

EDITORIAL**CHALLENGES OF THE DENTAL MEDICAL PRACTICE DURING COVID-19 PANDEMIC AND POST-PANDEMIC PERIOD**

The COVID-19 pandemic represented a change of paradigm for dental health care providers as this category of professionals faced unexpected and unforeseen challenges regarding moral decision-making (1).

The first challenge was the interruption of the ongoing dental treatments; dental professionals were limited to telephone consultations, and antibiotic prescriptions sent by e-mail or *WhatsApp*, and ensured only major dental emergencies (uncontrolled bleeding; diffuse soft-tissue bacterial infections with intra-oral or extra-oral swelling or trauma involving facial bones that potentially compromises the patient's airway) and dental urgencies (swelling of gum, cheek or face which; acute oral pain; mouth ulcers prolonged for more than two weeks; bleeding that lasts more than 20 minutes to a patient with recent tooth extraction; fractured tooth which is causing pain and damage to cheek or tongue; traumatized tooth; bleeding due to facial trauma). These measures were requested by higher risk of COVID-19 infection within dental professionals due to face-to-face contact, and the presence of COVID-19 in aerosols (liquid and solid particles suspended in air) and splatter (mixture of air, water, solid substances) frequently formed during routine dental procedures when high-speed instruments are used (2-3). As 91.7% of subjects with COVID-19 have virus in saliva samples (4), dental procedures with high volume of aerosols make ineffective the standard protective

measures for patients in the incubation period, unaware of their infection status, or those who conceal their infection (5). Regardless of the degree of community spread, dentists must screen all people who enter the dental setting for symptoms of COVID-19. Dental treatment had to be provided after considering both the risk of delaying dental health care and the risk for dentists of healthcare-associated disease transmission (6). Conservative treatments were the most affected dental procedures during COVID-19 pandemic, followed by periodontal diseases treatment, where almost half of the planned treatments could not be performed (7). The patients between 35 and 74 years were the most affected by the absence of dental caries treatment, endodontic therapy, and periodontal diseases treatments (7). Blockage of routine dental activity has been associated with increased vulnerability of patients to other conditions (caused by increased consumption of antibiotics), as well as the occurrence of functional, biological, or aesthetic complications caused by delayed dental procedures, prosthetic treatments, orthodontic treatment sessions (7). Poor oral health can accelerate the development of other systemic conditions as follows: cardiovascular system pathology, neurodegenerative diseases, diabetes, low birth weight, osteoporosis, and kidney disease (8).

The second challenge was related to the transition to the alert state. Clinicians have adopted a series of measures recommended

by the Romanian College of Dentists, measures aimed at preventing and limiting the spread of COVID-19, as well as protecting members of the professional body; these measures were inspired by similar measures adopted by professional dental associations in the USA, Canada, France (9, 10, 11). The implementation of these measures required the reorganization of the circuits and work protocols in the dental offices that generated the increase in expenses by the additional purchase of protection and disinfection materials (for example, surgical ultraviolet lamps and High Efficiency Particulate Arrestance Filters). In addition, there was a decrease in the number of patients treated per day due to the increase in time required for the preparation of the office and medical staff but also the postponement of elderly patients with associated general pathology. To restrain and mitigate the COVID-19 infection. It was proposed the introduction in dental public and private clinics of screening tools, either rapid molecular testing or saliva point-of-care technology, which should be effective in identifying and isolating the potential contacts and carriers (12).

The new economic conditions have contributed to the reduction of patients' addressability to complex oral rehabilitation treatments. At the same time, the higher percent of population with untreated needs and lower income has increased the burden on public health systems and, at the same time, has reduced the revenues of private dental practices.

In this context, the projects regarding the oral health status of the population in the post-pandemic period must address factors such as socio-economic status, social environment, cultural norms, and the health insurance system. In this post-pandemic period, we must consider the

recommendations of World Health Organization for the integration of the oral health into general health promotion strategies and the assessment of the oral health needs through socio-dental approaches, as well as the promotion of oral health within disadvantaged population groups (13).

Complex oral rehabilitation remains, in the post-pandemic period, an area of interest for patients who request the complete restoration of the functions of the stomatognathic system. In this context, it is requested an interdisciplinary management of edentulous patients through the collaboration of specialists in the fields of periodontology, implantology, prosthetics, oral surgery, and orthodontics.

Clinicians are currently focusing on factors that influence the success rate of classical and implant-prosthetic prosthetic treatments: biomaterials, design and surface bioactivity of dental implants, biomechanical factors, quality and volume of bone tissue, surgical technique. Decisions regarding the selection of techniques and materials used in prosthetic and implant therapy imply uncertainties regarding the prognosis of therapy, in relation to the experience and preferences of the practitioner, the preferences and values of patients, and the costs involved (14).

The long-term success of the mucosal support reconstruction techniques is highly related to the individualized analysis of the specific systemic, loco-regional, local parameters and the focus on therapeutic algorithms adapted to each individual case.

Modern imaging techniques used for the diagnostic and assessment of muco-osseous support allows the understanding of the predictive factors and the adoption of adequate informed decisions regarding the implant-prosthetic therapeutic solutions (15).

Challenges of the dental medical practice during COVID-19 pandemic and post-pandemic period

The development of individualized protocols and algorithms for alveolar reconstruction techniques and addition materials, in relation to the particularities and complexity of clinical cases, is a necessity in the therapeutic management of patients with severe alveolar resorption.

The effectiveness of the oral complex rehabilitation procedures can be significantly increased by the introduction of the digital workflow, from the treatment planning and designing, from implant surgery procedures to the fabrication of individualized prostheses produced by computer-aided design/computer aided manufacturing (CAD/ CAM) technologies (16). Implant-prosthetic therapy assisted by digital systems favors the use of early loading (post-implant 3-6 months) or immediate loading (post-implant first 48 hours) protocols that reduce the number of sessions, reduce the post-operative healing time, and increase patient post-operatively comfort (17). The digital tools and technologies also give a strong boost to various minimal invasive surgical techniques used in the implant stage.

Despite these advantages, before COVID-19 pandemics the current use of the digital technology was still lacking in the clinical dental practice, situation that

was linked to the slow adoption of digital technology (18).

COVID-19 pandemic period imposed a larger adoption of the digital devices and technologies. We can predict further enrolling of the dental practitioners in digital courses aiming to gain in-depth knowledge of digital applications and expert systems that optimize diagnosis and treatment plan, as well as support clinical decisions based on causal and probabilistic reasoning in theoretical decision-making schemes.

The widespread use of dental technology in the pandemic period provides patients with the opportunity to fulfill the esthetic demands, to preview the future prosthetic solutions and, by the use of the minimally invasive surgical procedures, to shorten the time required from diagnostic to final implant-supported prosthetic restoration for uninterrupted social and professional life of the edentulous patients.

COVID-19 pandemic period was followed by clinical, economic, legal and social consequences with future impacts on dental practice (19). In this context, professional scientific associations, government authorities, public and private dental care services must design new rules and policies for similar long-term pandemic periods.

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