

## Editorial

### Iz uredništva

## 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 disease will appear more frequently. While we are expecting an efficient 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

Specific airborne droplet 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 (1).

Due to extreme virulence, quick dissemination by means of droplets in the air and ineffective treatment, the symptoms were only eased by standard therapy. Therefore, the coronavirus spread over a great part of East Asia. Its main trait is high lethality (up to 18%), especially in elderly with chronic comorbidities (2). Local city authorities in Wuhan did not comprehend the importance of this novel disease similar to SARS, that was reported by an ophthalmologist, Dr Li Wenliang, but after a certain delay, the government of the People's Republic of China retaliated with a swift draconic measures that were effective and stopped the *explosion* of the number of persons affected with COVID-19 virus (3). Standard epidemiologic measures as intensified hygiene, isolation and quarantine and social distancing became the only weapon against this virus, the way it was done many centuries ago in the times of the pest and the cholera.

## 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 malaksalošću organizma, potječe iz Wuhana 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 noći promijenila 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 prekinuto. Odgovorno ponašanje nas stomatologa u sprječavanju širenja koronavirusa iz ordinacija pokazalo je da su moguće jedino hitne intervencije u slučaju zubobolje, sanacije trauma u ustima i odontogenih infekcija koje bi mogle ugroziti druge organske sustave. Paralelno s prestankom svakodnevnih usluga u liječenju usne šupljine radi preveniranja ukrižene 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 doticaju sa zaraženim osobama. Stres i nelagoda koji su se stvorili među ljudima zbog izolacije i karantene, kao jedinog oblika prevencije od širenja toga nevidljivog neprijatelja, imat će vidljive i dugotrajne posljedice na mentalno zdravlje ljudi, ali će se pojaviti i zdravstvene tegobe u usnoj šupljini zbog izostanka redovitih tretmana. Najčešće će se manifestirati u obliku prevalencije parodontnih bolesti i zubnog karijesa. U očekivanju učinkovitoga cjepiva svima nama preostaje redovito provođenje epidemioloških mjera i odgovorno ponašanje svakog pojedinca u suzbijanju širenja virusa COVID-19.

### ključne riječi

koronavirus, COVID-19, pandemija, dentalna medicina, Wuhan, aerosol, preventiva

Specifična kapljična infekcija s karakterističnim simptomima – povišenom tjelesnom temperaturom, glavoboljom, dugotrajnim suhim kašljem, gubitkom okusa i mirisa te malaksalošću organizma, potječe iz Wuhana u Kini gdje je najprije otkrivena u prosincu 2019. godine (1).

Zbog iznimne virulentnosti, brzog kapljičnog širenja i nemogućnosti liječenja, simptomi su se samo ublažavali klasičnom terapijom pa se coronavirus vrlo brzo proširio diljem istočne Azije. Njegovo je osnovno obilježje visok letalitet koji iznosi do 18 %, osobito kad je riječ o starijim osobama i osobama s kroničnim bolestima (2).

Lokalna gradska vlast u Wuhanu nije odmah shvatila značenje te nove bolesti slične SARS-u o kojoj je izvijestio dr. oftalmologije Li Wenliang, ali nakon određene početne odgovode vlada Republike Kine uključila se u brz drakonski odgovor koji je djelovao i usporio *eksploziju* oboljelih od virusa COVID-19 (3). Klasične epidemiološke mjere kao što su pojačana higijena, izolacija i karantena te održavanje razmaka, postale su jedini način borbe protiv toga virusa, onako kao što se to činilo nekada u doba kuge i kolere.

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 aerosol, 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 overflowed 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 koronavirus na stari kontinent – u Europu gdje je naseljenost vrlo gusta, a poslije i na američki kontinent te u druge dijelove svijeta. WHO je proglasio pandemiju 11. ožujka 2020. Pandemija prouzročena koronavirusom preko noći je promijenila cijeli svijet i učinila život ljudi potpuno drukčijim.

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 zubobolje, sanacija trauma u ustima i sprječavanje odontogenih infekcija koje bi mogle ugroziti druge organske sustave.

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

Stomatolozi su vrlo dobro educirani o pitanjima zdravlja u stomatologiji, kao što su hepatitis B ili C, te o procjeni rizika od infekcije. Mnoga druga zanimanja ne moraju razmišljati na taj način. *New York Times* je podsjetio čitatelje da su stomatolozi izloženi najvećem riziku među svim profesijama kad je riječ o bolesti COVID-19 (6). Razlog treba tražiti u činjenici da se u usnu šupljinu, i inače bogatu mikroorganizima, sada uvukao i COVID-19. Postavljeno je pitanje: *Koliko je stomatolozima prihvatljiv 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 stomatolozi 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 stvorenima tijekom stomatoloških postupaka neizravno iz sline, 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 tjelesne 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 instrumenata i prostorija (4-7).

Paralelno s prekidom svakodnevnih usluga liječenja usne šupljine radi preveniranja ukrižene 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 kontaktu sa zaraženim osobama. Način obrazovanja studenata dentalne medicine diljem svijeta preustrojen je i usmjeren na e-učenje s vrlo malom mogućnošću izravnoga laboratorijskog, pretkliničkog i kliničkoga rada. Također su na određeno vrijeme prekinuta i znanstvena istraživanja u kliničkoj i laboratorijskoj dentalnoj medicini, kako bi se onemogućila kontaminacija unutar laboratorija među istraživačima i onečišćenje uzoraka na kojima se obavljaju istraživanja. Izrada novih protokola i odgovornog ponašanja u dentalnoj medicini rezultir-

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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rat će postupnim uključivanjem nastavnika, studenata, istraživača i kliničara u svakodnevni rad.

Stres i nelagoda koji su nastali među ljudima zbog izolacije i karantene, kao jedinog oblika prevencije u širenju toga nevidljivog neprijatelja, ostavit će vidljive i dugotrajne posljedice na mentalno zdravlje ljudi, ali pojavit će se i zdravstvene tegobe u usnoj šupljini zbog izostanka redovitih stomatoloških tretmana. Najčešće će se manifestirati u obliku prevalencije parodontnih bolesti i zubnog karijesa.

Istraživanje provedeno na ljudima koji su već bili u karantena i izolacijama zbog nekih drugih virusa, pokazuje da je 43 % ispitanika imalo mentalne poremećaje, a to su najčešće bili anksioznost i depresija (8).

U očekivanju učinkovitoga cjepiva svima preostaje redovito provođenje epidemioloških mjera te profesionalno i odgovorno ponašanje svakog pojedinca i člana stomatološkog tima u suzbijanju širenja virusa COVID-19.