



Autoinflation: glue ear

Intervention

Use of an inflation device to open the eustachian tube (by raising intranasal pressure) and restore hearing.

Raising the intranasal pressure can be achieved by exhaling against a closed airway (i.e. Valsalva manoeuvre), blowing air up the nose while swallowing (i.e. Politzer manoeuvre) or a combination of both.

Indication

Glue ear is the most common chronic condition of childhood, with 80% of children affected at some point.

Hearing loss due to otitis media with effusion (OME), commonly known as glue ear, in children aged 3 years and over.

For children with deafness due to glue ear, autoinflation can avoid the need for tympanoplasty tubes (grommets). In a trial of using Otovent in children, 50% had tympanometric resolution by 3 months, compared with 38% of controls (NNT = 9).

Adverse effects

Some children have reported discomfort using high-flow settings with air-pump devices.

Availability

The balloon-based device Otovent® is available from chemists and online for around \$30.

The air-pump device EarPopper™ is available online for \$240.

(See Consumer resources)

Description

Balloon-based devices

By blowing up a balloon using the nose, the child performs the Valsalva manoeuvre to increase pressure in the nasopharynx. During the deflation phase of the balloon, air is blown up the nose and the child can be encouraged to swallow, producing a Politzer manoeuvre.

The device is used two to three times daily. During each session, the child inflates the balloon once via each nostril.

Air-pump devices

The device is placed into one nostril and the other nostril is blocked. The device is activated (blowing air into the nose) and the patient swallows, producing a Politzer manoeuvre.

Treatment may be repeated twice in each nostril, twice daily, and continued until symptoms resolve.



Tips and Challenges

In approximately one-third of affected children, symptoms will resolve without any treatment.

Participation in using the balloon can be encouraged through the use of a sticker-book diary or wall chart.

Younger children may require step-wise training, starting with just blowing air through a nozzle (before attaching the balloon).

- Basic use is to just inflate the balloon with the nose.
- It is more complicated to use the balloon to blow air into the nostril while swallowing. Teaching swallowing during balloon deflation may be more difficult in younger children.

Instructions for using a nasal balloon

<https://www.youtube.com/watch?v=dIDGiQ2rOt4&feature=youtu.be>

Grading

NHMRC Level 1 evidence.

Training

Devices come with written instructions and there are also [videos available](#).

Further training of parents/children on how to use the device could be provided by a GP or practice nurse during a single consultation.

(See Consumer resources)

References

Williamson I, Vennik J, Harnden A et al. [Effect of nasal balloon autoinflation in children with otitis media with effusion in primary care: an open randomized controlled trial](#). CMAJ. 2015; DOI:10.1503/cmaj.141608.

Perera R, Glasziou PP, Heneghan CJ, McLellan J, Williamson I. [Autoinflation for hearing loss associated with otitis media with effusion \(glue ear\)](#). Cochrane Database Syst Rev. 2013, Issue 5. Art. No.: CD006285. DOI: 10.1002/14651858.CD006285.pub2.

Bidarian-Moniri A, Ramos MJ, Ejnell H. [Autoinflation for treatment of persistent otitis media with effusion in children: a cross-over study with a 12-month follow-up](#). Int J Pediatr Otorhinolaryngol. 2014;78(8):1298–305.

Arick DS, Silman S. [Nonsurgical home treatment of middle ear effusion and associated hearing loss in children. Part I: Clinical trial](#). Ear Nose Throat J 2005;84(9):567–8, 570–4, 576.

Consumer Resources

General information on glue ear

The glue ear leaflet on the [UK website](#).

Otovent®

The Otovent [website](#) provides resources for consumers and healthcare professionals, including diagrams and video instructions for use.

EarPopper™

The EarPopper [website](#) provides an online shop and instructions for use.