PREVENTIVE HEALTH CARE

Screening for otitis media with effusion

Recommendation statement from the Canadian Task Force on Preventive Health Care

Recommendations

- There is insufficient evidence to include routine early screening for otitis media with effusion (OME) in, or exclude it from, the periodic health examination of children up to 4 years of age (grade C recommendation).
- There is insufficient evidence to recommend early screening for OME to prevent delayed language development (grade C recommendation).

Otitis media with effusion (OME) is a common presentation in primary care. It is commonest during the most intensive period of language development, which is a concern given the risk of hearing loss associated with OME. Hearing loss fluctuates from a few decibels (DB) to as much as 50 DB, with a mean hearing loss of 20–30 DB.[1,2] At this level, hearing loss is serious enough to warrant intervention: a hearing loss of 30 DB can mean that a normal conversation sounds like a soft whisper.[2] Some children with OME do not have important hearing loss, particularly when OME is unilateral. Documenting hearing before intervention is important.

Although the association between OME and language development has been studied, few studies have directly addressed the question of early detection of OME, and no randomized controlled trials have examined the overall process of OME screening coupled with subsequent intervention to prevent adverse language outcomes. This statement is based on a review of the benefits of OME screening combined with a number of therapeutic options — it does not focus on the effectiveness of individual therapies.

Manoeuvres

- Tympanometry: sensitivity and specificity were over 80% in predicting fluid found in the middle ear at surgery (in primary care samples, sensitivity was 65% and specificity 65% to 80%).
- Microtympanometry and newer acoustic reflectometers: performance was similar to that of tympanometry.
- Pneumo-otoscopy: mean sensitivity was 89% and specificity 80% (in a primary care sample, sensitivity was 76% and specificity 87%).

Potential benefits

- Prevention of delay in language acquisition

Potential harms

- Sequelae of false-positive or false-negative results from screening
- Side effects of treatments (e.g., antibiotic resistance)

Recommendations by others

In 1998 the New Zealand Health Technology Assessment stated that it was not possible to conclude whether or not screening programs for OME among preschool children are effective.[3] In 1994 the Canadian Task Force on the Periodic Health Examination (now the Canadian Task Force on Preventive Health Care) had recommended that routine audiologic screening for hearing problems be excluded from the periodic health examination of preschool children (grade D recommendation). In 1991 the Department of Health in the United Kingdom recommended against extending preschool screening for OME.[4]

Evidence and clinical summary

- No effect on language was identified in a trial that screened children, then randomly assigned those with persistent effusion to be treated with ventilation tubes (versus usual care, delayed surgery or watchful waiting).[5–7]
- Ventilation tubes (compared with watchful waiting) improve language outcomes at 9 months, but there is no evidence to support earlier detection of OME.[8] (The results of new randomized trials have recently become available regarding the effect of treatment with tympanostomy tubes on language development[9,10] and quality-of-life outcomes.[11] These studies have not been evaluated as part of this systematic review. Their impact on the current recommendations will be evaluated in a future update.)
- There is no consistently demonstrated association between OME and language outcomes, and there is substantial variability across studies in measurements of exposure and outcome.
- Problems with candidate screening tools are compounded by the recurrent, fluctuating nature of OME. It is only chronic OME that warrants treatment; a single measure of any type will fail to document clinically relevant chronicity.
- Children with positive test results would need to begin a period of observation with repeated testing.
- Evidence for the benefit of antibiotics in the short and medium term must be considered in the context of rising bacterial resistance, side effects and lack of evidence for long-term improvement in hearing in children with OME.

The Canadian Task Force on Preventive Health Care is an independent panel funded through a partnership of the federal and provincial/territorial governments of Canada.

This statement is based on the technical report "Preventive health care, 2000 update: early detection of OME in the first 4 years of life to prevent delayed language development," by C.C. Butler and H.M. MacMillan, with the Canadian Task Force on Preventive Health Care. The full technical report is available from the task force office (ctf@ctfphc.org).

References

1. Lous J. Secretory otitis media in schoolchildren. Is screening for secretory otitis media advisable? *Dan Med Bull* 1995;42:71-99.
2. Freemantle N, Sheldon TA, Song F, Long A. The treatment of persistent glue ear in children: Are surgical interventions effective in combating disability from glue ear? *NHS Eff Health Care Bull* 1992;1(4).
3. New Zealand Health Technology Assessment (NZHTA). *Screening programmes for the detection of otitis media with effusion and conductive hearing loss in pre-school and new entrant school children: a critical appraisal of the literature*. Christchurch (NZ): NZHTA; 1998. Available: http://nzhta.chmeds.ac.nz/screen.htm (accessed 2001 Sept 5).
4. Haggard MP, Hughes E. *Screening children's hearing: a review of the literature and implications of otitis media*. London: Department of Health, Medical Research Council; 1991.
5. Zielhuis GA, Rach GH, van den Broek P. Screening for otitis media with effusion in preschool children. *Lancet* 1989;1:311-4.
6. Rach GH, Zielhuis GA, van Baarle PW, van den Broek P. The effect of treatment with ventilating tubes on language development in preschool children with otitis media with effusion. *Clin Otolaryngol* 1991;16:128-32.
7. Schilder AG, Van Manen JG, Zielhuis GA, Grievink EH, Peters SAF, van den Broek P. Long term effects of otitis media with effusion on language, reading and spelling. *Clin Otolaryngol* 1993;18:234-41.
8. Maw R, Wilks J, Harvey I, Peters TJ, Golding J. Early surgery compared with watchful waiting for glue ear and effect on language development in preschool children: a randomised trial. *Lancet* 1999;353:960-3.
9. Paradise, JL, Feldman HM, Campbell TF, Dollaghan CA, Colborn DK, Bernard BS, et al. Effect of early or delayed insertion of tympanostomy tubes for persistent otitis media on developmental outcomes at the age of three years. *N Engl J Med* 2001;344(16):1179-87.
10. Rovers MM, Straatman H, Ingels K, van der Wilt GJ, van den Broek P, Zielhuis GA. The effect of ventilation tubes on language development in infants with otitis media with effusion: a randomized trial. *Pediatrics* 2000;106(3):E42.
11. Rovers MM, Krabbe PF, Straatman H, Ingels K, van der Wilt GJ, Zielhuis GA. Randomised controlled trial of the effect of ventilation tubes (grommets) on quality of life at age 1–2 years. *Arch Dis Child*. 2001;84(1):45-9.