te jesu li bolesnici bili liječeni odgovarajućom farmakološkom terapijom. *Bolesnici i metode*: obuhvaćeni su bolesnici s dijagnozom shizofrenije hospitalizirani u JU Pshijatrijske bolnice Kantona Sarajevo. Ukupno je obrađeno 605 bolesnika. *Rezultati*: oživljne promjene na elektrokardiogramu pronađene su u 11,85 % osoba, od toga u 56,25 % muškaraca i 43,75 % žena. Najmlađi bolesnik s oživljnim promjenama na EKG-u bio je muškarac, u dobi od 37 godina, dok je najstariji također muškarac u dobi od 67 godina. Prosječna životna dob bolesnika u kojih su pronađene ožiljne promjene na EKG-u jest 53 godine. *Zaključak*: u svrhu prevencije kardijalnih događaja potrebno je raditi na podizanju svijesti u oboljelih od shizofrenije glede životnih i prehrambenih navika te provoditi periodične zdravstvene preglede.

SUMMARY: *Introduction*: About 0.5% of the population have schizophrenia and are thus at increased risk of death. The consequences of disordered physiological processes in the body lead to a reduction in life span of up to twenty years. Poor eating habits and lifestyles lead to more frequent occurrence of metabolic syndrome, and antipsychotics are one of the main causes of diabetes and hyperlipidemia. Psychiatric patients are often exposed to discrimination, resulting in poorer social acceptance and poorer health care. These people often have low or no income and are unemployed and socially excluded. The aim of our study was to determine the incidence of unrecognized myocardial infarction in patients with schizophrenia and whether the patients have been treated with appropriate medication such as acetylsalicylic acid, beta-blockers, ace inhibitors, statins, etc. *Patients and Methods:* The study included patients diagnosed with schizophrenia hospitalized at the Psychiatric Hospital of Canton Sarajevo. A total of 605 patients were treated. *Results:* Scarring was indicated on electrocardiogram examination in 11.85% patients, 56.25% of whom were men and 43.75% women. The youngest patient with ECG-indicated scarring was a man aged 37, while the oldest was also a man aged 67. The average life expectancy of patients with scarring indicated on the electrocardiogram was 53 years. *Conclusion:* In order to prevent cardiac incidents, it is necessary to raise awareness in patients with schizophrenia regarding to lifestyle and dietary habits and to perform regular health examinations in this population.

KLJUČNE RIJEČI: neprepoznati infarkt miokarda, shizofrenija, metabolički sindrom.

KEYWORDS: unrecognized myocardial infarction, schizophrenia, metabolic syndrome.

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Uvod

Shizofrenija kao psihijatrijska bolest pogađa oko 0,5 % populacije, a povezana je s povećanom smrtnošću. Stoga je životni vijek bolesnika sa shizofrenijom smanjen za dvadeset godina.[1]

Introduction

As a psychiatric illness, schizophrenia affects approximately 0.5% of the population and is associated with increased mortality. The lifespan of a patient with schizophrenia is thus reduced by twenty years.[1]

Najčešći čimbenik rizika za nastanak infarkta miokarda (IM) u bolesnika sa shizofrenijom jest metabolički sindrom koji je prisutan u više od 60 % bolesnika. Osim toga, loše prehrambene navike i loša, praktično nikakva tjelesna aktivnost temelj su za razvoj kardijalnog događaja. Poremećaji ritma srca, poput *torsades de pointes*, pojavljuju se posljedično zbog produženog QT-intervala kojeg izazivaju antipsihotici. Loš utjecaj na metabolički profil pojedinca imaju i antipsihotici koji uzrokuju učestaliju pojavnost dijabetesa i dislipidemije.[2]

Zbog prirode bolesti bolesnici sa shizofrenijom, posebno oni koji nemaju superviziju bližnjih ili profesionalaca, obolijevaju u većoj mjeri jer nisu pod adekvatnom zdravstvenom zaštitom. U posljednjih nekoliko desetljeća povećana je smrtnost od IM-a u takvih bolesnika upravo zbog zanemarivanja simptoma, neadekvatne medicinske pomoći, poglavito reperfuzijskog liječenja.[3-6]

Dijabetes kao dodatni entitet u takvih bolesnika otežavajuća je okolnost jer je prag bola u njih snižen.[7] Povećan rizik od IM-a također može biti povezan s arterijskom hipertenzijom koja je u većoj mjeri zastupljena u oboljelih od shizofrenije.[4,7]

Još uvijek postoji distinkcija između psihijatrijskih i somatskih bolesti, a posljedice su prisutne u kontekstu stigme i diskriminacije duševnih bolesnika.[8-10] Emocije, strah i druga zbivanja u okolini imaju važnu ulogu u nastanku kardioloških bolesti poput IM-a i arterijske hipertenzije. Prisutnost i somatskih i psihičkih bolesti u velikoj mjeri umanjuje kvalitetu života, a u konačnici uzrokuje lošije prognozu i ishod.[8-11]

Često su prisutne nezdrave životne navike kao što je pretjerano sjedenje, premalo kretanje, konzumacija alkohola ili narkotika. Ovakve osobe često imaju niska ili nikakva primanja, nezaposlene su te su socijalno izolirane.[10,12]

Ovim istraživanjem želimo prikazati učestalost neprepoznatog IM-a u bolesnika oboljelih od shizofrenije te prikazati učestalost primjene odgovarajućega farmakološkog liječenja (acetilsalicilatna kiselina, beta-blokatori, ACE inhibitori i statini).

Bolesnici i metode

Istraživanjem su obuhvaćeni bolesnici s dijagnozom shizofrenije, hospitalizirani u JU Pshijatrijske bolnice Kantona Sarajevo. Uključni kriteriji ovog istraživanja jesu oboljeli od shizofrenije. Isključni kriteriji u istraživanju jesu: bolesnici s već preboljelim IM, kao i oni s nekom drugom psihijatrijskom bolesti.

U svih su bolesnika obavljeni internistički pregled, elektrokardiogram (EKG), rutinska laboratorijska dijagnostika i antropološka mjerenja. Autori ovog istraživanja osobno su interpretirali EKG zapise. Kao patološke vrijednosti nalaza smatrani su: Q-zupci koji traju dulje od 0,04 sekunde, dubine su najmanje jedne trećine visine R-vala u istom QRS-kompleksu; vrijednosti triglicerida više od 1,7 mmol/L, LDL kolesterola iznad 3,4 mmol/L, glikemije više od 6,2 mmol/L, arterijskoga tlaka iznad 140/90 mmHg i indeksa tjelesne mase (ITM) veće od 25.[13]

Rezultati

U istraživanje je bilo uključeno 605 bolesnika, od čega 46,66 % muškaraca i 53,33 % žena. Kod 83 % bolesnika dobiven je podatak da su pušači cigareta. Povišene vrijednosti arterijskoga tlaka imalo je 55,55 % bolesnika, dijabetes je bio prisutan u

The most common risk factor for the development of myocardial infarction (MI) in patients with schizophrenia is metabolic syndrome, which is present in more than 60% of patients. Furthermore, poor dietary habits and lacking or practically absent physical activity are the basis for the development of cardiac events. Heart rhythm disorders such as *torsades de pointes* develop as a consequence of prolonged QT-interval caused by antipsychotics. Antipsychotics can also exert a negative influence on the individual's metabolic profile, leading to frequent morbidity from diabetes and hyperlipidemia.[2]

Due to the nature of the illness, persons with schizophrenia, especially if they are not supervised by family or professionals, are more prone to disease since they are not under appropriate healthcare. Over the past few decades, mortality from MI has increased in these patients due to ignored symptoms, inadequate provision of medical assistance, and especially due to reperfusion therapy.[3-6]

Diabetes is an entity that represents an additional hazard in these patients since it reduces the pain threshold.[7] Increased risk of MI can also be associated with arterial hypertension, which is more prevalent in patients with schizophrenia.[4,7]

There is still a distinction between psychiatric and somatic illnesses, which has negative consequences in the context of stigma and discrimination of patients with mental illnesses.[8-10] Emotions, fear, and other external factors have an important role in the development of cardiological diseases such as MI and arterial hypertension. The presence of somatic and mental conditions greatly reduces the quality of life and ultimately leads to poorer prognosis and outcomes.[8-11]

Unhealthy lifestyle habits are often present, such as an overly sedentary lifestyle, lack of physical activity, and consumption of alcohol or narcotics. Such persons often have low or no income and are unemployed as well as socially isolated.[10,12]

The aim of this study was to describe the prevalence of unrecognized MI in patients suffering from schizophrenia as well as the prevalence of the application of appropriate pharmacological treatment (acetylsalicylic acid, beta-blockers, ACE inhibitors, and statins).

Patients and methods

This study included patients with the diagnosis of schizophrenia hospitalized at Psychiatric Hospital of Canton Sarajevo. The inclusion criterion for this study were diagnosis of schizophrenia. Exclusion criteria for this study were: patients who knew they had already suffered from MI and those with other psychiatric illnesses.

All patients underwent an internal medicine exam, an electrocardiogram (ECG) test, routine laboratory diagnostics, and anthropometric measurements. The authors of the study personally interpreted the ECG results. The following values were considered pathological: Q-wave duration above 0.04 seconds, an amplitude less than 1/3 of the R wave in the same QRS complex, triglyceride values above 1.7 mmol/L, LDL cholesterol above 3.4 mmol/L, glycemia above 6.2 mmol/L, arterial pressure above 140/90 mmHg, and body-mass index (BMI) above 25.[13]

Results

The study included a total of 605 patients, of which 46.66% were men and 53.33% were women. Smoking was reported by

23,70 %, povišen LDL kolesterol u 49,62 %, dok je ITM bio povišen u 65,92 % bolesnika. Na **slici 1** navedena je zastupljenost čimbenika rizika s obzirom na spol.

83% patients. Elevated arterial pressure values were found in 55.55% patients, diabetes was present in 23.70%, LDL cholesterol was elevated in 49.62%, and BMI was increased in 65.92%. **Figure 1** shows the prevalence of risk factors based on gender.

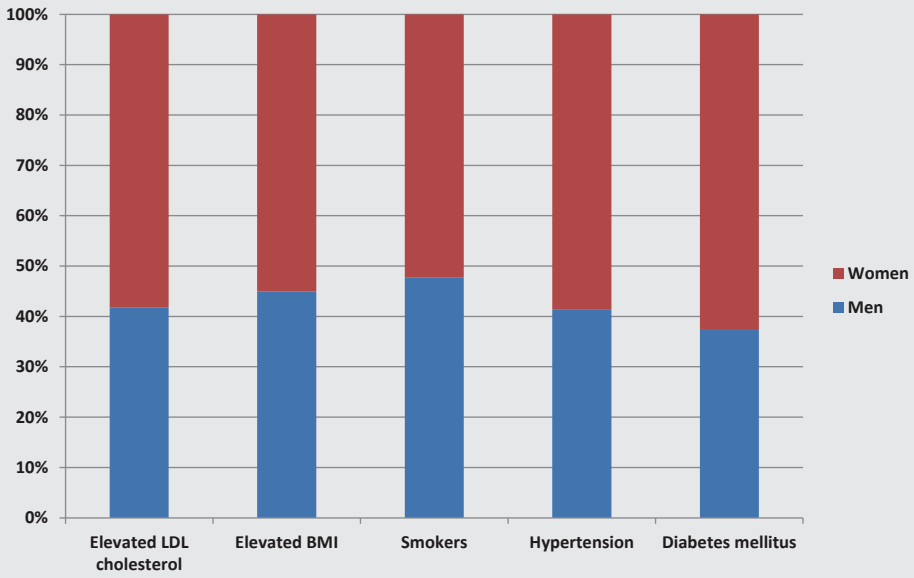

FIGURE 1. Prevalence of risk factors based on gender.

LDL = low-density lipoprotein; BMI = body mass index.

Ožiljne promjene na EKG-u pronađene su u 11,85 % bolesnika, od toga u 56,25 % muškaraca i 43,75 % žena. Najmlađi bolesnik s ožiljnim promjenama na EKG-u bio je muškarac u dobi od 37 godina, dok je najstariji također muškarac u dobi od 67 godina. Prosječna životna dob bolesnika u kojih su pronađene ožiljne promjene na EKG-u jest 53 godine.

U bolesnika s ožiljnim primjenama na EKG-u (**slika 2**), povišene vrijednosti LDL kolesterola kao čimbenika rizika za nastanak IM-a bile su prisutne u 43,80 % muškaraca i 56,30 % žena. Vrijednost ITM-a bila je povišena u 37,50 % muškaraca i 50 % žena, dok su pušači zastupljeni podjednako u objema spolnim skupinama. Hipertenziju ima 12,50 % muškaraca i 31,30 % žena, dok je 12,50 % muškaraca i 31,30 % žena imalo dijabetes. Metabolički sindrom prisutan je u ukupno 43,75 % bolesnika, od toga 28,57 % muškaraca i 71,42 % žena.

Najveći broj ožiljnih promjena na EKG-u u žena zabilježen je u bolesnica dobi između 50 i 59 godina, dok su ožiljne promjene u muškaraca najviše zastupljene u životnoj dobi između 60 i 69 godina (**slika 3**). U 50 % bolesnika ožiljne su promjene bile prisutne na inferiornim odvodima EKG-a, 25 % promjena na prednjoj stijenci srčanog mišića, dok je septum pogođen u 25 % slučajeva (**slika 4**).

Prikupljanjem anamnestičkih podataka u bolesnika u kojih su utvrđene ožiljne promjene u EKG-u došlo se do podataka da je 60 % bolesnika u prethodnim dvjema godinama osjetilo jaku bol u prsima, ali da nisu zatražili medicinsku pomoć. Samo je jedan bolesnik bio na terapiji acetilsalicilatnom kise-

ECG changes indicating scarring were observed in 11.85% patients, of whom 56.25% were men and 43.75% were women. The youngest patient with ECG-indicated scarring was a man aged 37, while the oldest was another man aged 67. Average age among those in whom scarring-related changes were detected by ECG was 53 years of age.

In patients with ECG changes indicating scarring (**Figure 2**), elevated values of LDL cholesterol as a risk factor for the development of MI were found in 43.80% men and 56.30% of women. BMI values were elevated in 37.50% men and 50% of women, whereas smoking was equally prevalent in both genders. Hypertension was found in 12.50% men and 31.30% women, and 12.50% of men and 31.30% of women had diabetes mellitus. Metabolic syndrome was present in 43.75% of all patients, of which 28.57% were men and 71.42% were women.

The greatest number of ECG changes indicating scarring in women was found in patients aged between 50 and 59, while for men the changes were most prevalent in those aged between 60 and 69 (**Figure 3**). In 50% of patients, the ECG changes indicating scarring were present on the inferior leads, 25% of changes were in the anterior myocardial wall, and the septum was affected in 25% of cases (**Figure 4**).

Medical history of patients with changes indicating scarring showed that 60% of these patients had felt a strong pain in their chests in the last two years, but did not seek medical assistance. Only one patient was undergoing treatment with acetylsalicylic acid, which was prescribed by the family phy-

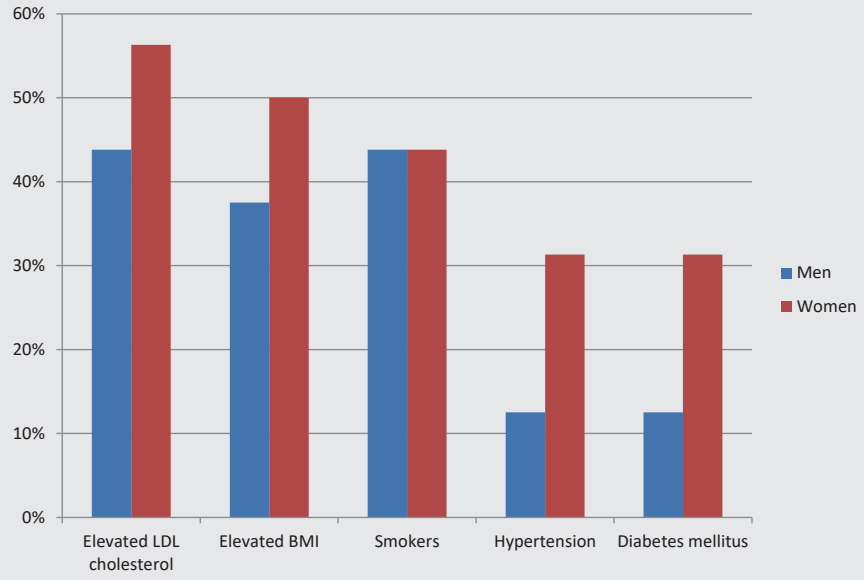

FIGURE 2. Prevalence of risk factors in patients with ECG results indicating myocardial scarring.
LDL = low-density lipoprotein; BMI = body mass index.

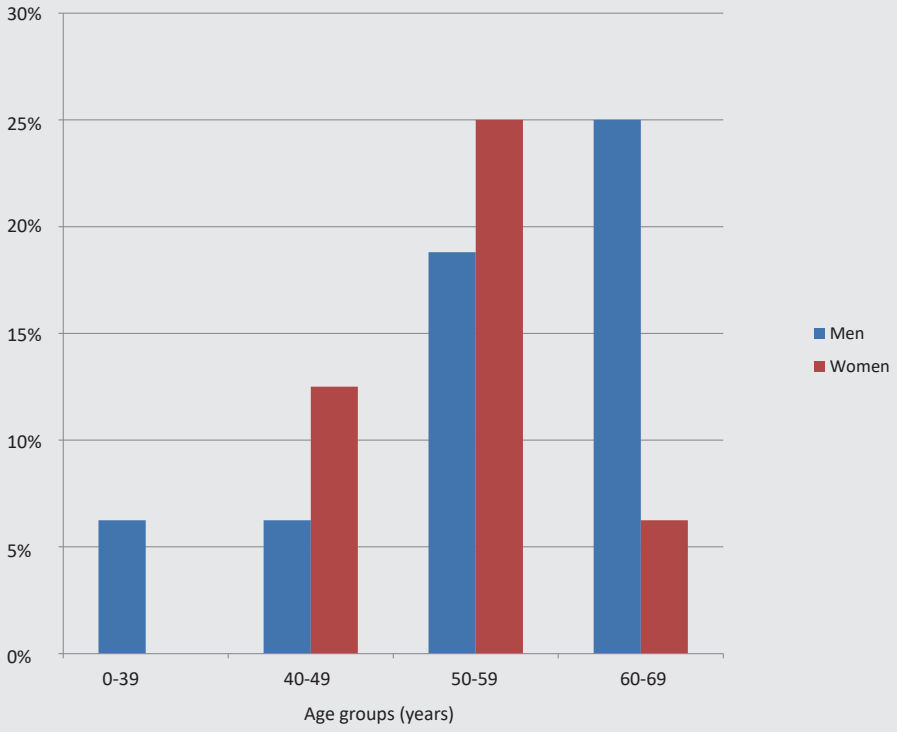

FIGURE 3. The prevalence of scarring-related ECG characteristics in different age groups.

linom koja mu je obiteljski liječnik uključio kao preventivnu terapiju zbog životne dobi. Nijedan bolesnik nije u terapiji imao statine. Dva su bolesnika dobivala beta-blokatore kao terapiju, dok je pet bolesnika imalo antihipertenzivnu terapiju koju nisu uzimali redovito.

sician as preventive treatment due to advanced age. None of the patients were being treated by statins. Two patients were receiving beta-blockers, and five patients were prescribed antihypertensive therapy but were not taking the medication regularly.

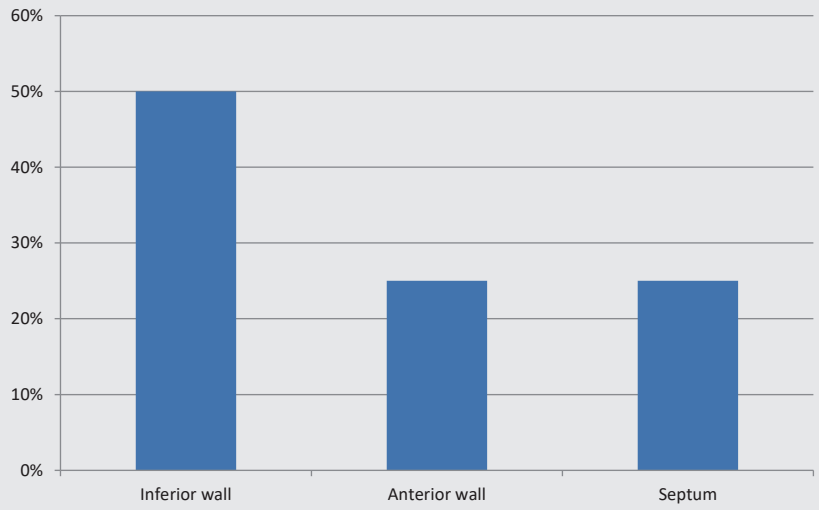

FIGURE 4. The localization of scars based on ECG results.

Diskusija

Psihijatrijski bolesnici zbog prirode svoje bolesti u velikoj su mjeri podložni razvoju somatskih bolesti.[14,15] Ovim je istraživanjem potvrđeno da oboljeli od shizofrenije pripadaju visokorizičnoj skupini za nastanak IM-a.

Loša socioekonomska situacija, stigma društva, vezivanje realne kardijalne simptomatologije sa psihijatrijskim stanjem bolesnika razlog su velikoga broja kardijalnih događaja u ovoj populaciji.[14,15]

Velik broj čimbenika rizika koji su prisutni u bolesnika sa shizofrenijom razlog su sve veće učestalosti akutnog IM-a. Čak 83 % oboljelih čine pušači, a više od polovice ispitanika, njih 55,55 % imaju nereguliranu hipertenziju koja im je prvi put dijagnosticirana pri internističkom pregledu u tijeku ovog istraživanja, ili nekim prethodnim pregledom, ali nisu uzimali redovito terapiju.

Zbog loših životnih i prehrambenih navika, pretilost i povišena vrijednost ITM-a zastupljeni su u 65 % bolesnika, a najvažnijim čimbenikom za razvoj metaboličkog sindroma smatraju se abdominalna pretilost i rezistencija stanica perifernoga tkiva na učinak inzulina. Za razliku od supkutanoga masnog tkiva, abdominalno masno tkivo jest metabolički aktivan organ, koji u suvišku otpušta povećanu količinu slobodnih masnih kiselina i upalnih faktora kao što su TNF-alfa, IL 6, koji interferiraju s inzulinskom signalizacijom, što naposljetku ima za posljedicu smanjeno preuzimanje glukoze u mišićima, pretjeranu sintezu triglicerida i pojačanu glukoneogenezu u jetri.

Aterosklerotske promjene na krvnim žilama izraženije su u ovakvih bolesnika. Istraživanjem smo utvrdili da su vrijednosti LDL kolesterola povišene u polovice ispitanika. Attar *i sur.* u svojem su istraživanju[16] došli do podatka da je kolesterol povišen u 35,7 %, a ITM u 6,7 % bolesnika sa shizofrenijom. U tom je istraživanju bilo 73,8 % pušača, 36,6 % hipertoničara, a dijabetičara 11,6 %.

Nesignifikantni Q-zubci pri analizi EKG-a nisu uzimani u razmatranje u ovom istraživanju. Iako je specifičnost za otkrivanje prethodnog IM-a između 64 i 99 %, većina istraživanja

Discussion

Due to the nature of their illness, psychiatric patients are highly susceptible to the development of somatic conditions.[14,15] The present study confirms that patients suffering from schizophrenia represent a population group at high risk for the development of MI.

Poor socioeconomic circumstances, social stigma, and the association between realistic cardiac symptomatology with the psychiatric condition of the patient are the reason for the large number of cardiac events in this population.[14,15]

A large number of risk factors present in patients with schizophrenia are the reason for the growing incidence of acute MI. As many as 83% of patients were smokers, and more than half of the study participants, i.e. 55.55%, had unregulated hypertension that was diagnosed for the first time during the internal medicine examination either in the course of this study or at an earlier examination, but without the patient taking regular therapy.

As a consequence of poor lifestyle and dietary habits, obesity and increased BMI were present in 65% of the patients, and abdominal obesity and peripheral insulin resistance are considered the most important factor for the development of metabolic syndrome. As opposed to subcutaneous fatty tissue, abdominal fatty tissue is a metabolically active organ that when excessively large releases increased quantities of free fatty acids and inflammatory factors such as TNF alpha and IL 6, which interfere with the insulin transduction pathway, ultimately leading to reduced muscle glucose uptake, overproduction of triglycerides, and increased gluconeogenesis in the liver.

Atherosclerotic changes in the blood vessels are more pronounced in these patients. Our study demonstrated that LDL cholesterol values were elevated in half the participants. Attar *et al*[16] found elevated cholesterol in 35.7% and elevated BMI in 6.7% of patients with schizophrenia. That study reported a smoking prevalence of 73.8%, hypertension in 36.6% of patients, and 11.6% patients with diabetes.

Non-significant Q-wave peaks were not considered during ECG analysis in our study. Although the specificity for dis-

navodi točnost veću od 95 %.[15] Ožiljne promjene na EKG-u pronađene su u 11,85 % osoba, od toga u 56,25 % muškaraca i 43,75 % žena. U istraživanju drugih autora[16], u bolesnika oboljelih od shizofrenije, zabilježeni je IM između 25 i 33 %, pa čak i do 75 %.[17]

Kardijalni događaji u psihijatrijskoj populaciji događaju se u mlađoj životnoj dobi, te ovakve osobe ne bivaju adekvatno zdravstveno zbrinute, prema protokolima zdravstvene pomoći akutnog IM-a. U bolesnika sa shizofrenijom nakon što je na EKG-u uočen ožiljak, kardiolog je kao dodatnu dijagnostičku obradu preporučio ergometriju i ultrazvuk srca. Koronarna angiografija u takvih bolesnika nije razmatrana. Slične smo podatke pronašli i u drugim istraživanjima.[18-21] Rezultati ovog istraživanja upućuju na nedovoljno liječenje shizofrenih bolesnika. Mnoga istraživanja pokazuju da ovi bolesnici imaju povišenu razinu glukoze u krvi, veću prevalenciju dijabetesa tipa 2[22,23] i hiperkolesterolemiju[24] u usporedbi s općom populacijom.

Diskriminacija i stigma mentalno oboljelih bolesnika ne samo da se viđaju u društvenoj zajednici nego i u zdravstvenom sustavu.[25] One mogu biti namjerne ili nenamjerne, što može rezultirati neuspjehom u adekvatnoj dijagnozi i liječenju.[26] Drugi su autori prikazali tri bolesnika oboljela od shizofrenije koji su se javili u bolnicu žaleći se na tipične anginozne bolove, međutim, nisu bili shvaćeni ozbiljno i vraćeni su kući bez pregleda. Također, u svojim su istraživanjima došli do podatka da se ovakvim bolesnicima medicinska usluga pruža samo onda kada njihovi simptomi postanu životno ugrožavajući[27] te da liječnici anginoznu simptomatologiju u shizofrenih bolesnika ne shvaćaju ozbiljno.[28]

U istraživanju sekundarne prevencije u shizofrenih bolesnika s preboljenim IM-om[29] otkriveno je da svaki šesti pacijent koji je obolio od shizofrenije nije bio pod kardiovaskularnom zaštitom te da je stopa smrtnosti bila iznimno visoka u usporedbi s općom populacijom. Slično tom istraživanju, i drugi su autori[30-32] pronašli nižu uporabu antiagregacijskih lijekova, beta-blokatora, ACE inhibitora i statina u bolesnika sa shizofrenijom u usporedbi s općom populacijom.

Kugathasan *i sur.*[29,33] ukazali su da nekvalitetna medicinska skrb može rezultirati povišenom kardiovaskularnom smrtnošću. Uporabom Nacionalnog registra u Danskoj autori su ispitivali propisivanje lijekova i evidenciju smrti za sve bolesnike hospitalizirane zbog IM-a u Danskoj između 1995. i 2015. god. Uznemirujuće je visoka stopa smrtnosti tijekom razdoblja praćenja među bolesnicima sa shizofrenijom. Četrdeset pet posto bolesnika s prethodnom dijagnozom shizofrenije, u usporedbi sa samo 27 % ostalih pacijenata, umrlo je tijekom praćenja. Dvije trećine umrlih u objema skupinama bile su zbog kardiovaskularnih bolesti.

Bitno je da se psihijatrijskim bolesnicima pristupi studioznim pregledom i ozbiljno uzme u razmatranje svaki njihov navod somatske simptomatologije te da se simptomi ne pripisuju psihijatrijskome stanju oboljelih. Velik su problem i bolesnici koji svoju simptomatologiju vežu za aktualno psihijatrijsko stanje i percipiraju ga na sebi svojstven način u sklopu svoje kliničke slike.

Zaključak

U svrhu prevencije kardijalnih događaja potrebno je raditi na podizanju svijesti u oboljelih od shizofrenije glede životnih i prehrambenih navika, provoditi periodične preglede koji podrazumijevaju laboratorijsku dijagnostiku i EKG nalaz te ordinirati adekvatnu medikamentnu terapiju u skladu s prisutnim somatskim bolestima.

covering previous MI is between 64% and 99%, most studies reported a precision of over 95%.[15] Scarring indicated by ECG was found in 11.85% of patients, of which 56.25% were men and 43.75% women. In a study by different authors,[16] the prevalence of MI in patients suffering from schizophrenia was between 25% and 33%, up to 75%.[17]

Cardiac events in the psychiatric patient population happen at a younger age, and these patients do not receive adequate care according to the healthcare protocols for acute MI. In patients with schizophrenia and ECG-indicated scarring, clinical cardiologists suggest exercise stress test and echocardiography as additional diagnostic tests. Coronary angiography was not considered for these patients. We found similar data in other studies.[18-21] The results of the present study indicated inadequate treatment in patients with schizophrenia. Many studies have shown that these patients have elevate blood glucose levels and higher prevalence of type 2 diabetes[22,23] and hypercholesterolemia[24] in comparison with the general population.

Discrimination and stigmatization of mentally ill patients is present not only in society in general but in the healthcare system as well.[25] It can be intentional and unintentional and can result in failure to adequately diagnose and treat these patients.[26] Other authors have reported the case of three patients with schizophrenia who presented at the hospital complaining of typical angina-related chest pain, but they were not taken seriously and were returned home without any examination. Furthermore, studies by the same authors have shown that these patients receive medical care only when their symptoms become life-threatening,[27] and that physicians do not take chest pain-related symptoms seriously in this group of patients.[28]

In a study on secondary prevention in patients with schizophrenia and previous MI,[29] the authors found that every sixth patient suffering from schizophrenia was not under cardiovascular protection and that the mortality rate for this group was extremely high in comparison with the general population. In line with this study, other authors[30-32] found reduced use of antiaggregation medication, beta-blockers, ACE inhibitors, and statins in patients with schizophrenia in comparison with the general population.

Kugathasan *et al*[29,33] showed that poor quality of medical care can result in increased cardiovascular mortality in the general population. Using the National Registry in Denmark, the authors examined the prescription of medication and mortality records for all patients hospitalized for MI in Denmark between 1995 and 2015. The mortality rate in the study period was alarmingly high for patients with schizophrenia. As many as 45% of patients with a prior diagnosis of schizophrenia died during the study period, in comparison with only 27% of the other patients. Two thirds of total deaths in both groups were due to cardiovascular diseases.

It is important to perform a careful examination of psychiatric patients and take their reports of somatic symptoms seriously without immediately assuming they are due to the patient's mental condition. The patients themselves can also be the source of the problem, however, if they associate their symptoms with their current mental condition and perceive them in their own idiosyncratic way as part of their clinical picture.

Conclusion

In order to prevent cardiac events, it is necessary to raise awareness in patients with schizophrenia regarding lifestyle and dietary habits, perform periodic examinations that include laboratory diagnostics and ECG tests, and prescribe adequate medication therapy based on the somatic condition of the patient.

LITERATURE

1. Correll CU, Detraux J, De Lepeleire J, De Hert M. Effects of antipsychotics, antidepressants and mood stabilizers on risk for physical diseases in people with schizophrenia, depression and bipolar disorder. World Psychiatry. 2015 Jun;14(2):119-36. https://doi.org/10.1002/wps.20204
2. Chang CK, Hayes RD, Perera G, Broadbent MT, Fernandes AC, Lee WE, Hotopf M, Stewart R. Life expectancy at birth for people with serious mental illness and other major disorders from a secondary mental health care case register in London. PLoS One. 2011;6(5):e19590. https://doi.org/10.1371/journal.pone.0019590
3. Brown S. Excess mortality of schizophrenia. A meta-analysis. Br J Psychiatry. 1997 Dec;171:502-8. https://doi.org/10.1192/bjp.171.6.502
4. Harris EC, Barraclough B. Excess mortality of mental disorder. Br J Psychiatry. 1998 Jul;173:11-53. https://doi.org/10.1192/bjp.173.1.11
5. Roth GA, Forouzanfar MH, Moran AE, Barber R, Nguyen G, Feigin VL, et al. Demographic and epidemiologic drivers of global cardiovascular mortality. N Engl J Med. 2015 Apr 2;372(14):1333-41. https://doi.org/10.1056/NEJMoa1406656
6. Korhonen MJ, Robinson JG, Annis IE, Hickson RP, Bell JS, Hartikainen J, et al. Adherence Tradeoff to Multiple Preventive Therapies and All-Cause Mortality After Acute Myocardial Infarction. J Am Coll Cardiol. 2017 Sep 26;70(13):1543-1554. https://doi.org/10.1016/j.jacc.2017.07.783
7. Newcomer JW. Metabolic syndrome and mental illness. Am J Manag Care. 2007 Nov;13(7 Suppl):S170-7. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/18041878
8. Amsterdam EA, Wenger NK, Brindis RG, Casey DE Jr, Ganiats TG, Holmes DR Jr, et al. 2014 AHA/ACC Guideline for the Management of Patients with Non-ST-Elevation Acute Coronary Syndromes: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol. 2014 Dec 23;64(24):e139-e228. https://doi.org/10.1016/j.jacc.2014.09.017
9. Hunter RA, Macalpine I. Three Hundred Years Of Psychiatry, 1535-1860: A History Presented In Selected English Texts. London: Oxford University Press, 1963.
10. Kurdyak P, Vigod S, Calzavara A,Wodchis WP. High mortality and low access to care following incident acutemyocardial infarction in individuals with schizophrenia. Schizophr Res. 2012 Dec;142(1-3):52-7. https://doi.org/10.1016/j.schres.2012.09.003
11. Petersen LA, Normand S-LT, Druss BG, Rosenheck RA. Process of care and outcome after acute myocardial infarction for patients with mental illness in the VA health care system: are there disparities? Health Serv Res. 2003 Feb;38(1 Pt 1):41-63. https://doi.org/10.1111/1475-6773.00104
12. Gutiérrez-Rojas L, Azanza JR, Bernardo M, Rojo L, Mesa F, Martínez-Ortega JM. [Prevalence of metabolic syndrome in Spanish patients with schizophrenia and overweight. The CRESSOB Study]. Actas Esp Psiquiatr. 2014 Jan-Feb;42(1):9-17. **PubMed:** https://www.ncbi.nlm.nih.gov/pubmed/24504989
13. WHO. Health statistics and health information systems. World Health Survey (cited 2008, August 21). Available from: http://www.who.int/healthinfo/survey/en/.
14. Curkendall SM, Mo J, Glasser DB, Rose Stang M, Jones JK. Cardiovascular disease in patients with schizophrenia in Saskatchewan, Canada. J Clin Psychiatry. 2004 May;65(5):715-20. https://doi.org/10.4088/JCP.v65n0519
15. Lin HC, Chen YH, Lee HC, Lin HC. Increased risk of acute myocardial infarction after acute episode of schizophrenia: 6 year follow-up study. Aust N Z J Psychiatry. 2010 Mar;44(3):273-9. https://doi.org/10.3109/00048670903487209
16. Attar R, Berg Johansen M, Valentin JB, Aagaard J, Jensen SE. Treatment following myocardial infarction in patients with schizophrenia. PLoS One. 2017 Dec 13;12(12):e0189289. https://doi.org/10.1371/journal.pone.0189289
17. Nielsen J, Juel J, Alzuhairi KS, Friis R, Graff C, Kanters JK, Jensen SE. Unrecognised myocardial infarction in patients with schizophrenia. Acta Neuropsychiatr. 2015 Apr;27(2):106-12. https://doi.org/10.1017/neu.2014.41
18. Wu SI, Chen SC, Juang JJ, Fang CK, Liu SI, Sun FJ, et al. Diagnostic Procedures, Revascularization, and Inpatient Mortality After Acute Myocardial Infarction in Patients With Schizophrenia and Bipolar Disorder. Psychosom Med. 2013 Jan;75(1):52-9. https://doi.org/10.1097/PSY.0b013e31827612a6
19. Mitchell AJ, Lawrence D. Revascularisation and mortality rates following acute coronary syndromes in people with severe mental illness: comparative meta-analysis. Br J Psychiatry. 2011 Jun;198(6):434-41. https://doi.org/10.1192/bjp.bp.109.076950
20. Petersen LA, Normand SL, Leape LL, McNeil BJ. Comparison of use of medications after acute myocardial infarction in the Veterans Health Administration and Medicare. Circulation. 2001 Dec 11;104(24):2898-904. https://doi.org/10.1161/hc4901.100524
21. Druss BG, Bradford DW, Rosenheck RA, Radford MJ, Krumholz HM. Mental disorders and use of cardiovascular procedures after myocardial infarction. JAMA. 2000 Jan 26;283(4):506-11. https://doi.org/10.1001/jama.283.4.506
22. Sado J, Kitamura T, Noma N, Saito M, Azuma H, Azuma T, et al. Socio-environmental factors associated with diabetes mellitus among patients hospitalized with schizophrenia in Japan. Environ Health Prev Med. 2016 Nov;21(6):460-469. https://doi.org/10.1007/s12199-016-0550-2
23. Lawford BR, Barnes M, Morris CP, Noble EP, Nyst P, Heslop K, et al. Dopamine 2 Receptor Genes Are Associated with Raised Blood Glucose in Schizophrenia. Can J Psychiatry. 2016 May;61(5):291-7. https://doi.org/10.1177/0706743716644765
24. Pérez-Piñar M, Mathur R, Foguet Q, Ayis S, Robson J, Ayerbe L. Cardiovascular risk factors among patients with schizophrenia, bipolar, depressive, anxiety, and personality disorders. Eur Psychiatry. 2016 May;35:8-15. https://doi.org/10.1016/j.eurpsy.2016.02.004
25. Joukamaa M, Heliövaara M, Knekt P, Aromaa A, Raitasalo R, Lehtinen V. Mental disorders and cause-specific mortality. Br J Psychiatry. 2001 Dec;179:498-502. https://doi.org/10.1192/bjp.179.6.498
26. Corrigan PW, Markowitz FE, Watson AC. Structural levels of mental illness stigma and discrimination. Schizophr Bull. 2004;30(3):481-91. https://doi.org/10.1093/oxfordjournals.schbul.a007096
27. Muck-Jørgensen P, Mors O, Mortensen PB, Ewald H. The schizophrenic patient in the somatic hospital. Acta Psychiatr Scand Suppl. 2000;(407):96-9. https://doi.org/10.1034/j.1600-0447.2000.00019.x
28. Noblett JE, Lawrence R, Smith JG. The attitudes of general hospital doctors toward patients with comorbid mental illness. Int J Psychiatry Med. 2015;50(4):370-82. https://doi.org/10.1177/0091217415612721
29. Kugathasan P, Horsdal HT, Aagaard J, Jensen SE, Laursen TM, Nielsen RE. Association of Secondary Preventive Cardiovascular Treatment After Myocardial Infarction With Mortality Among Patients With Schizophrenia. JAMA Psychiatry. 2018 Dec 1;75(12):1234-1240. https://doi.org/10.1001/jamapsychiatry.2018.2742
30. Smith SC Jr, Benjamin EJ, Bonow RO, Braun LT, Creager MA, Franklin BA, et al; World Heart Federation and the Preventive Cardiovascular Nurses Association. Circulation. 2011 Nov 29;124(22):2458-73. https://doi.org/10.1161/CIR.0b013e318235eb4d
31. Owen-Smith A, Stewart C, Green C, Ahmedani BK, Waitzfelder BE, Rossom R, et al. Adherence to common cardiovascular medications in patients with schizophrenia vs. patients without psychiatric illness. Gen Hosp Psychiatry. 2016 Jan-Feb;38:9-14. https://doi.org/10.1016/j.genhosppsych.2015.07.010
32. Nelson LA, Graham MR, Lindsey CC, Rasu RS. Medication adherence and glycemic control in patients with psychotic disorders in the Veterans Affairs healthcare system. Pharm Pract (Granada). 2011 Apr;9(2):57-65. https://doi.org/10.4321/S1886-36552011000200001
33. Kugathasan P, Stubbs B, Aagaard J, Jensen SE, Munk Laursen T, Nielsen RE. Increased mortality from somatic multimorbidity in patients with schizophrenia: a Danish nationwide cohort study. Acta Psychiatr Scand. 2019 Oct;140(4):340-348. https://doi.org/10.1111/acps.13076