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CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Balloon Eustachian Tuboplasty for Patients with Eustachian Tube Dysfunction: Clinical Effectiveness

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About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

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Research Question

What is the clinical effectiveness of balloon eustachian tuboplasty for patients with eustachian tube dysfunction?

Key Findings

One health technology assessment was identified regarding the clinical effectiveness of balloon eustachian tuboplasty for patients with eustachian tube dysfunction.

Methods

A limited literature search was conducted by an information specialist on key resources including Medline, Embase, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were balloon Eustachian tuboplasty and Eustachian tube dysfunction. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2014 and August 12, 2019. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Patients with eustachian tube dysfunction (ETD) (i.e. ear fullness, hearing loss, tinnitus)
Intervention	Balloon eustachian tuboplasty
Comparator	Myringotomy with placement of pressure equalizing tube (e.g. surgical intervention)
Outcomes	Clinical effectiveness (i.e., safety, harms, adverse events, alleviations of symptoms of eustachian tube dysfunction, patient comfort, pain, QOL, eustachian tube score)
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, and non-randomized studies.

One health technology assessment[1] was identified regarding the clinical effectiveness of balloon eustachian tuboplasty for patients with eustachian tube dysfunction. No relevant systematic reviews, randomized controlled trials and non-randomized studies were identified.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

One health technology assessment[1] was identified regarding the clinical effectiveness of balloon eustachian tuboplasty for patients with eustachian tube dysfunction (ETD). The authors aimed to assess the effectiveness of interventions for adults with ETD. However, due to the limited and poor-quality evidence available at the time, they were unable to conclude the effectiveness of balloon Eustachian tuboplasty or any other intervention for ETD.[1]

References Summarized

Health Technology Assessments

1. Norman G, Llewellyn A, Harden M, et al. Systematic review of the limited evidence base for treatments of Eustachian tube dysfunction: a health technology assessment. *Clin Otolaryngol*. 2014 Feb;39(1):6-21.
PubMed: PM24438176

Systematic Reviews and Meta-analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Appendix — Further Information

Systematic Reviews and Meta-analyses

No Comparator

2. Plaza G, Navarro JJ, Alfaro J, Sandoval M, Marco J. Consensus on treatment of obstructive Eustachian tube dysfunction with Balloon Eustachian Tuboplasty. *Acta Otorrinolaringol Esp*. 2019 May 24.
   PubMed: PM31133274

3. Luukkainen V, Kivekas I, Silvola J, Jero J, Sinkkonen ST. Balloon Eustachian Tuboplasty: Systematic Review of Long-term Outcomes and Proposed Indications. *J Int Adv Otol*. 2018 Apr;14(1):112-126.
   PubMed: PM29764785

4. Huisman JML, Verdam FJ, Stegeman I, de Ru JA. Treatment of Eustachian tube dysfunction with balloon dilation: A systematic review. *Laryngoscope*. 2018 Jan;128(1):237-247.
   PubMed: PM28799657

5. Hwang SY, Kok S, Walton J. Balloon dilation for eustachian tube dysfunction: systematic review. *J Laryngol Otol*. 2016 Jul;130 Suppl 4:S2-6.
   PubMed: PM27488333

6. Randrup TS, Ovesen T. Balloon Eustachian Tuboplasty: a systematic review. *Otolaryngology Head Neck Surg*. 2015 Mar;152(3):383-392.
   PubMed: PM25605694

Alternative Comparator

7. Wang TC, Lin CD, Shih TC, et al. Comparison of balloon dilation and laser Eustachian tuboplasty in patients with Eustachian tube dysfunction: a meta-analysis. *Otolaryngol Head Neck Surg*. 2018 Apr;158(4):617-626.
   PubMed: PM29557245

Randomized Controlled Trials – Alternative Comparator

8. Anand V, Poe D, Dean M, et al. Balloon Dilation of the Eustachian Tube: 12-Month Follow-up of the Randomized Controlled Trial Treatment Group. *Otolaryngol Head Neck Surg*. 2019 Apr;160(4):687-694.
   PubMed: PM30620688

9. Meyer TA, O'Malley EM, Schlosser RJ, et al. A Randomized Controlled Trial of Balloon Dilation as a Treatment for Persistent Eustachian Tube Dysfunction With 1-Year Follow-Up. *Otol Neurotol*. 2018 Aug;39(7):894-902.
   PubMed: PM29912819

10. Poe D, Anand V, Dean M, et al. Balloon Dilation of the Eustachian Tube for dilatory dysfunction: A randomized controlled trial. *Laryngoscope*. 2018 May;128(5):1200-1206.
PubMed: PM28940574

Non-Randomized Studies – No Comparator

11. Cutler JL, Meyer TA, Nguyen SA, O'Malley EM, Thackeray L, Slater PW. Long-term Outcomes of Balloon Dilation for Persistent Eustachian Tube Dysfunction. *Otol Neurotol*. 2019 Aug 02.
PubMed: PM31385858

12. Giunta AA, Liberati L, Pellegrino C, Ricci G, Rizzo S. Eustachian tube balloon dilation in treatment of equalization problems of freediving spearfishermen. *Diving Hyperb Med*. 2019 Mar 31;49(1):9-15.
PubMed: PM30856662

13. Kim KY, Tsauo J, Song HY, et al. Fluoroscopy-guided balloon dilation in patients with Eustachian tube dysfunction. *Eur Radiol*. 2018 Mar;28(3):910-919.
PubMed: PM28956124

14. Satmis MC, van der Torn M. Balloon dilatation of the Eustachian tube in adult patients with chronic dilatory tube dysfunction: a retrospective cohort study. *Eur Arch Otorhinolaryngol*. 2018 Feb;275(2):395-400.
PubMed: PM29285624

15. Di Rienzo Businco L, Di Mario A, Tombolini M, Mattei A, Lauriello M. Eustachian tuboplasty and shrinkage of ostial mucosa with new devices : Including a proposal of a classification system. *HNO*. 2017 Oct;65(10):840-847.
PubMed: PM28361174

16. Singh T, Taneja V, Kulendra K, et al. Balloon Eustachian tuboplasty treatment of longstanding Eustachian tube dysfunction. *J Laryngol Otol*. 2017 Jul;131(7):614-619.
PubMed: PM28502258

17. Luukkainen V, Kivekas I, Hammaren-Malmi S, et al. Balloon Eustachian Tuboplasty under local anesthesia: Is it feasible? *Laryngoscope*. 2017 May;127(5):1021-1025.
PubMed: PM28409844

18. Schröder S, Lehmann M, Ebmeyer J, et al. Balloon Eustachian tuboplasty: a retrospective cohort study. *Clin Otolaryngol*. 2015 Dec;40(6):629-638.
PubMed: PM25867023

Rapid Assessments – EunetHTA

19. Sihvo S, Keranen T, Sainjonkari M, et al. Balloon Eustachian tuboplasty for the treatment of Eustachian tube dysfunction *(Pilot ID: SB-13)*. EUnetHTA WP5 Joint Action 2 (2012-2015); 2015: https://www.eunethta.eu/wp-content/uploads/2018/01/Balloon-Eustachian-Tuboplasty-for-treatment-of-Eustachian-tube-dysfunction_Rapid-REA_Final_Feb-2015.pdf. Accessed 2019 Aug 20.

Consensus Statements

20. Tucci DL, McCoul ED, Rosenfeld RM, et al. Clinical Consensus Statement: Balloon Dilation of the Eustachian Tube. *Otolaryngol Head Neck Surg*. 2019 Jul;161(1):6-17. PubMed: PM31161864

Additional References

21. Eustachian Tube Balloon Dilation Device. *(Product Classification)*. Silver Spring (MD): US Food & Drug Administration; 2019: https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpcd/classification.cfm?id=1645. Accessed 2019 Aug 20.

22. HAYES, Inc. Acclarent eustachian tube balloon dilation for the treatment of eustachian tube dysfunction in adults. Lansdale: HAYES, Inc. Healthcare Technology Brief Publication; 2017.

23. HAYES, Inc. Bielfeld eustachian tube balloon dilation for the treatment of chronic eustachian tube dysfunction in adults. Lansdale: HAYES, Inc. Healthcare Technology Brief Publication; 2017.

24. US Food & Drug Administration. FDA News Release: FDA permits marketing of balloon device to treat persistent Eustachian tube dysfunction. 2016; https://www.fda.gov/news-events/press-announcements/fda-permits-marketing-balloon-device-treat-persistent-eustachian-tube-dysfunction. Accessed 2019 Aug 20.