

Otology Update 2022

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Covid and Otologic Symptoms

- Does Covid cause hearing loss?
- Does Covid cause tinnitus?
- Does Covid cause dizziness/labyrinthitis?
- Does vaccination cause hearing loss?
- Does vaccination cause facial paralysis?

COVID-19 and Neurotology

- Ong and Cruz. WJO-HNS, 2022
- Systematic Review: 42 reports
 - Hearing loss
 - Tinnitus
 - Vertigo or dizziness

Hearing Loss

- 68% HL within 1 month of COVID onset
 - 1.5%: >1 month after
 - 28.6%: no info on timing
- HL only COVID “symptom” (1.5%)
- HL: SNHL (vast majority), CNDHL (OME)
- 56% complete recovery
 - 90% within 2 weeks

Ong and Cruz. WJO-HNS, 2022

Tinnitus

- 88% within 1 month of COVID onset
 - 1.4%: initial symptom of COVID
 - <1%: delayed onset
- Recovery:
 - 80%: no info
 - 15%: complete recovery
 - 4%: persistent

Ong and Cruz. WJO-HNS, 2022

Vertigo/Dizziness

- Timing
 - 58%: no info
 - 35.3%: after having typical COVID symptoms
 - 4.5%: vertigo was presenting symptom
 - Most within 1 month
- Recovery:
 - 57.8%: complete recovery (most within 14 days)
 - 4.5%: partial recovery
 - 5.3%: persistent

Ong and Cruz. WJO-HNS, 2022

COVID-19 and Neurotology

- Jafari et al. Can J Neurol Sci, 2022
- Meta-Analysis: 12 reports
- Hearing loss (ER: 3.1%)
- Tinnitus (ER: 4.5%)
- Dizziness (ER: 12.2%)

Does COVID-19 Cause SSNHL?

- Meng et al. *Frontiers in Neurology*, 2022
- Systematic Review: 26 studies; 23 patients
- Characteristics:

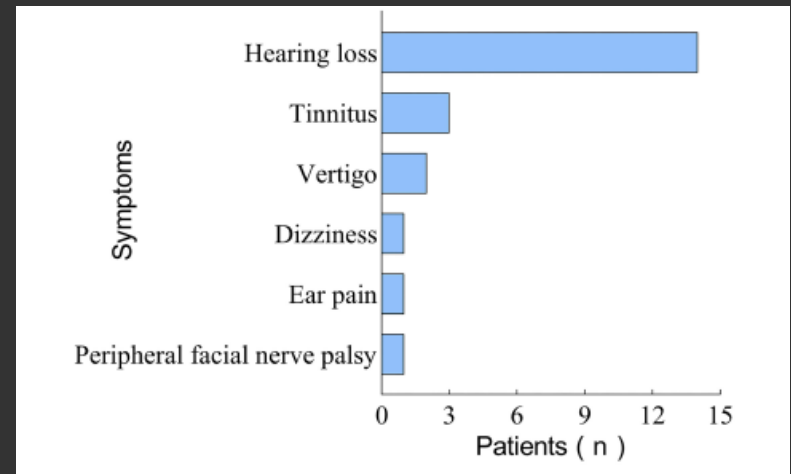
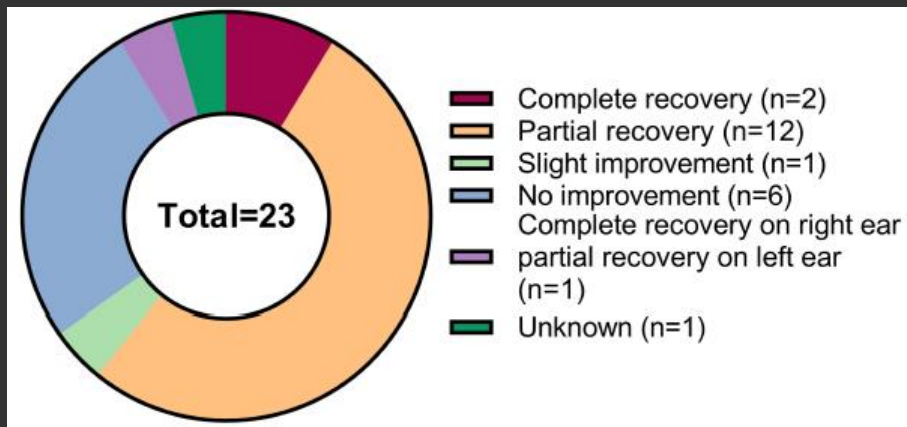
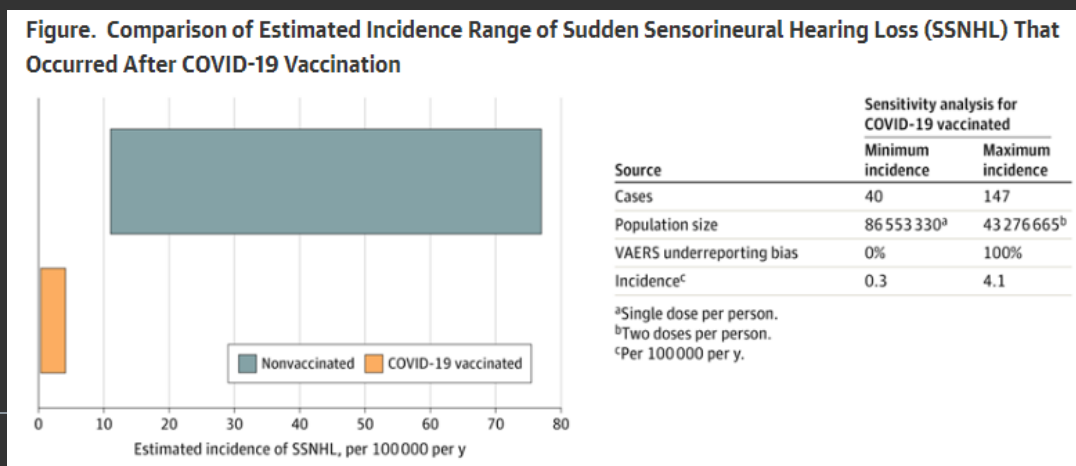


TABLE 1 | A summary of studies on the relationship between 2019 Coronavirus disease (COVID-19) and the incidence of sudden sensorineural hearing loss (SSNHL).

No.	References	Country	Study design	Purposes	Assessment period	Main results	Conclusions	Risk of bias
1	Swain et al. (15)	India	Prospective study	To investigate the incidence of HL in COVID-19 patients after hospital discharge.	March to August, 2020	Of the 472 COVID-19 patients, 28 presented with HL, 17 of whom were SSNHL.	COVID-19 infection may have harmful effects on the IE.	Poor
2	Thrane et al. (16)	Denmark	Retrospective study	To investigate self-reported hearing symptoms among COVID-19 patients.	April 22 to November 5, 2020	Of the 225 respondents with chemosensory loss, 24 (10.7%) reported concomitant HL.	A significant proportion of COVID-19 patients presented with concomitant audiological symptoms.	Fair
3	Parrino et al. (17)	Italy	Retrospective study	To assess the impact of COVID-19 on the incidence of SSNHL and vestibular disease.	March 1, 2019 to February 9, 2020	The overall incidence of SSNHL and combined acute cochlear-vestibular involvement was significantly higher during COVID-19 than in previous periods.	SSNHL appeared worse in terms of PTA during the pandemic.	Good
4	Fidan et al. (18)	Turkey	Retrospective study	To measure the incidence of SSNHL presenting at otolaryngology clinics during the COVID-19 and pre-pandemic periods.	April 1 and September 30, 2020	68 patients with SSNHL in 2020, 41 patients with SSNHL in 2019.	The incidence of SSNHL increased during the COVID-19 pandemic compared with the same period of the previous year.	Poor
5	Jin et al. (19)	China	Retrospective study	To assess the impact of COVID-19 on otolaryngological common diseases.	February to April 2020	SSNHL increased in outpatient otolaryngology clinics.	COVID-19 may lead to an increase in patients with SSNHL and tinnitus.	Fair
6	Chari et al. (20)	USA	Retrospective study	To assess the impact of the viral outbreak on clinical presentations of SSNHL at a single center.	March 15 to May 31, 2020	The number of SSNHL patients declined during the COVID-19 outbreak.	COVID-19 does not appear to increase the risk of developing SSNHL significantly.	Fair
7	Hafén et al. (21)	Finland	Retrospective study	To investigate changes in the incidence of SSNHL during the lockdown.	January 1, 2017 to August 31, 2020	No change in the incidence of SSNHL.	Respiratory pathogens might be an etiology of Bell's palsy.	Poor
8	Aslan et al. (22)	Turkey	Retrospective study	To evaluate the relationship of SSNHL and Bell's palsy with COVID-19.	April 2020 to April 2021	No significant differences in the incidence of SSNHL and Bell's palsy compared to years without the pandemic.	No association was observed between cases of SSNHL and Bell's palsy and COVID-19.	Fair
9	Van Rijssen et al. (23)	Dutch	Prospective study	To investigate the incidence of COVID-19 in patients with SSNHL.	November 2020 to March 2021	No COVID-19 positive patients were detected among the 25 SSNHL patients.	No significant relationship between SSNHL and COVID-19.	Good
10	Doweck et al. (24)	Israel	Cross-sectional study	To investigate the incidence of SSNHL during the COVID-19 pandemic and its association with lockdowns.	2020	Significant decrease in SSNHL during the COVID-19 pandemic.	It might be associated with social distancing, lockdowns.	Good

Does COVID-19 Vaccine Cause SSNHL?

- Formeister et al. JAMA Otol HNS, 2021
- CDC Vaccine Adverse Event System
- 86,553,330 vaccine doses administered
- 40 patients with high credibility:
 - Onset within 3 weeks of dosing; audiogram



Does COVID-19 Vaccine Cause Facial Paralysis?

- Renoud et al. JAMA Intern Med, 2021
 - Vaccine Group: 7/35,654
 - Control Group: 1/35,611
- Compared to other viral vaccines and flu vaccination
 - COVID Vaccines: 133,883 adverse events (320 million doses of vaccine administered (.042%))
 - 844 (0.6%) facial paralysis related
 - Other Viral Vaccines: 1,265,182 adverse events
 - 5734 (0.5%) facial paralysis related
 - Influenza Vaccines: 314,980 adverse events
 - 2087 (0.7%) facial paralysis related

Phase 3 Clinical
Trials: COVID mRNA

Summary

- COVID infection may be associated with development of hearing loss, tinnitus and vertigo/dizziness
- COVID infection may/may not cause SSNHL
- COVID vaccine does not appear related to SSNHL
- COVID vaccines do not differ from other vaccines in rates of reported facial paralysis