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COVID-19 in Cerumen–A Potential Source of Viral Spread of Patients Infected With SARS-CoV-2

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Introduction

Over the past 12 months, information about the SARS-CoV-2 virus (or COVID-19 as it is commonly known) continues to emerge. A wealth of information appears on the website of the *US Centers for Disease Control and Prevention* (2021) about the virus, management, vaccines, quarantine and new variants. A search of the *National Library of Medicine's (NLM) National Center for Biotechnology Information's* database (PubMed) identified over 90,000 COVID-19 related articles already in print from around the world (NLM, 2021). Approximately 800 clinical trials examining a variety of biologics for COVID-19 intervention are also underway (all phases) worldwide (NLM ClinicalTrials.gov, 2021).

The role of audiology in the management of COVID-19 patients has emerged as survivors begin to experience a continuance of their health issues post-discharge or a late onset of medical problems. This group of patients has been referred to as COVID-19 "long-haulers." COVID-19 survivors may also experience auditory/vestibular problems. DiSogra (2020) addresses this issue in detail and offers suggestions for ongoing monitoring.

This article will address whether COVID-19 can be found in cerumen and what precautions need to be taken with current patients and 'long-haulers.'

COVID-19 Presence in Cerumen

The first published study that evaluated the presence of SARS-CoV-2 in the cerumen of COVID-19 positive patients appeared in mid-October, 2020 (Islamoglu, et al, 2020). Sixty COVID-19 patients with cerumen in their external auditory canals were evaluated from a pool of 825 patients. Swabs were taken from the external auditory canal of the patients.

The SARS-CoV-2 was not detected in the cerumen samples in all 60 patients. The authors concluded that care should be taken during cerumen management or due to the possibility of

infection from the resulting contaminants (specula, plastic loops, gloves, catch basins, etc.).

The second study to address the presence of SARS-CoV-2 in cerumen (as well as in saliva and tears) was published in late October, 2020 (Hanege, et al). The authors studied 38 COVID-19 patients. Saliva, tear, and cerumen samples were taken from the patients within 72 hours of the diagnosis.

The highest positivity rate was in saliva (76.3%) followed by tears (55.3%) and cerumen (39.5%). Viral load in saliva was also significantly higher compared to tears and cerumen while there was no significant difference between tears and cerumen. Higher viral load in combined nasopharyngeal-oropharyngeal swab samples was associated with higher viral load in tears, but not in saliva or cerumen. Half of the saliva, tear, and cerumen samples obtained from asymptomatic patients contained SARS-CoV-2 genome.

In contrast to the Islamoglu study, the authors (Hanege, et al) concluded that the COVID-19 virus *was* detectable in the saliva, tears, and cerumen samples of both symptomatic and asymptomatic patients. The study highlighted the need for using personal protective equipment (PPE) and hygiene precautions while performing procedures (i.e., cerumen management) that include contact with saliva, tears or cerumen.

Two months later (December, 2020). Celik, et al (2020) analyzed both the Islamoglu and Hanege studies. The authors speculated that the virus may contaminate cerumen via air or from a variety of nearby secretions and accumulate there to give false-positive results. The authors concluded that the combined analysis of these two studies support the hypothesis that SARS-CoV-2 was present in the secretions of the ceruminous glands at the time of secretion and was not the result of an external contamination.

COVID-19 and the Endocrine System

Cerumen glands are part of the endocrine system. Amid the ongoing pandemic, endocrine involvement with COVID-19 remains largely unexplored (Pal, 2020).

Infection Control

Cerumen management (CM) is within the Scope of Practice according to the three major professional associations representing audiologists: the American Academy of Audiology (AAA), the Academy of Doctors of Audiology (ADA) and the American Speech-Language-Hearing Association (ASHA). Therefore, aside from learning cerumen removal techniques, infection control protocols had to be developed (Clark, et al 2003). The reader is encouraged to review these protocols and incorporate them into their clinic if not done so already especially as we work our way through the pandemic.

COVID-19 is highly contagious which is why sterilization of CM tools, disinfecting surfaces and the use of personal protective equipment is critical to your safety and the safety of your staff and patients.

Conclusion

Despite limited published research, there is some emerging evidence that the SARS-CoV-2 virus or

COVID-19 can be found in the cerumen in about a third of newly diagnosed COVID-19 patients. Whether traces of the virus will be present in ‘long-haulers’ is still unknown and open for additional research.

In the meantime, audiologists should treat COVID-19 survivors as if the virus is still present and be mindful of the importance of the consistent use personal protective equipment along with standard infection control protocols (Clark et al, 2003).

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