

TEOAE를 이용한 신생아 청각선별검사

박홍준 · 박기현 · 오정훈 · 이진석

TEOAE as a Newborn Hearing Screening

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ABSTRACT

Background and Objectives : Hearing impairment is a common congenital disability of the newborn, which has an incidence of 1.5 to 3 per 1,000 infants each year. The identification of this problem is difficult and many of these children are not identified until 2-3 years of age if not screened at birth. The purpose of this study is to establish a common screening method adjusted to our country and to emphasize the importance of early diagnosis of neonatal hearing loss. **Materials and Methods :** TEOAE were performed in 1,459 infants from March to December, 1998 at Ajou university hospital. The tests were performed daily until discharge if the infant had failed the first test, and were followed at the outpatient clinic. Hearing loss was confirmed by ABR. **Results :** The average test time of TEOAE was 102.6 seconds. Test time after 24 hours of birth was shorter than before 24 hours, and was shorter in female compared to male infants. Pass rate after 24 hours was higher than before 24 hours and 86% of tested infants passed during admission. Thirty-one out of 213 infants failed to follow-up at the outpatient clinic. Two were diagnosed with unilateral hearing loss on ABR. **Conclusion :** TEOAE is a simple and useful screening method for the identification of hearing loss in infants. (Korean J Otolaryngol 1999;42:565-9)

KEY WORDS : Newborn hearing loss · Hearing screening test · TEOAE.

(Cystic fibrosis)

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ILO 88 Otodynamics analyzer system
ILO 88 v.3.92 software (Tran -
sient Evoked Otoacoustic Emissions, TEOAEs)

TEOAE

35.3 dB, 30 dB, 40 dB, 50 dB, reproducibility가 50%, 3 dB (Pass), 3 dB (Partial Pass), 3 dB (Fail), (Table 1).

가, 2, 3, 5, 6, 3, 가

1,459, 658, 801, probe fitting

Table 1. Interpretation criteria of TEOAE

	Pass	Partial pass	Fail
Reproducibility	>50%	<50%	<50%
Response spectrum Over the noise (>3dB)	(+) >3 Frequency bands	(+) <3 Frequency bands	(-) in all Frequency Bands

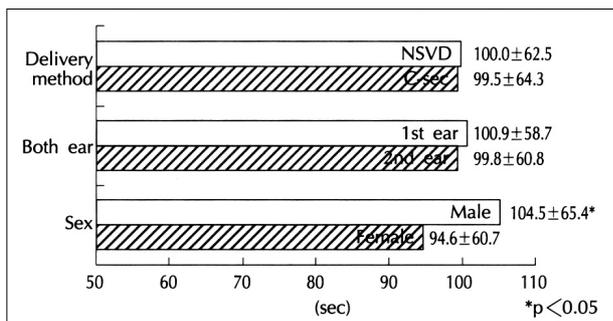


Fig. 1. Test time of TEOAE according to delivery method, first ear tested, and sex.

102.6 ± 63.9, 100.0 ± 62.5, 99.5 ± 64.3, 104.5 ± 65.5, 94.6 ± 60.7 (p<0.05) (Fig. 1), 24 (p<0.05), 48 (p<0.05) (Fig. 2), 24 (p<0.05) (Fig. 3).

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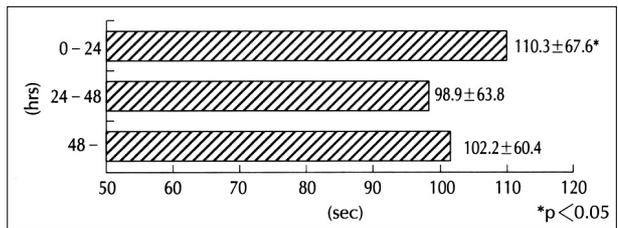


Fig. 2. Test time of TEOAE according to time after birth.

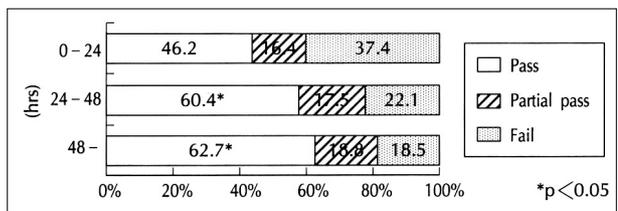


Fig. 3. Pass rates of TEOAE according to time after birth.

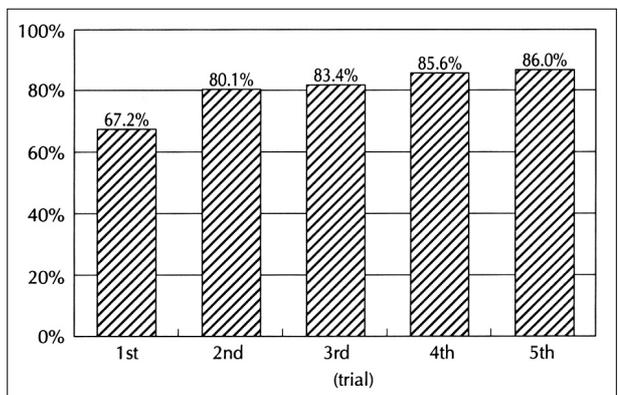


Fig. 4. Cumulative pass rates of TEOAE according to the number of trials.

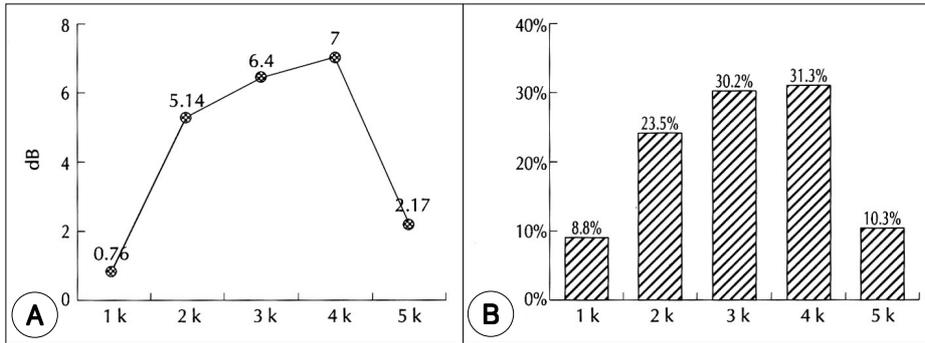


Fig. 5. Mean intensities (A) and peak distribution (B) of reproducible components in individual frequency bands of TEOAE.

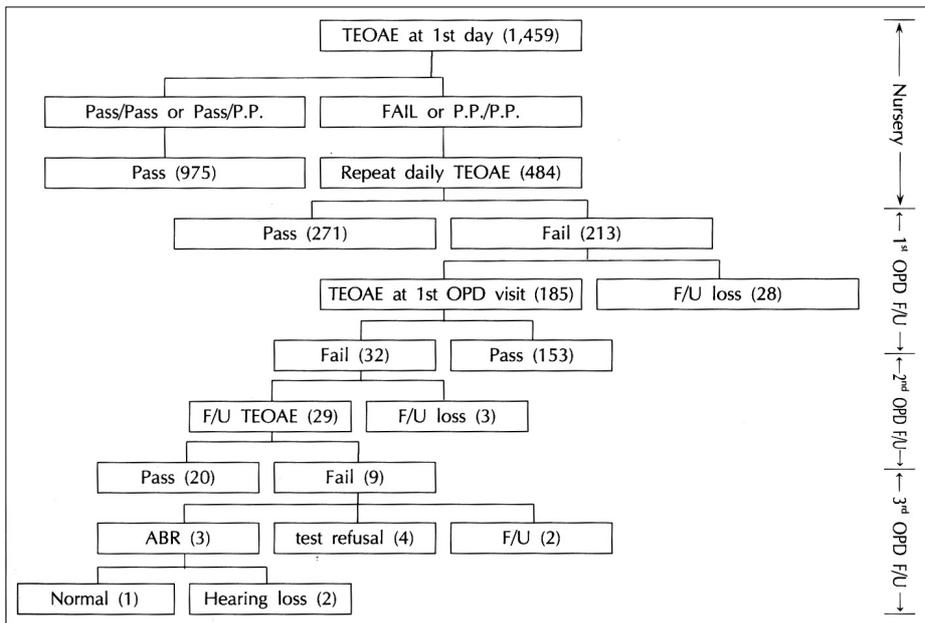


Fig. 6. Schematic flow-sheet of TEOAE and ABR tests in nursery and outpatient clinic.

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 3 (irritability) Kok ⁹⁾ 36
 . (Otoacoustic emission, OAEs)
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 Cavanaugh¹⁰⁾ 81 otoscopy
 가 ⁴⁻⁶⁾ 1 56%가
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 , Doyle ¹¹⁾
 Park ²⁰⁾
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213 31
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1,459
24
(98 - MM - 01 - 01 - A - 01)

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