Review: Covid-19 and Tinnitus

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Introduction

In early 2020, the World Health Organization (WHO) declared the Coronavirus (COVID-19) outbreak a global pandemic (Sohrabi et al., 2020). This pandemic has impacted the lives of millions of people around the world, causing extraordinary disruption to the delivery of healthcare, economic activity, and social interactions. Due to the person-to-person transmission of COVID-19, most countries introduced social distancing restrictions and advised people to stay at home, keep distance and wear face covering (Chan et al., 2020).

COVID-19 an infectious respiratory disease that is linked to many long-term complications, including heart damage, lung damage and neurological disorders, central nervous system manifestation, peripheral nervous system manifestation and skeletal muscle manifestations. Although cardiologic and gastrointestinal symptoms are the main focus that are being unfolded perpetually recently olfactory symptoms such as the Tinnitus has made it to the list. One emerging area of research is whether hearing loss and tinnitus (ringing in the ears) can result from coronavirus infection—either as a symptom or as complication days or weeks later (Healthy Hearing, 2020).

Hearing loss following a viral infection has been studied for years, interestingly viral induced hearing loss differs greatly according the type of the virus. The hearing loss may be as a result of postulations direct or indirect damage to inner ear structures as well as host immune-mediated damage. The notion of Tinnitus triggered or worsened by the new coronavirus COVID-19 has raised up the search on the prevalence and evidence of hearing loss among COVID-19 patients (Baguley, McFerran, and Hall, 2013) (Chirakkal, Hail, Zada and Vijayakumar, 2020).

Ever since several cases of tinnitus and equilibrium disorders such as dizziness and vertigo have been reported by patients with COVID-19 (Viola et al., 2020). According to the American Tinnitus association the pre-existing behavioural conditions make it due to lifestyle changes as a result of the pandemic such as reduced emotional well-being, stress, depression and anxiety make tinnitus a more common symptom experienced by the COVID-19 patients (Han et al., 2009) (Vindegaard and Benros, 2020; Salzar et al., 2019).

Previously conducted studies on coronavirus have highlighted the involvement of brainstem, that could possibly explain the auditory involvement. Interestingly many credible hypothesis such as the hearing loss due to reduced perfusion to hearing organs (ischemia) after the infection of ACE2 that is abundant in the hearing centres, hearing loss due to hearing centres being affected by the cytokine release,

or as a side effect or some oral medications such as salicylates, nonsteroidal anti-inflammatory drugs, aminoglycoside antibiotics that are commonly consumed by COVID-19 patients have been suggested as possible explanation to tinnitus and hearing loss of COVID-19 patients. However no clinical studies have evidenced this so far (Saniasiaya, 2020).

A study of 3103 individuals with tinnitus conducted by Anglia Ruskin University, United Kingdom, with participants over 48 countries (majority from the United Kingdom and the United States of America) published that 40% of the patients displayed symptoms of COVID-19
experienced worsened tinnitus.

Even though the study was focused on people who had tinnitus, a small number of patients experienced tinnitus after developing COVID-19 symptoms which suggest that tinnitus could be a COVID symptom.

Tinnitus affects an estimated one in eight adults in the UK and the study also found that a large proportion of people believe their tinnitus is being made worse by social distancing measures introduced to help control the spread of the virus. These measures have led to significant changes to work and lifestyle routines that could have had an impact on emotional well-being, depression and anxiety.

In this study, United Kingdom respondents reported this to be a greater issue compared to people from other countries, with 46% of UK respondents stated that lifestyle changes had negatively impacted their tinnitus compared to 29% in North America.

Internal worries such as fear of catching COVID-19, financial concerns, loneliness and trouble sleeping have contributed to making tinnitus more troublesome for 32% of people overall, with external factors such as increased videocalls, noisier home environments, homeschooling and increased coffee and alcohol consumption also cited by respondents. Females and the under-50s found tinnitus significantly more bothersome during the pandemic.

The study noted that as well as increasing the severity of tinnitus symptoms, the COVID-19 pandemic has also made it more difficult for people to access healthcare support for the condition and this could further increase emotional distress and worsen tinnitus symptoms.

Lead author Dr Eldre Beukes, a Research Fellow at Anglia Ruskin University (ARU) in Cambridge, England, and Lamar University in Texas, stated that “The findings of this study highlight the complexities associated with experiencing tinnitus and how both internal factors, such as increased anxiety and feelings of loneliness, and external factors, such as changes to daily routines, can have a significant effect on the condition”.

Additionally, Dr. Beukes stated that "Some of the changes brought about by COVID-19 appear to have had a negative impact on the lives of people with tinnitus and participants in this study reported that COVID-19 symptoms are worsening or, in some cases, even initiating tinnitus and hearing loss. This is something that needs to be closely examined by both clinical and support services."

David Stockdale, Chief Executive of the British Tinnitus Association and a co-author of the study, stated that "With the second wave of COVID-19 and the resulting national lockdown likely to increase feelings of stress and isolation, it's vital that we don't see the same mistakes as before when it comes to community health provision for people with tinnitus”.

"Poor treatment of tinnitus in the early stages often leads to much worse cases and severe tinnitus can have a huge impact on mental health. As the COVID-19 second wave takes hold, it is now important that hearing loss is investigated among COVID-19 positive patients and those patients recovered from COVID-19 the but who develop tinnitus or experiences a worsening of their condition.

Conclusively we would like to highlight hearing loss as an emerging clinical issue related to COVID-19 however, more research is required to understand how COVID-19 affects hearing that leads to tinnitus and find a cure to overcome this issue.
References