CHAPTER 5

DISCUSSION

The results from the present study are depicted in tables & graphs. From Table 4.1 and Table 4.3, we can take the inference that in infants having normal hearing and infants having hearing loss, linear mode give higher response compared to the non-linear mode. We also found that in infants having hearing loss the Overall Response in linear mode was much higher than the group of infants having normal hearing. Variance and standard deviation in infants having normal hearing was higher in both modes compared to infants having hearing loss.

Present study result in non-linear mode is similar to some of the studies done in the past. In 1999, Harrison WA and Norton SJ studied characteristic of TEOAE in normal hearing and hearing impaired children. They also found robust responses in normal hearing children than hearing impaired, using non-linear mode which our study also shows. However in linear mode as said by Kemp et al in 1986, it is giving erroneous response, which is too high in infant group having hearing loss. Another study done by Jemma Hine in 2005 as a white paper also reports of linear mode of TEOAE giving high responses. Jemma said possible cause could be due to ringing in the ear canal partly. It could also be due to residual outer hair cell activity and or cochlear damage itself might be acting as a reflection site which is capable to produce TEOAE like responses.

Also it’s reported that linear mode gives SNR that is generally 6 dB higher than non-linear mode. (Tognola et al., 2001). This is due to the coherent sum of all the acquired signals in the linear mode, while in nonlinear mode only 2 out of 4 acquired signals contribute to the output (Moleti A, Sisto R & Lucertini M., 2002)

From Table 4.2 & 4.4 on comparing the SNR values frequency wise (1000Hz, 1500Hz, 2000Hz, 3000Hz & 4000 Hz) at higher frequencies the SNR value is better
in the present study. Similar findings are also reported by Hatzopoulos S, Tsakanikos M, Grzanka A, Ratynska J and Martini A in 2000. They said of better Signal to noise ratio at 2000 Hz, 3000 Hz and 4000 Hz.

From graph 4.12, 4.13, 4.14 & 4.15 its evident that non-linear mode has better sensitivity & specificity in finding out the hearing loss than linear mode.