A new framework to identify dental emergencies in the COVID-19 era

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Abstract: In order to reduce the spread of COVID-19 (Coronavirus Disease 2019), it is crucial to take extraordinary prevention and safety measures in dental offices, and to defer all elective and non-urgent procedures. Dental emergencies are defined through oral symptoms but, the systemic and psychological conditions of each patient should be considered. The present short communication proposes a multilevel evaluation (oral, systemic and psychological) and risk assessment score for the management of dental emergencies following the SARS-CoV-2 (severe acute respiratory syndrome coronavirus-2) outbreak. A comprehensive categorization and score scale assessment for dental emergencies allows a better identification of patient’s treatment needs and avoids unnecessary contact between dental health care providers and patients during the SARS-CoV-2 pandemic.

Keywords: dental emergencies, risk assessment, SARS-CoV-2

Introduction

The theory that there is a correlation between high viral load exposure of frontline health care providers (HCP) and severe clinical manifestation of the disease (including death) was reported by the media, but never corroborated by scientific evidence. If this were true, dental health care personnel (DHCP) would be at high risk due to the high number of patients they come into close contact with. In the initial phase of a pandemic, during which a preventive vaccine is not available, a pivotal role is played by personal protective equipment (PPE), especially when aerosol-generating procedures are performed [Gawn J, Clayton M, Makison, Crook B. Evaluating the protective efficacy of surgical masks compared to filtering facepiece respirators: Gross protection of surgical masks compared to filtering facepiece respirators. Prepared by the Health and Safety Laboratory for the Health and Safety Executive, HSE Books 2008].

In order to tackle the COVID-19 (Coronavirus Disease 2019) pandemic efficiently, it is crucial to reduce the spread of the infection by carrying out extraordinary prevention and safety measures in hospitals and dental offices [1].

Guidelines are constantly updating, but there is a general consensus that all elective procedures, surgeries and non-urgent visits should be postponed; instead, priority should be given to urgent procedures and emergencies.

Recent ADA (American Dental Association) recommendations make it clear which conditions can be considered as dental emergencies [American Dental Association interim guidance for minimizing risk of COVID-19 transmission. Last updated April 2020]. According to ADA guidelines, dental emergencies are “potentially life threatening and require immediate treatment to stop ongoing tissue bleeding [or to] alleviate severe pain or infection”.

Dental emergencies are obviously determined through oral symptoms but, the systemic and psychological conditions of each patient should be taken into account. In fact, the extent to which a procedure is not deferrable should be based on clinical case-by-case judgement. In this regard, no attempt has ever been made to classify dental emergencies by integrating information regarding the systemic and psychological condition of patients.

The present short communication proposes a multilevel evaluation (oral, systemic, psychological) and risk assessment score for the management of dental emergencies following the SARS-CoV-2 outbreak.

Oral status evaluation

In order to better define emergency dental care, ADA defined it as focusing “on the management of conditions that require immediate attention to relieve severe pain and/or risk of infection and to alleviate the burden on hospital emergency departments”. Dental emergencies not representing a threat for severe local/systemic complications should be handled with the least invasive treatments.

Confirmed or suspected COVID-19 patients requiring urgent treatments (i.e. pain and/or swelling) can be managed through the prescription of antibiotics and painkillers. This approach can offer pain relief for symptomatic patients and at the same time provides DHCP with enough time to refer patients to a specialist or decide all appropriate prevention and safety measures before performing treatment [2].

Following the COVID-19 outbreak, a phone triage before accessing medical/dental offices was deemed necessary in order to formulate epidemiological evaluations [3] and then to establish oral conditions related to the dental emergency:

- Presence/absence of pain; type of pain
- Presence/absence of swelling; localization and characteristics of swelling
- Presence/absence of bleeding
- Systemic diseases/medications
- Psychiatric/neurological disorders

Table 1a proposes a classification for oral risk assessment based on the severity of oral conditions and on the potential risk for local/systemic complications.

A recent study by Ather et al. [2] provided recommendations for the clinical management of dental emergencies during the SARS-CoV-2 pandemic.

Surgical Evaluation

Oral, periodontal and implant surgeries sometimes determine postoperative complications such as pain, swelling, bleeding, and surgical site infection [4].

Table 1b shows surgical risk assessment modified criteria, based on those proposed by Askar et al. [5] (range I-VI; low to high risk). Intervention is strongly suggested when postoperative complications impair patient’s oral functions and before encountering more severe local/systemic complications that could require hospitalization.

Orthodontic evaluation

Identification and management of orthodontic emergencies is not always
Recent scientific literature focused on the relationship between oral conditions and systemic diseases. It is therefore deemed necessary to integrate oral problems with the systemic conditions of each patient. The most accurate and comprehensive systemic risk assessment was proposed about 60 years ago by ASA (American Society of Anesthesiologists). Systemic risk assessment and dental care adjustment according to patients’ systemic conditions are shown in Table 2.

**Systemic evaluation**

Recent scientific literature focused on the relationship between oral conditions and systemic diseases. It is therefore deemed necessary to integrate oral problems with the systemic conditions of each patient. The most accurate and comprehensive systemic risk assessment was proposed about 60 years ago by ASA (American Society of Anesthesiologists). Systemic risk assessment and dental care adjustment according to patients’ systemic conditions are shown in Table 2.
Psychological evaluation

The World Health Organization (WHO) defined the concept of health as “a state of complete physical, mental and social well-being and not merely the absence of disease”. It is possible to assume that the psychological aspect should not be overlooked as it is closely intertwined with overall health and quality of life. As a consequence, many patients seek dental assistance because of the psychological discomfort caused by their oral issues and yet, the same oral clinical condition can impact life differently according to each patient’s mindset and psychological state. Sudden public health emergencies are regarded as being a consistent stress trigger and are capable of altering patients’ psychological state. Table 3 shows the proposed psychological evaluation carried out through a questionnaire based on the Hospital Anxiety and Depression Scale (HADS) and modified in relation to oral conditions.

Assessment score scale applicability

Oral emergency detection should take place through phone triage; dental emergencies should be categorized into generic, surgical or orthodontic emergencies, following the criteria in Table 1. Information resulting from emergency procedures only. Moreover, whenever conditions

Table 3 Calculation of the anxiety risk score (A)

| Questionnaire                                                                 | A     |
|------------------------------------------------------------------------------|-------|
| 1. Are you worried about your oral health status during the day?             |       |
| A great deal of the time                                                      | 3     |
| A lot of the time                                                            | 2     |
| From time to time, but not too often                                          | 1     |
| Only occasionally                                                             | 0     |
| 2. Does your oral health status cause you sudden feelings of panic?           |       |
| Very often indeed                                                             | 3     |
| Quite often                                                                   | 2     |
| Not very often                                                                | 1     |
| Not at all                                                                    | 0     |
| 3. Are you still enjoying the things you used to enjoy in this situation of oral discomfort? |       |
| Hardly at all                                                                 | 3     |
| Only a little                                                                 | 2     |
| Not quite so much                                                             | 1     |
| Definitely as much                                                            | 0     |
| 4. Does your oral health status cause you sadness?                           |       |
| Very often indeed                                                             | 3     |
| Quite often                                                                   | 2     |
| Not very often                                                                | 1     |
| Not at all                                                                    | 0     |

Table 4 Definition of the type and time of intervention according to the total sum of scores

| Final score | Risk | Time of intervention | Type of intervention                                      |
|-------------|------|----------------------|----------------------------------------------------------|
| <1          | Acceptable | Immediate | Immediate therapeutic action required                  |
| ≥5          | High | Short term           | Therapy action should be programmed and carried out in the short term |
| 3-4         | Moderate | Medium term  | Corrective treatments should be programmed and carried out in the medium term |
| 1-2         | Low | Long term            | Corrective treatments should be programmed and carried out in the long term |
| <1          | Acceptable | Risks too low to be quantifiable (interventions are impossible to plan) |

Discussion

The relevance of discriminating emergency from non-emergency dental care is clear, especially when referring to acute oral infections; dental abscesses require immediate intervention particularly when they respond partially or not at all to pharmacological therapy (score 3 or 4).

Patient’s anxiety evaluation cannot indicate a dental emergency itself using this score system, since the maximum score does not reach the critical threshold of 3; nonetheless, patients’ anxiety state (score 0-2) influences the overall sum of scores and constitutes a determinant for the definition of a dental emergency.

Anxiety can alter pain perception as well as cause or exacerbate hypertension through a variety of pathways; moreover, anxious patients are at higher risk for vasovagal syncope [7]. Consequently, it is necessary to regard as “emergencies” individuals with high-risk psychological profiles, especially when associated with systemic diseases (at least a score of 2 on the systemic level) and symptomatic, yet not severe, oral conditions.

In order to slow down the spread of SARS-CoV-2, DHCP are required to guarantee emergency treatments only. Moreover, whenever conditions
do not require immediate intervention, they should be handled through painkillers and/or antibiotics in the first place [2]; the need for intervention will be evaluated in relation to the patient’s response to pharmacological therapy.

“Telemedicine” (i.e. phone calls, video calls, pictures, text messages etc.) can be considered as an effective and useful alternative for managing non-emergency dental care [6] and for monitoring patients over time. Telephone follow-up allows the early detection of wound healing complications after oral surgeries; and is also feasible and largely accepted by patients [8].

Oral-related aspects are not always sufficient to discriminate emergency from non-emergency dental care, hence requiring a multilevel evaluation. A comprehensive categorization and score scale assessment of dental emergencies allows a better identification of patient’s treatment need and avoids unnecessary contact between DHCP and patients during SARS-CoV-2 pandemic.

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Conflict of interest
The authors deny any conflict of interest related to this study.

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