



The impact of the COVID-19 outbreak on supportive care for oral mucositis: current concepts and practice

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Abstract

The outbreak of coronavirus disease 2019 (COVID-19) markedly affected the way healthcare professionals approach patients with cancer worldwide, not only in terms of therapeutic decision-making but also in terms of supportive care. With the rapid appearance of signs and symptoms and the need of close re-assessment, standard management of oral mucositis has been challenged by physical distancing and limited resources due to the global crisis. Building on the clinical experience developed during the acute phase by members of the Mucositis Study Group of the Multinational Association of Supportive Care in Cancer/International Society of Oral Oncology (MASCC/ISOO), the implications of COVID-19 on the prevention, assessment, and treatment of mucositis are critically reported. Inspired by the restructuring of supportive care measures in response to the pandemic, suggestions for new models of approaching acute side effects are also discussed.

Keywords Mucositis · Chemotherapy · Radiotherapy · COVID-19 · Telemedicine · Supportive care

Oral mucositis (OM), a complication of cancer therapy, can be viewed as a model for the clinical approach to an acute oral disease during times of a pandemic. During the first few months of the COVID-19 pandemic, while the mortality rate was high, a medical supplies shortage was noted, and health systems were on the margin of a collapse; in many countries, governmental orders approved delivery of emergency medical/dental only. At the same time, cancer therapy continued, and OM needed to be addressed timely. An important

lesson was learned during this time, which may be helpful during situations in which there is a concern about the spread of infection, and interactions with the patient may be limited.

The Mucositis Study Group (MSG) of MASCC/ISOO collected input from its members and discussed practical suggestions on current supportive care measures for OM, spurred by the COVID-19 crisis. These aspects of supportive care are summarized below and presented relative to the pertinent MASCC/ISOO clinical practical guidelines for the management of OM (Table 1).

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Oral assessment and dental clearance before cancer therapy

Dental clearance before cancer therapy reduces infections and risk of mucositis during treatment. Dentists often perform this treatment using a rotatory high-speed hand-piece that produces a large aerosol. It is necessary to prevent the scatter of saliva and aerosols while choosing more appropriate procedures and instruments, or by applying a new scavenging technology. The CDC published new guidance for the dental setting (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html>), requiring adoption of rigorous safety measures for both

Table 1 MASCC/ISOO mucositis guidelines — possible adjustment to accommodate the special COVID-19 pandemic circumstances

Guideline category	Adjustment to the COVID-19 pandemic setting
1 Dental clearance prior to the cancer therapy	<ul style="list-style-type: none"> • Modifications to the delivery of dental care • Preference of aerosol-free instruments and procedures • Universal personal protective equipment is upgraded
2 Patient education	<ul style="list-style-type: none"> • Emphasize on education in order to enhance patient self-care and improve basic oral care • Use of telemedicine to deliver instructions to patients • Use of electronic patient-reported outcome systems to assess mucositis symptoms
3 Photobiomodulation therapy	<ul style="list-style-type: none"> • Intra-oral preventive protocols continued • Extra-oral application was explored given it is associated with a lower risk for infection transmission

patients and healthcare professionals, and the correct use of personal protective equipment (PPE).

Clinical assessment of the oral mucosa during cancer therapy

Since social distancing is considered an important element in reducing the spread of infection, in-office visits might be limited during pandemic. In this setting, the use of electronic patient-reported outcomes (e-PROs) enables timely interaction with the patient for optimal symptom assessment in a period of reduced patient–physician interaction. It has long been known that self-reporting of quality of life has a prognostic impact on survival in cancer patients [1, 2]: the COVID-19 outbreak highlighted the importance of early detection of side effects through active patient self-reporting for best supportive care [3]. In this regard, the implementation of e-PRO may help to early identify mucositis based on its associated symptoms (pain, infection, dysgeusia, dysphagia). The use of mucositis-specific PRO tools (as the Oral Mucositis Daily Questionnaire, OMDQ) [4] or the adoption of specific item library of PRO-CTCAEe for head and neck cancer patients constitute additional examples of application [5].

If a patient office visit is permitted, an oral examination is not considered high risk for viral contagion relative to other dental procedures, and eye–mouth–face and gown PPE is likely deemed sufficient; however, there is variability between institutes as to how to approach PPE.

Another tool utilized during oral assessment to reduce the spread of infection through the aerosol is a pre-examination anti-microbial rinse. There are limited data on which mouthwash has the optimal anti-SARS-CoV-2 effect. As it seems now, povidone iodine may have some virucidal effect [6–8], while data about chlorhexidine and hydrogen peroxide are conflicting [6, 9]. As per the current CDC guidance for the dental setting, “there is no published evidence regarding the clinical effectiveness of preprocedural mouth rinses (PPMRs)

to reduce SARS-CoV-2 viral load or to prevent transmission. Although COVID-19 was not studied, PPMRs with an anti-microbial product (chlorhexidine gluconate, essential oils, povidone-iodine or cetylpyridinium chloride) may reduce the level of oral microorganisms in aerosols and spatter generated during dental procedures” (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html>). Importantly, the guidance does not convey efficacy in preventing or treating OM.

Basic oral care

The recently updated MASCC/ISOO guidelines suggested that patient education of basic oral care should be considered a critical factor in ensuring adherence to the guidelines [10]. While access to healthcare may be limited, motivating the patient for self oral hygiene care becomes ever more important.

Specific OM-preventive protocols

As published by judicious refinements of standard practice guidelines [11–13], management of cancer therapy related acute side effects should be optimized during a pandemic outbreak. This may apply for OM in regard to photobiomodulation (PBM).

Intra-oral photobiomodulation is one of the recommended modes for the prevention of OM [14]. The MASCC/ISOO guideline related to PBM refers to a specific cancer patient population, specific delivery protocols, and a specific PBM setting. Despite limited evidence, extra-oral PBM was prioritized during the COVID-19 outbreak in order to reduce the risk of droplet contamination [15]. Its theoretical advantage in terms of patient convenience was preliminarily demonstrated for pediatric patients undergoing HCST [16].

Telemedicine: bridge to remote communication

Telemedicine usually allows a live interaction with the patient, including video image, which dramatically improves the communication with the patient, and hence the patient's understanding of the treatment recommendations. Head and neck oncology, otolaryngology, oral medicine, and dental oncology are amongst the most suited disciplines for virtual examination [17, 18]. The accessibility of oral cavity to user-friendly imaging devices makes telemedicine an appealing solution for the management of OM. Furthermore, telemedicine offers reinforcement of a physician–patient relationship.

Given the popularity of mobile phone-integrated cameras, the idea of obtaining images of the oral surfaces seems feasible. However, the quality of these photos does not enable us to apply this concept universally. The dedicated devices for intra-oral imaging provide a better view, and they usually have an intra-oral video feature [19]. In particular, compared with still photos, the use of intra-oral cameras can be associated with several advantages for oral care. The COVID-19 pandemic boosted the use of intra-oral cameras to deliver remote healthcare. As this technology is expected to improve, it has great potential.

Telemedicine has shortcomings. Most notably, the examination is limited since palpation and percussion are impossible, and even with imaging technology, it may be challenging to visualize certain mucosal areas.

Conclusion

In times of emergency, treatment of cancer patients with curative intent should be kept as a priority. Therefore, supportive treatment to patients should be maintained. New models of supportive care for OM may be implemented which could represent an example of how to reshape care for toxicities.

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Data availability The authors have full control of all the primary data and agree to allow the journal to review the data, if requested.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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