# Postupak primarne perkutane koronarne intervencije tijekom panemije COVID-19: globalno iskustvo

# Primary PCI procedures during the COVID-19 pandemic: Global Experience

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Posljedice pandemije COVID-a 19 dovele su do preopterećenja zdravstvenih sustava u cijelom svijetu, i u razvijenim i u zemljama u razvoju. Medicinske se ustanove bore s teškim zadatkom prevladavanja pandemije uz istodobno pružanje skrbi bolesnicima s drugim hitnim stanjima. Ovakvo stanje bez presedana s velikim brojem bolesnika i ograničenim sredstvima dovelo je do smanjenog primitka drugih pacijenata u bolnice u vrijeme krize. Izvješća iz raznih zemalja pokazuju smanjenje broja bolesnika s akutnim infarktom miokarda s elevacijom ST-segmenta (STEMI) koji su primljeni u bolnice. U Španjolskoj se stopa primarnih perkutanih koronarnih intervencija (pPCI) snizila za 40 %[1], dok je u SAD-u broj pPCI postupaka pao za 38%[2]. Jedno od mogućih objašnjenja jest da trenutačno među ljudima prevladava bojazan da će se u bolnici zaraziti, pa bolesnici izbjegavaju pozivanje hitnih službi usprkos teškim kardiovaskularnim događajima. Još jedan mogući razlog, iako vjerojatno manje značajan, jest povećana primjena fibrinolitičke terapije u bolesnika sa STEMI-jem, pogotovo onih pod sumnjom na infekciju virusom uzročnikom COVID-a 19[3].

U Iraku je pogođenost bolesnika pandemijom COVID-19 manja u usporedbi s drugim zahvaćenim zemljama kao što su Kina, Iran, Italija, Španjolska i druge. U Iraku su na vrhuncu pandemije nadležne državne službe odlučile ograničiti korištenje medicinskim kapacitetima na hitna stanja u cijeloj zemlji te odgoditi neobvezne postupke za kasniji datum.

Podatci iz dvaju tercijarnih kardioloških centara na jugu Iraka pokazuju da je stopa pPCI postupaka bila 20 % manja tijekom ožujka i travnja 2020. u usporedbi s prethodnim mjesecima. Moguća objašnjenja za to uključuju strah bolesnika od primitka u bolnicu, otežan pristup bolnicama zbog mjera potpuna ograničenja kretanja u gradovima, primjenu farmakoterapije za liječenja

The effects of COVID-19 pandemic have overwhelmed health care systems globally, both in developed and developing countries. Medical facilities are struggling to overcome the pandemic and at the same time to provide care for patients with other emergency medical conditions. The unprecedented situation with the large number patients and limited resources has resulted in reduced presentation of other patients to hospitals during the crisis. Reports indicated a decline in the number of patients with acute ST-elevation myocardial infarction (STEMI) presenting to hospitals. In Spain, the rate of primary percutaneous coronary intervention (pPCI) declined by 40%[1], and in the United States pPCI was reduced by 38%[2]. One of the possible reasons for that is the idea of contracting the infection from hospitals is currently prevalent among people, so patients are avoiding calling emergency services despite major events. Another reason, but likely to a lesser extent, is increasing use of fibrinolytic therapy for STEMI patients, especially those suspected of COVID-19 infection[3].

In Iraq, the COVID-19 pandemic is less prevalent in comparison with other affected countries such as China, Iran, Italy, Spain, and others. At the peak of the pandemic, the authorities decided to limit medical resources for emergency conditions and defer elective cases for later appointments across the country.

The data from two tertiary cardiac centers in the south of Iraq showed a 20% reduction in the rate of pPCI procedures performed during March-April 2020 in comparison with the proceeding months. Possible explanations are patient anxiety towards admission to hospitals, the total lockdown of the cities causing difficult access to hospitals, adoption of pharmacotherapy to treat STEMI patients in hospitals with no catheterization laboratories, and to a lesser ex-

pacijenata sa STEMI-jem u bolnicama bez laboratorija za kateterizaciju, te u manjoj mjeri i moguća smanjena pojavnost STEMI-ja tijekom pandemije.

U svemu ovome najvažnije je koliko dobro bolesnici razumiju novonastalu situaciju. Moramo bolesnike sa STEMI-jem i ostalim akutnim događajima naučiti da su bolnice sigurne te da trebaju odmah zvati pomoć kako spasili svoje živote. Naša je odgovornost kao zdravstvenih djelatnika da pripazimo na sve aspekte kako bi se ljudski gubitci smanjili u najvećoj mogućoj mjeri.

tent the possibility of reduced STEMI incidence during the pandemic.

The most important point here how well patients understand the current situation. We need to educate patients with STEMI and other acute events that hospitals are safe and that they have to call for help immediately to save their lives. It is our responsibility as medical professionals to keep an eye on all aspects of our field to minimize losses as much as possible.

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# Odgovor: Postupak primarne perkutane koronarne intervencije tijekom panemije COVID-19: globalno iskustvo

# Re: Primary PCI procedures during the COVID-19 pandemic: Global Experience


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Autori zahvaljuju kolegama iz Iraka na reakciji na članak objavljen u časopisu *Cardiologia Croatica*[1]. Tendencija značajnog smanjenja broja bolesnika s akutnim infarktom miokarda (AIM) koji za vrijeme COVID-19 pandemije bivaju zaprimljeni i hospitalizirani u bolnicama prati se širom Europe i Sjedinjenih Američkih Država. Registar perkutanih koronarnih intervencija STENOS pokazuje slične rezultate i za infarkt miokarda sa ST-elevacijom u većini centara u Republici Hrvatskoj (**slika 1**). Većina inozemnih autora takvo stanje objašnjava, prvenstveno, strahom, čak i teških bolesnika, od dolaska u bolnice tijekom pandemije

The authors would like to thank their colleagues from Iraq for their reaction to article published in the *Cardiologia Croatica* journal[1]. A trend of significant reduction in the number of patients with acute myocardial infarction (AMI) who are admitted and hospitalized during the COVID-19 pandemic is being reported across Europe and the United States. The STENOS registry of percutaneous coronary interventions shows similar results for ST-elevated myocardial infarction in most centres in the Republic of Croatia (**Figure 1**). Most foreign authors explain this condition as primarily due to fear, even in critically ill patients, of arriving

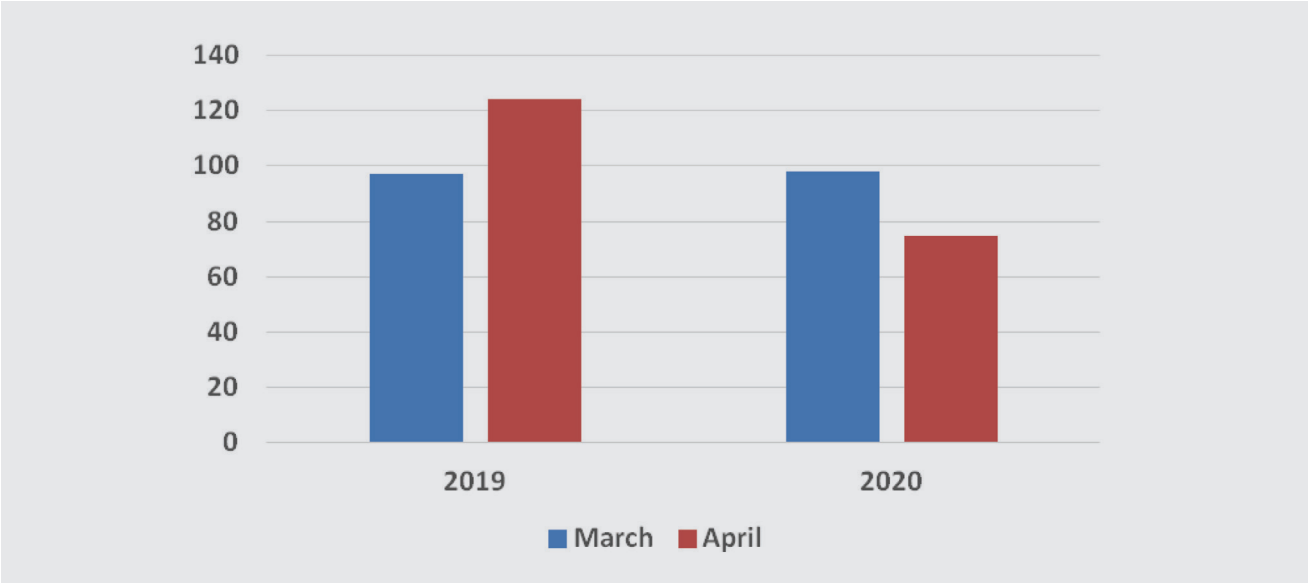


**FIGURE 1. The number of patients with acute ST-elevation myocardial infarction treated with primary percutaneous coronary intervention – data from the Croatian STENOS PCI Registry.**

radi opasnosti od zaraze, a manje težom dostupnošću hitne medicinske službe i zamjenom simptoma AIM-a za navedeni respiratorni infekt. Posljedice karantene i samoizolacije kao što su manja izloženost psihičkim stresorima, manja onečišćenost zraka, bolje pridržavanje medikamentozne terapije, niži arterijski tlak, manje pušenja radi straha od respiratorne infekcije COVID-19, više odmora i manje tjelesnog opterećenja neki su od dodatnih mehanizama koji potencijalno smanjuju učestalost AIM tijekom pandemije, a kojima se spekulira u kardiološkoj zajednici. Ipak, tijekom COVID-19 pandemije prati se veća učestalost i nekih inače rjeđih komplikacija AIM kakve su mehaničke komplikacije (npr. rupture miokarda) ili kardiogeni šok[2]. Nadalje, austrijski autori[3] obzirom na smanjenje broja bolesnika s akutnim koronarnim sindromom koji su u ožujku ove godine liječeni u austrijskim bolnicama procjenjuju da bi broj smrtnih ishoda u tih bolesnika mogao biti veći nego onaj od COVID-19 infekcije u isto vrijeme. Stoga se slažemo s kolegama iz Iraka da je vrijeme da zdravstveni profesionalci, i javno, ukažu na ovaj problem i opasnost od izbjegavanja hitnog liječenja takvih stanja kakav je AIM.

at hospitals during the COVID-19 pandemic and risking infection, and to a lesser extend as resulting from the reduced availability of emergency medical services as well as substituting AMI symptoms for COVID-19 infection. Consequences of quarantine and self-isolation such as less exposure to psychological stressors, less air pollution, better adherence to drug therapy, lower blood pressure, less smoking because of fear of COVID-19 respiratory infection, more rest, and less exertion are some of the additional mechanisms which the cardiac community considered as potentially reducing the incidence AMI during this pandemic. However, during the COVID-19 pandemic, a higher incidence of some otherwise less common AMI complications such as mechanical complications (e.g., myocardial rupture) or cardiogenic shock[2] has been reported. Furthermore, the decrease in the number of patients with acute coronary syndrome treated in Austrian hospitals in March this year, lead the Austrian authors[3] to estimate that the number of deaths in these patients could be higher than that of COVID-19 infection at the same time. We therefore agree with colleagues from Iraq that it is time for health professionals, even in public, to point out this problem and the danger of avoiding emergency treatment for conditions such as AMI.

## LITERATURE

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