

Table 1. Audiological Characteristics of Patients.

Characteristic	OAE absent Group (n=36)	OAE present Group (n=88)	P Value
Pure tone audiometry/behavioral audiometry			
Grades of hearing loss - no./total no. (%)			
Mild	0	0	0.525
Moderate	0	2/36 (5.6)	
Moderately severe	0	3/36 (8.3)	
Severe	2/18 (11.1)	5/36 (13.9)	
Profound	7/18 (38.9)	8/36 (22.2)	
Complete or total	9/18 (50.0)	18/36 (50.0)	
Classifying audiometric configurations - no./total no. (%)			
Flat	7/18 (38.9)	2/36 (5.6)	0.013*
Falling	5/18 (27.8)	8/36 (22.2)	
Rising	3/18 (16.7)	10/36 (27.8)	
Peaked or saucer	1/18 (5.6)	8/36 (22.2)	
Trough	0	6/36 (16.7)	
Others	2/18 (11.1)	2/36 (5.6)	
0.5-4 kHz PTA - M (P <sub>25</sub> , P <sub>75</sub> ) dB HL	96.25 (81.88, 100.31)	94.38 (75.63, 102.19)	0.993
ABR - no./total no. (%)			
Absent	34/36 (94.4)	83/88 (94.3)	0.080
Abnormal			
Only wave I at 100 dB nHL	0	1/88 (1.1)	
Wave V latency delay at 100 dB nHL	2/36 (5.6)	0	
The threshold increased significantly	0	4/88 (4.5)	
CM			
Amplitude at 100 dB nHL - M (P <sub>25</sub> , P <sub>75</sub> ) μV	0.20 (0.16, 0.28)	0.38 (0.30, 0.50)	<0.001**
Latency at 100 dB nHL - M (P <sub>25</sub> , P <sub>75</sub> ) ms	0.63 (0.57, 0.65)	0.63 (0.6, 0.65)	0.823
Duration at 100 dB nHL - Mean ± SD ms	4.04 ± 1.25	4.88 ± 1.03	0.001**
Threshold - dB nHL	80.00 (70.00, 90.00)	70.00 (65.00, 75.00)	<0.001**
ASSR threshold - M (P <sub>25</sub> , P <sub>75</sub> ) dB HL cg			
500Hz	94.00 (84.00, 94.00)	74.50 (64.00, 94.00)	<0.001**
1000Hz	94.00 (89.00, 99.00)	89.00 (69.00, 99.00)	0.003**
2000Hz	87.00 (77.00, 97.00)	77.00 (67.00, 87.00)	<0.001**
4000Hz	81.00 (71.00, 81.00)	61.00 (61.00, 71.00)	<0.001**
40Hz-AERP threshold - M (P <sub>25</sub> , P <sub>75</sub> ) dB nHL	100.00 (100.00, 110.00)	100.00 (100.00, 110.00)	0.399

no.: number; n: number of ears; M (P<sub>25</sub>, P<sub>75</sub>): Median (upper quartile, lower quartile); ABR: auditory brainstem response; CM: cochlear microphonic; ASSR: auditory steady-state response; 40Hz-AERP: 40Hz-auditory event related potential.

\*:  $P < 0.05$ ; \*\*:  $P < 0.01$ .

Table 2. Follow-up data of three cases in the OAE absent group

Characteristic		Case 1		Case 2		Case 3	
Gender		M		M		M	
Age of onset - yr		2.00		1.00		1.50	
Newborns high risk factors		None		None		Unknow	
Universal Newborn Hearing Screening		Not done		Pass		Pass	
Concomitant symptoms		None		None		None	
Test age - yr		3.50	4.00	1.42	3.00	2.17	5.50
Course of disease - yr		1.50	2.00	0.42	2.00	0.67	4.00
PTA - dB HL	L	80.00	78.75 ↓	NA	97.50	NA	123.75
	R	86.25	91.25 ↑	NA	110.00	NA	108.75
Classifying audiometric configurations	L	Rising	Rising	NA	Rising	NA	Flat
	R	Rising	Rising	NA	Rising	NA	Flat
Tympanogram	L/R	A/A	NA	A/A	A/C	A/A	C/C
Acoustic stapedial reflex		NR	NA	NR	NR	NR	NA
DPOAE	L	NR	NR	NR	NR	NR	NR
	R	NR	NR	NR	NR	NR	NR
ABR	L	NR	NR	V=6.35ms	NR	NR	NR
	R	NR	NR	V=6.00ms	NR	NR	NR
CM (100 dB nHL)	Amplitude (L) - μV	0.46	0.32 ↓	0.14	0.08 ↓	0.13	NR ↓
	Latency (L) - ms	0.70	0.60 ↓	0.72	0.82 ↑	0.63	NR ↓
	Duration (L) - ms	6.65	4.83 ↓	2.30	2.17 ↓	3.63	NR ↓
	Amplitude (R) - μV	0.38	0.27 ↓	0.29	NR ↓	0.19	NR ↓
	Latency (R) - ms	0.57	0.57 -	0.65	NR ↓	0.60	NR ↓
	Duration (R) - ms	6.53	3.17 ↓	3.42	NR ↓	3.98	NR ↓
CM threshold - dB nHL	L	60	75 ↑	70	100 ↑	NA(<100)	100 ↑
	R	70	75 ↑	75	NR ↑	NA(<100)	NR ↑
ASSR - dB nHL	L	92.75	NA	92.75	NR ↑	99.00	NA
	R	90.25	NA	84.00	NR ↑	85.88	NA
40Hz-AERP - dB nHL	L	110	NA	120	NA	110	NA
	R	110	NA	120	NA	110	NA

yr: years; PTA: pure tone audiometry; DPOAE: distortion product otoacoustic emission; ABR: auditory brainstem response; CM: cochlear microphonic; ASSR: auditory steady-state response; 40Hz-AERP: 40Hz-auditory event related potential.  
 NA: not available; NR: no reaction.