Dental medicine and COVID-19 pandemic

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Abstract
Specific airborne infection with characteristic symptoms – high fever, headache, persisting dry cough, loss of taste and smell and overall tiredness originates from Wuhan in China where it was discovered in December 2019. Due to rapid dissemination the epidemic has become a pandemic caused by coronavirus on March 11 2020. It changed the world over night and made human life different; for some it was the ultimate change. In these fluctuating times the dental medicine, especially in the developed and advancing areas, completely stopped. Responsible behaviour of dentists, aimed at stopping the spread of the virus from dental offices showed that only emergency procedures were to be performed, in cases of toothache, trauma and odontogenic infections that might put organs or systems at risk. At the same time, with the cessation of all types of treatments, there was an immediate cessation of teaching processes in all university settings for dental medicine, since the data from China strongly suggested death rates among doctors and students in close contact with infected persons. Stress and unease that have grown among people due to isolation and quarantine, the only ways of prevention of the spread of the invisible enemy will have long-lasting and visible effect on mental health of the people. Health issues in the oral cavity will most certainly occur due to the lack of regular check-ups and care. Caries and periodontal and quarantine, the only ways of prevention of the spread of the invis-ible enemy will have long-lasting and visible effect on mental health of the people. Health issues in the oral cavity will most certainly occur due to the lack of regular check-ups and care. Caries and periodontal disease will appear more frequently. While we are expecting an effic-ient vaccine, the only way to counter the virus are epidemiological measures and responsible behaviour of every individual, in order to stop the spread of COVID-19 virus.

Key words
coronavirus, COVID-19, pandemic, dental medicine, Wuhan, aerosol, prevention

Dentalna medicina i pandemija uzrokovana virusom COVID-19

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Sažetak
Specifična kapljična infekcija s karakterističnim simptomima – povišenom tjelesnom temperaturom, glavoboljom, dugotrajnim suhim kašljem, gubitkom okusa i mirisa te malakalošću organizma, potječe iz Wuhanu u Kini gdje je najprije otkrivena u prosincu 2019. godine. Zbog iznimno brzog širenja nastala epidemija prerasla je u pandemiju 11. ožujka 2020. prouzročenu koronavirusom koja je preko noci pro-mijenila cijeli svijet te učinila ljudima život drukčijim, a nekima ga je i potpuno promijenila. U cijeloj toj promjeni područje dentalne medicine, iz izrazito razvijenoga i naprednog područja, potpuno je prekini-to. Odgovorno ponašanje nas stomatologa u sprječavanju širenja koronavirusa iz ordinacija pokazalo je da su moguće jedino hitne intervencije u slučaju zubobožbe, sanacije trauma u ustima i odontoge-nih infekcija koje bi mogle ugrožiti druge organske sustave. Paralelno s prestankom svakodnevnih usluga u liječenju usne šupljine radi prevenija ukrivenih zaraza, prekinut je rad visokoškolskih institu-cija koje obrazuju mlade doktore dentalne medicine, jer su podatci iz Kine upozorili na smrtnost među liječnicima i studentima koji su bi-li u bliskom dotaciju sa zaraženim osobama. Stres i nelagoda koji su se stvorili među ljudima zbog izolacije i karantene, kao jednom obli-ka prevencije od širenja toga nevidljivog prijetnje, imao je izrazit utjecaj na drukčijsku i odgorenje na mentalno zdravlje ljudi, ali će se pojaviti i zdravstvene tegobe u usnoj šupljini zbog izostanka redovitih tretmana. Najviše će se manifestirati u obliku prevencije parodontalnih bolesti i zubnog karijesa. U očekivanju učinkovitoga cjevijiva svima nam pre-ostaje redovito provođenje epidemioloških mjera i odgovorno pona-shanje svakog pojedinca u susjedanju širenja virusa COVID-19.

Ključne riječi
coronavirus, COVID-19, pandemija, dentalna medicina, Wuhan, aerosol, preventiva
Travels and the connections among people all over the world and international flights have spread the coronavirus all over the Old Continent, to Europe (where the population density is high), and, subsequently to the Americas and other continents. The World Health Organization proclaimed the pandemic on March 11 2020. The pandemic caused by the coronavirus turned the world upside down over night and made living completely different.

In this change, our profession, the dental medicine, an extremely affluent area, was stopped. Responsible behaviour of dentists trying to stop the spread of the infection deemed only emergency situations treatable – toothache, traumas and prevention of odontogenic infections that may endanger other organs or systems.

Everybody started an extreme personal protection and measures to stop the production and spread of the droplets and aerosols, as was recommended during the earlier SARS epidemic (4,5). Dentists are well informed on the health issues such as hepatitis B or C, as well as on infection risk issues. Many other professions do not have to consider infection on such a level. The New York Times reminded its readers that the dentists are the most exposed professionals when it comes to COVID-19 risk (6). The reason is to be found in the fact that the oral cavity, already overflown with various microorganisms, has become the habitat of COVID-19.

A question was raised: How acceptable is the risk to the dentists during the COVID-19 pandemic? This implies that patients are not infected, if they do not have symptoms. Some articles were published, discussing the fact that dentists are at high risk due to the proximity of their faces and patient’s mouth during work. Investigations were published, confirming the possibility of COVID-19 transfer via aerosol formed during dental procedures, indirectly from saliva, water and particles smaller than 50 µm. A skilled dentist may be an extremely important element in breaking the spread of the coronavirus based in her/his knowledge, professional attitude and strict performance of all preventive epidemiological measures. This includes the measurement of bodily temperature from a distance, anamnestic information, antiseptic rinsing before a procedure, the use of rubber dam, reduced use of drills (in order to reduce aerosol), extra oral radiography, single-use instruments, protective overalls, visors, hats, face masks and detailed disinfection and sterilization of instruments and offices (4–7).

At the same time with the treatment cessation, universities that have programs for young and upcoming dentists have stopped their work, since data from China warned about the death rate among doctors and medical students that were in close contact with infected persons. The teachings and education of students of dental medicine switched to e-learning, with very little possibilities of direct laboratory, preclinical or clinical work. Also, many research projects have been suspended in both clinical and laboratory dental medicine, in order to prevent possible contamination in the laboratories among the researchers, as well as the contamination of samples that the research is performed upon. New protocols that have been fabricated, together with responsible behaviour in dental medicine, will result with a staged in-

Putovanja i povezanost ljudi diljem svijeta i međunarodni letovi vrlo brzo su početkom 2020. godine proširili kor- navirus na stari kontinent – u Europu gdje je naseljenost vrlo gusta, a poslije i na američki kontinent te u druge dijelove svijeta. WHO je proglašio pandemiju 11. ožujka 2020. Pandemija prouzročena coronavirusom preko noći je promijenila cijeli svijet i učinila život ljudi potpuno drušćijim.

U cijeloj toj promjeni je područje dentalne medicine, iz iznimno naprednoga područja, potpuno prekinuto. Odgovorno ponašanje nas stomatologa u sprječavanju širenja koronavirusa pokazalo je da su moguće jedino hitne intervencije – liječenje zubolje, sanacija trauma u ustima i sprječavanje odontogenih infekcija koje bi mogli ugroziti druge organske sustave.

Prinutilo se strogoj osobnoj zaštiti i mjernama za smanjenje i izbjegavanje proizvodnje kapljica i aerosola, kako je bilo preporučeno tijekom ranije epidemije SARS-a (4, 5).

Stomatolazi su vrlo dobro educirani o pitanjima zdravlja u stomatologiji, kao što su hepatitis B ili C, te o procjeni rizika od infekcije. Mnoga druga znanja ne moraju razmišljati na taj način. New York Times je podsjetio čitatelje da su stomatolazi izloženi najvećem riziku među svim profesionalcima kad je riječ o bolesti COVID-19 (6). Razlog treba tražiti u činjenici da se u usnu šupljinu, i inače bogatu mikroorganizme, sada uvukao i COVID-19. Postavljeno je pitanje: Koliko je stomatolazima prihvatali rizik tijekom pandemije proglašene zbog virusa COVID-19? To pretpostavlja da pacijenti nisu zarazni, ako su asimptomatski. Objavljeni su članci u kojima autori izvješćuju da stomatolazi imaju visoki rizik od infekcije COVID-om 19 zbog bliskog kontakta njihova lica i pacijentove usne šupljine. Objavljene su studije u kojima se sugerira da se COVID-19 može prenijeti zrakom aerosolima stvorenom tijekom stomatoloških postupaka ne-izravno iz slike, vode i čestica promjera < 50 µm. Vješt stomatolog može biti iznimno važan u prekidu lanca širenja koronavirusa na temelju vlastita znanja, profesionalnog rada i provođenja svih preventivnih epidemioloških postupaka. To uključuje mjerenje tjesne temperature pacijentima na daljinu, anamnestičke podatke, antiseptičko ispiranje usta prije tretmana, korištenje koferdama i ruberdama, što češće korištenje mikromotornih vrtaljki radi izbjegavanja nastanka aerosola, ekstraoralne rendgenske snimke, jednokratni pribor, zaštitnu odjeću, vizire, kape, maske te temeljitu dezinfekciju i sterilizaciju instrumenta i prostorija (4–7).

Paralelno s prekidom svakodnevnih usluga liječenja usne šupljine radi preveniranja ukršćene zaraze, prekinut je i rad visokoškolskih institucija koje obrazuju mlade doktore dentalne medicine jer su podatci iz Kine upozorili na smrtnost među liječnicima i studentima koji su bili u bliskom kontak- tu sa zaraženim osobama. Način obrazovanja studenata dentalne medicine diljem svijeta preustrojen je i usmjeren na e- učenje s vrlo malom mogućnošću izravnoga laboratorijskog, prektliničkog i kliničkoga rada. Također su na određeno vrijeme prekinuta i znanstvena istraživanja u kliničkoj i laboratorijskoj dentalnoj medicini, kako bi se onemogućila kontamina- minacija unutar laboratorija među istraživačima i onečišćenje uzoraka na kojima se obavljaju istraživanja. Izrada novih protokola i odgovornog ponašanja u dentalnoj medicini rezulti-
clusion of teachers, students, researchers and clinicians in everyday work.

Stress and the unease that has grown among the population due to isolation and quarantine, one way of protection among the invisible enemy, will leave visible and long-term consequences on mental state of the people; there will also be some health issues in the oral cavity due to the lack of regular dental treatments. It is supposed that rates of caries and periodontal diseases will rise.

A research performed on people that have already been quarantined or isolated due to other viruses has shown that 43% of the subjects had some kind of a mental disturbance, most frequently anxiety and depression (8).

While we await the production of an effective vaccine, we cling to regular and strict epidemiological measures and professional and responsible behaviour of every member of the dental team in the battle against the spread of COVID-19.

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