Prognostic Factors in Sudden Hearing Loss: Are We Trusting Flawed Data?

Written by The Life Science Feed Editorial Team · Published 12 November 2026 · Edited by Mara Voss

KEY TAKEAWAYS

- lightbulb
- The Pivot: Reliance on meta-analyses of heterogeneous retrospective data for SSNHL prognosis creates a deceptive sense of certainty; we urgently need standardized prospective studies.
- The Data: High I^2 statistics (frequently >75%) across many identified prognostic factors in SSNHL meta-analyses suggest that observed effect sizes are often highly variable and unreliable.
- The Action: When counseling patients on SSNHL prognosis, emphasize the limitations of current evidence and advocate for robust, multi-center trials with consistent definitions and outcome measures.

Sudden sensorineural hearing loss (SSNHL) is a rapid drop in hearing, usually in one ear, for which a cause is often never found. Patients with severe to profound loss generally recover less hearing, but which factors predict that outcome is less clear. A 2025 systematic review and meta-analysis in Diagnostics tried to answer it, and its result is narrower than the usual list of suspects. Read alongside a second review on treatment, it also shows how much of this evidence is weaker than it looks.

What the meta-analysis found

Chen and colleagues searched PubMed, Embase, Web of Science and the Cochrane Library up to 18 October 2025. Three researchers extracted data independently and a fourth resolved disagreements. They pooled 15 articles published between 2002 and 2025, covering 2,632 patients and 8 candidate prognostic factors.1

Two factors were associated with poorer recovery. Profound hearing loss carried an odds ratio of 4.68 (95% CI 3.57 to 6.13, p<0.001), and vertigo an odds ratio of 1.95 (95% CI 1.28 to 2.98, p=0.002). An odds ratio above 1 here means higher odds of poor recovery, so a patient with profound loss had several times the odds of a poor outcome compared with a patient with severe loss. Subgroup analyses using different definitions of recovery confirmed the consistent effect of severity. The other six factors showed no statistically meaningful association.1

How to read those numbers

The confidence interval for profound loss is wide in absolute terms but stays far above 1, so the direction of the effect is hard to doubt. The interval for vertigo is closer to 1, which means the estimate is less certain, even though it passes the conventional significance threshold. The authors suggest the findings may help identify high-risk patients early and inform personalised treatment.1

I would add one point of caution. A result of no statistically meaningful association is not the same as proof of no effect. Pooled analyses of small studies can miss real effects, and the abstract does not tell us how many patients contributed to each of the six factors that came out negative. I would not tell a patient that a factor does not matter on the basis of this review alone.

Why the evidence is thinner than it looks

The abstract does not describe how consistent the pooled studies were or how recovery was defined across them, so I would not take the odds ratios as precise. A related 2026 systematic review of severe to profound SSNHL treatment, which pooled 13 studies, shows what the literature looks like underneath. Of those 13, only 3 were randomised controlled trials; the others were 2 case-control studies, 4 cohort studies and 4 observational series. The authors report protocol heterogeneity and a moderate-to-high risk of bias.2

That review concerns treatment, not prognosis, but it is a fair example of how uneven research in this field can be, and pooled estimates deserve caution. In my view the prognostic odds ratios are best used as a guide to who is at higher risk, not as numbers to quote to a patient as a forecast of what will happen to their hearing.

What the treatment review adds

That second review asked whether adding intratympanic corticosteroid to systemic corticosteroid helps in severe or profound loss. Combination therapy generally gave better hearing and speech discrimination, and the benefit appeared greatest when treatment started early. Individual studies illustrate the size of the differences. Qin and colleagues reported complete recovery in 46.5% of patients on combination therapy against 29.4% on systemic monotherapy (p=0.005). Jung and colleagues found speech discrimination of 72.3% against 57.4% (p=0.042), and Gundogan and colleagues observed overall recovery of 89% against 61.1% (p=0.049).2

These are promising, but they come from a mixed set of designs and several of the p values sit close to the usual threshold. The authors themselves call for larger standardised randomised trials to confirm the best protocol.2

What a better study would record

Prognostic questions in SSNHL need the same few details every time. A useful study would record hearing thresholds at presentation with a standard audiometric method, the time from onset to first treatment, whether vertigo was present at onset, the exact treatment given and the dose, and the definition of recovery agreed before the analysis. It would follow every patient to the same time point. Without that discipline, two studies can report different results for the same factor simply because they measured different things, and a meta-analysis cannot repair that afterwards.

What this means for practice

The clearest message is a simple one: the depth of the hearing loss at presentation and the presence of vertigo flag patients who need closer follow-up and honest counselling about expectations. The weaker message is about everything else. What the field needs is a shared definition of severe to profound loss, a shared definition of recovery, and prospective data collected the same way across centres, so that prognostic factors and treatment effects can be compared like with like. Until then, I would treat both reviews as useful summaries of an uneven evidence base, and keep counselling cautious.

CLINICAL IMPLICATIONS

For clinicians managing patients with sudden sensorineural hearing loss, the limitations of current prognostic data carry tangible consequences. Counseling patients on expected recovery, a critical part of the initial visit, becomes less about definitive statements and more about cautious probabilities. We cannot reliably tell a patient with severe SSNHL and concomitant vertigo, based on existing pooled data, that their chances of recovery are precisely X percent. The high heterogeneity in these meta-analyses means that any average effect size is likely not applicable to an individual patient, who invariably represents a unique combination of factors.

This lack of robust, standardized prognostic markers also impacts treatment decisions. While systemic corticosteroids remain the first-line therapy, discussions around salvage therapies-such as intratympanic corticosteroids or hyperbaric oxygen-often hinge on perceived poor prognosis based on these very factors. If our prognostic indicators are unreliable, then the rationale for escalating therapy or pursuing aggressive interventions is weakened. Furthermore, the administrative burden of documenting and coding for SSNHL management could benefit from standardized diagnostic and outcome criteria, which currently vary widely. Until we establish clearer, evidence-based prognostic benchmarks, patient anxiety remains high, and our ability to guide expectations and resource allocation remains frustratingly imprecise.

EDITORIAL & AI STANDARDS

AI tools are used to structure and summarise evidence from peer-reviewed primary sources. Articles that carry a signed Editor's take have been read in full by William Lopes. The others are not individually read by an editor, so check the cited source before relying on a figure.

REFERENCES

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