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Is there a risk of chemical burn of oral mucosa using hydrogen peroxide mouthwash against SARS-CoV-2?

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Dear Dr Celso Augusto Lemos Júnior
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SARS-CoV-2 infection, called coronavirus disease (COVID-19), emerged in Wuhan, China and reached pandemic proportions, spreading around the world[1]. Due to the viral transmission by aerosols and the high level of exposure during routine dental practice, the need for improved biosafety measures increased. Saliva droplets originate from the nasopharynx or oropharynx[2]. In this field, pre-procedural antimicrobial mouthwashes have been suggested to reduce the viral load in the oral cavity[3]. Ortega et al wrote a letter to the editor in June 2020 that showed no scientific evidence regarding virucidal efficacy of 0.5% hydrogen peroxide in the oral mucosa and the considerable damage, including risks of bronchoaspiration and allergy[4], so our group made efforts to elucidate the potential risks and adverse events in the oral mucosa with the use of hydrogen peroxide. Chemical mucosa injury is well described, with a consensus among oral medicine specialists, and it is well reported in the literature by the European Association and British Society[5]. Since the 1970s, hydrogen peroxide was widely used to prevent periodontitis with adverse reactions to the oral mucosa due to the application of 3% or higher concentration[6,7]. Interestingly, soft-tissue damage was identified with a 1% solution, also affecting oral sites with the predilection for buccal and labial mucosa and gingiva[6,8]. Adverse events related to hydrogen peroxide mouthwashes may be mild, with erythema, edema or asymptomatic desquamation, with no treatment required, or they can be severe, with irregular painful ulcers varying in size. Bleeding sites that occur during the manipulation of loose mucosa represent a severe chemical burn that requires treatment with a topical analgesic[9]. Most damage has been seen with self-prescribed use of hydrogen peroxide solution for 2 minutes or more[9]. The authors bring up the potential risk of chemical burn even when it is applied by professionals at a concentration of 0.5%. Although this risk is low, clinicians cannot neglect it, especially in patients with previous history of friable mucosa; diagnosis of immunological conditions such as vesicle-bullous lesions, recurrent aphthous ulcers or allergic episodes. In these patients, the fragility of mucosae and the consequent predisposition to ulceration may be worsened by the caustic mouthwash, leading to additional tissue destruction due to the extent of the penetrating agent. There are also a few recent publications pointing out the uncertain efficacy of hydrogen peroxide mouthwash in reducing SARS-CoV-2 in the oral cavity[10]. In the COVID-19 pandemic context, dentists should be advised to use 0.5% hydrogen peroxide as pre-procedural mouthrinse with caution. Side effects of its use need to be further investigated.

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