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Cochlear Implantation in Down Syndrome: A Systematic Review of Indications, Challenges, and Long-Term Outcomes

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ADMINISTRATIVE INFORMATION

Support - n/a.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202520103

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 February 2025 and was last updated on 23 February 2025.

INTRODUCTION

Review question / Objective The objective of this systematic review is to evaluate cochlear implantation (CI) outcomes in individuals with Down syndrome (DS) by analyzing the indications, challenges, and long-term results reported in the literature.

Condition being studied Down Syndrome.

METHODS

Participant or population Down Syndrome.

Intervention Cochlear implantation.

Comparator n/a.

Study designs to be included Retrospective, case reports, cases series.

Eligibility criteria The inclusion criteria for this review encompassed studies examining cochlear implantation in individuals with Down syndrome. Eligible studies focused on implantation outcomes, auditory performance, speech and language development, and related clinical considerations. Only peer-reviewed studies published in English were included.

Information sources PubMed, Embase, Web of Science, and SCOPUS databases.

Main outcome(s) Hearing, speech outcomes.

Quality assessment / Risk of bias analysis Joanna Briggs Institute (JBI) critical appraisal checklist.

Strategy of data synthesis The data synthesis strategy involved a qualitative and quantitative analysis of cochlear implantation (CI) outcomes in Down syndrome (DS) patients, categorizing studies by design, extracting key auditory and speech

performance metrics (e.g., CAP, SIR), assessing anatomical and surgical challenges, comparing outcomes to non-syndromic CI recipients, evaluating study quality using the Joanna Briggs Institute (JBI) tool, and identifying gaps in the literature to inform clinical guidelines and future research.

Subgroup analysis n/a.

Sensitivity analysis n/a.

Country(ies) involved United States.

Keywords down syndrome; cochlear implants.

Contributions of each author

Author 1 - David Cohen.

Author 2 - David Elisha.

Author 3 - Nicholas Distefano.

Author 4 - Andrea Monterrubio.

Author 5 - Ryan Hossain.

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