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RADA DARA : CLICK EVOKED OTOACOUSTIC EMISSIONS AND
DISTORTION PRODUCT IN FULL TERM NEONATES. THESIS ADVISORS:
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Click evoked otoacoustic emissions (CEOAEs) and distortion product (DPOAEs) are generated within the inner ear by an active, nonlinear process underlying the sensitivity and selectivity mechanism of the cochlea. They can help assess the functional condition of the cochlea and preferable for hearing screening in neonates. The close correlation between CEOAEs and DPOAEs was found. In general when one type of OAEs is present the other would be also. The purpose of this study was to investigate the characteristics of CEOAEs and DPOAEs in full term neonates that were focused on ear side and gender difference. The correlation between CEOAEs and DPOAEs from the same ear of full term neonates was also investigated.

The CEOAEs and DPOAEs were measured in 44 full term neonates, 22 of which were males (44 ears) and 22 females (44 ears), and the mean ages were 5.68 days and 3.59 days for male and female subjects, respectively. The results indicated that the overall CEOAEs response and the SNR at 1-4 kHz did not show a significant difference between ear side and between genders. The DPOAEs SNR in the right were greater than left ears at all frequencies tested. However, a significant difference occurred at 2 and 4 kHz. These were considered as less significant for clinical application, especially, for hearing screening. In addition, the DPOAEs SNR at 1-6 kHz did not show a significant difference between genders. The results of this study confirmed the correlation between CEOAEs and DPOAEs in the same ear at 1.5-4 kHz. However, the correlation did not exist at 1 kHz, which might be due to high noise level in some subjects that obscured the CEOAEs and DPOAEs response. This study found that both CEOAEs and DPOAEs could be obtained from neonates without effect of ear side or gender, which allowed using data from all ears as a guideline for hearing screening or for clinical purposes.

However, this study showed a tendency that the CEOAEs and DPOAEs responses in the right were greater than in the left ears and in female than in male subjects. Further measurement by increasing the number of subjects and multi-variance analysis should be considered. Additionally, recording by using similar instrument, measurement parameters and criteria used to select the subjects should be considered too.