

**- Virus****Covid-19 can impact inner ear cells, affect hearing: Study**

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MUMBAI: In October, a 38-year-old man walked into the civic-run King Edward Memorial (KEM) Hospital with tinnitus – a ringing noise – in both his ears. He also complained of hearing loss in his right ear. The doctors from the hospital’s ear, nose and throat (ENT) department put him on a five-day course of intravenous steroids. But his condition did not improve. The patient had to be eventually given a hearing aid for one ear. As the doctors probed further, one thing stood out in the patient’s case history – he had recovered from Covid-19 infection only a few weeks prior to his newly-developed ear condition.

“Cases of decreased hearing or hearing loss are not unusual post viral infections,” said Dr Hetal Marfatia, head of the KEM Hospital’s ENT department. “We often see such cases in patients with mumps or rubella infections. Many patients we see now have a Covid-19 history, but it’s hard to link them to Covid until we conduct a proper study,” she said.

However, a new study from Massachusetts Institute of Technology (MIT) and Massachusetts Eye and Ear (a Harvard teaching hospital based in Boston) has recorded evidence that the SARS-COV-2 – the virus that causes Covid-19 – can infect the inner ear, including hair cells that are critical for hearing and balance. For their study, the researchers used novel cellular models of the human inner ear that they developed and adult human inner ear tissue which is hard to obtain.

The researchers examined the pattern of infection in their tissue samples and corresponded it to a group of 10 Covid-19 patients who had complained of ear-related symptoms such as tinnitus, vertigo, and mild to severe hearing loss.

“Damage to cochlear hair cells, which can cause hearing loss, is usually evaluated by measuring otoacoustic emissions — sounds given off by sensory hair cells as they respond to auditory stimulation. Among the six Covid-19 patients in the study who underwent this testing, all had reduced or absent otoacoustic emissions,” a media statement said, further adding that even as the study strongly suggests that Covid-19 can cause auditory and balance problems, the overall percentage of Covid-19 patients who have experienced ear-related issues is not known.

In October 2020, a study by the researchers from University College London and the Royal National Throat Nose and Ear Hospital in the UK also stated that Covid-19 may affect hearing in some patients. Many other studies have shown the impact of Covid-19 on the audio-vestibular system, but none is from India. “Due to a lack of scientific studies from India, Covid-19 induced hearing loss and tinnitus is getting ignored,” said Dr Milind Navalakhe, an ENT surgeon at Global Hospital in Parel. “We already had a high burden of cases of hearing loss and tinnitus. But I have seen a 50% jump in these cases since the pandemic began and all such patients have a history of Covid-19,” he said.

According to Navalakhe, some patients coming with hearing loss or reduced hearing have had a Covid-19 history within a span of 12 months, while some have recovered from the infection in the recent weeks. “Many of the tinnitus patients I have seen were in the recent phase, with some of them developing the ringing noise while they were battling Covid-19,” said Dr Navalakhe.

Tinnitus is often described as the ‘cry of a dying nerve’ and is extremely distressing for patients. “If patients seek help soon after developing the symptoms, most cases, especially of hearing issues, can be managed with medicines,” said Navalakhe adding that robust studies from India may help in understanding the exact impact of the SARSCOV-2 on the ear.

The MIT researchers found that certain type of cells in the human inner ear samples and the stem-cell-derived cellular models express the proteins that are needed for the SARS-COV-2 virus to enter the cells. These proteins include the ACE2 receptor. ENT specialist Dr Samir Bhargava who practices at the civic-run Cooper Hospital in Juhu said that he has not seen any increase in incidence so far. “There have been some anecdotal reports, but cases of hearing loss and tinnitus are anyway extremely common,” he said.