



INTRODUCTION

Sudden sensorineural hearing loss (SSNHL) is defined as a decrease in hearing of 30 db HL or more across three contiguous frequencies occurring within 72 hours¹

Incidence has been estimated to range from 5 to 20 per 100,000 persons per year²

Autoimmune disease has been cited as a possible etiology³, however evidence-based guidelines for diagnostic workup are lacking.

The current study aims to review the literature regarding diagnostic investigations used to evaluate autoimmune causes of SSNHL.

METHODS

Preferred Reporting Items for Systematic Review and Meta Analyses (PRISMA) guidelines were followed.

Systematic review from the following databases: Medline, EMBASE, CDSR, CENTRAL, CINAHL.

English studies up to December 2022 were included which evaluated diagnostic markers for autoimmune conditions in SSNHL patients.

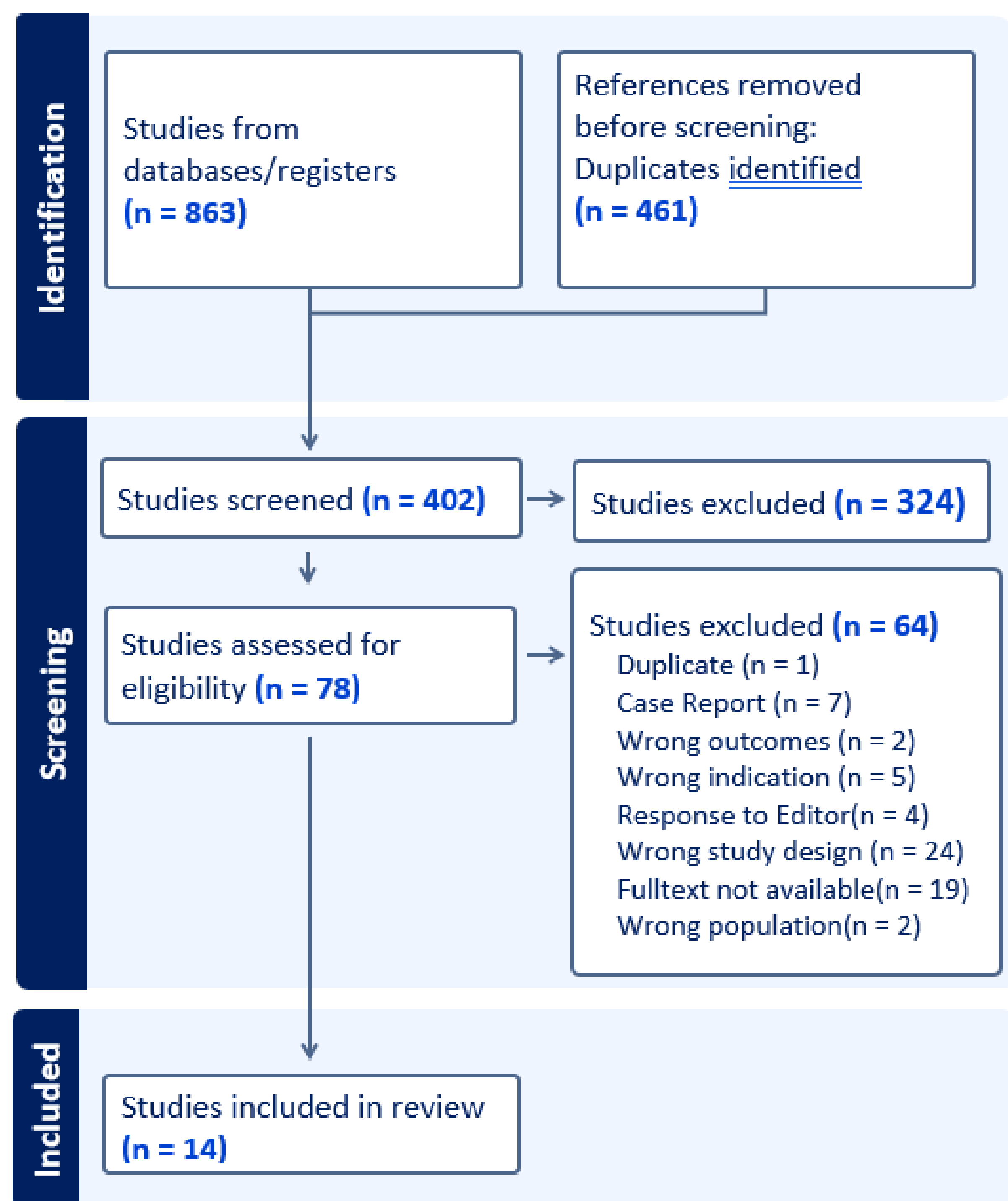


Fig 1. PRISMA flow diagram

RESULTS

Fourteen studies with 833 patients with SSNHL were included.

Thirteen studies (94%) reported using pure-tone audiometry for diagnosis and follow-up.

Twelve studies (92%) used imaging to rule out structural causes of SSNHL.

RESULTS

Most commonly tested autoimmune markers included:

- ANA in 9/14 studies (64%), ESR in 7/14 studies (50%)
- Western blot in 7/14 studies (50%)
- Complement factors C3 and C4 in 6/14 studies (43%)

Other tested autoimmune markers included:

- CRP in 4/14 studies (29%)
- Anticardiolipin in 4/14 studies (29%)
- Anti-double stranded DNA in 3/14 studies (21%)
- Antiendothelial cell antibody (AECA) in 2/14 studies (14%)
- p-ANCA in 2/14 studies (14%)

Anti-viral panel were used in 1/14 studies (7%) as well

Of the 421 patients (51%) that had reported ANA values, 79 of them (19%) had a high positive titer.

The most correlated autoimmune test was AECA (antiendothelial cell antibody), with 49% having a positive result.

The most common protein in western blot was the Hsp-70 protein.

DISCUSSION

There is no consistent guidelines regarding diagnostic panel for testing for autoimmune markers.

There is potential for autoimmune diagnostic testing to help delineate etiology of SSNHL. However, causality remains to be better established in literature and further studies are needed.

Further studies are needed to look at if these autoimmune markers are present in SSNHL patients then do they respond more effectively to steroid treatment compared to idiopathic or other etiology.

Adding a diagnostic panel of autoimmune markers to SSNHL work up should be considered.

CONCLUSIONS

This is the first systematic review to assess the correlation of autoimmune markers with SSNHL.

Future research with a goal of developing a robust diagnostic panel may aide in management of those cases of SSNHL that are autoimmune in nature.

REFERENCES

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3. Chau JK, Lin JRJ, Atashband S, Irvine RA, Westerberg BD. Systematic review of the evidence for the etiology of adult sudden sensorineural hearing loss. *Laryngoscope.* 2010;120(5):1011-1021