Evidence-Based Practice / April 2010

A 2008 guideline from the American College of Chest Physicians published in Chest recommends either a 5- or 10-mg initiation dose on day 1 or 2 for most individuals, with subsequent dosing based on INR response (Grade 1B; strong recommendation with moderate quality of evidence). However, the guideline recommends a ≤5-mg initiation dose for special populations (patients who are >60 years, debilitated, or malnourished, or who have congestive heart failure, liver disease, or recent major surgery, or those taking medicines that increase sensitivity to warfarin) to minimize the risk of complications when initiating therapy (Grade 1C; strong recommendation with low quality of evidence).

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What is the appropriate evaluation of a newborn with skin tags or pits near the ear?

Evidence-Based Answer

Infants with isolated preauricular skin tags and/or ear pits (PSEP) have a significantly higher prevalence of hearing impairment. (SOR A, based on multiple, consistent cohort studies.) Routine ultrasonography searching for occult renal disease is not indicated. (SOR A, based on consistent, prospective cohort studies.)

PSEP are relatively common, with a reported incidence ranging from 5 to 10 per 1,000 newborn infants. PSEP are considered of minor clinical importance, but can be seen with other craniofacial anomalies, genetic syndromes, sensorineural hearing impairment (HI), and urinary tract abnormalities.

Recent quality studies report a consistent association between PSEP and HI. The cohort of all infants (n=68,484) born in Israel from January 1997 through June 2004 were screened for HI. HI was found in 8 of 1,000 infants with PSEP compared with 1.5 of 1,000 infants without PSEP (OR 5; 95% CI, 2–12; P<.001). Most patients with HI were found to have skin tags (12 of 15) as opposed to ear pits (3 of 15). All infants except 1 (late-onset HI) were diagnosed by in-hospital hearing screening.

A separate study evaluated 4,507 consecutive infants, of which 26 (0.6% prevalence) were born with PSEP. This study documented conductive or sensorineural HI in 17% of newborn infants with isolated PSEP, and noted that the incidence of HI was 0.04% in all preschool children (P<.001).

Conversely, recent quality studies fail to show a consistent association between PSEP and urinary tract anomalies. A prospective cohort study followed 108 infants born with isolated PSEP, 92 of whom were assessed for genitourinary abnormalities. The study group was compared with a control group (n=95) of consecutive infants without PSEP. The prevalence of renal abnormalities in the control group (3.1%) was not statistically significant from the study group (2.2%, P=1). This study concluded that renal ultrasound was not indicated in routine evaluation of infants with isolated PSEP.

Two additional prospective cohort studies found similar results. The first study evaluated 13,136 consecutive infants, 96 of whom had PSEP. Of those, 91

GLOSSARY

ARR= absolute risk reduction
CI= confidence interval
CT= computed tomography
LOE= level of evidence
MRI= magnetic resonance imaging
NNH= number needed to harm
NNT= number needed to treat
OR= odds ratio
RCT= randomized controlled trial
RR= relative risk
SOR= strength of recommendation

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(95%) underwent renal ultrasound, which identified 1 infant (1.1%; 95% CI, 0.03–5.9) with transient unilateral pyelectasia. During the same period, renal anomalies were found in 0.64% (95% CI, 0.52–0.73) of infants without PSEP, a prevalence that was not statistically significant (P=.44). 5

A second study investigated healthy school-aged children with PSEP (36 of 13,740) and compared them with a control group (n=91) during routine health maintenance. Participants ranged from 7 to 16 years of age and all underwent renal ultrasound. The prevalence of renal abnormalities was 2.7% in the study group compared to 3.2% in the control group (P=.87). 1

**Evidence-Based Answer**

On average, ear thermometers give about the same mean results as rectal thermometers. However, ear thermometer readings are not particularly sensitive for fever, limiting their acceptability in high-risk clinical situations. (SOR A, based on 2 systematic reviews.)

Many studies have compared different methods for thermometry, including core, axillary, oral, tympanic, or rectal techniques. Individual studies can be found to support any particular practice. However, 2 systematic reviews have been published that argue against the use of ear thermometry for detecting fevers. 1, 2

One meta-analysis included 31 studies with 4,441 children comparing rectal temperature using mercury, electronic, or indwelling probe thermometers with temperature measured by infrared thermometer at the ear. 1 Overall, the pooled mean difference between rectal and ear temperatures was 0.29°C (95% CI, –0.74 to 1.32). However, because of the wide confidence interval, the authors concluded that ear temperature was not a good substitute for rectal temperature.

The other systematic review was conducted by the same authors and used data from 23 studies from the first meta-analysis; they determined the diagnostic accuracy of ear thermometers compared with the reference measure of rectal temperature. 2 This analysis included 4,098 children and found that the pooled estimate of specificity for detecting a fever was 95.2% (95% CI, 93.5–96.9). However, the pooled estimate of sensitivity was only 63.7% (95% CI, 44.6–71.8). Based on these findings, the authors calculated that ear thermometry would miss one-third of children with a fever.

Another appraisal of available literature on tympanic membrane thermometry included studies on accuracy, factors affecting readings, and the preferences of children and parents. 3 The author of this narrative review concluded tympanic thermometry provides the best means of measuring temperature in the acute healthcare setting.

In updating the previous HelpDesk Answer, 4 there is no change to the original evidence-based recommendation. Ear thermometry is fast and easy, but its use should be limited to low-risk clinical situations.

**How accurate is ear thermometry for diagnosing fever in children?**

Evidence-Based Practice

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The opinions and assertions contained herein are the private views of the author and are not to be construed as official or as reflecting the views of the Medical Department of the U.S. Army or the U.S. Army Service at large.


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