ACOUSTIC ANALYSIS OF AL-QURAN PHONEMES BY CHILDREN WITH COCHLEAR IMPLANT

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The purpose of this study is to investigate the production of Quranic phonemes specifically fricatives by children with cochlear implants with regards to its frequency, intensity and duration at initial position in a CV syllable. A total of eight children with cochlear implants participated in this study. These children were all implanted for more than five years; are attending mainstream school; communicating orally and have basic knowledge regarding al-Quran. This study also involved two other normal hearing children as a control group. 12 targeted fricative sounds at initial position of a syllable were chosen as the targeted sounds. Speech samples obtained were analyzed using PRAAT software. Spectrographic analysis of the samples revealed that (1) children with cochlear implant produced higher frequency fricatives better than lower frequency fricatives (2) The intensity values range for the speech samples were near to the intensity production of normal-hearing children (3) There's a high variation in the duration values for the production of the fricative phonemes (4) Phonemes articulated at the back of the oral cavity are harder to produce by these children (5) Voiced uvular and voiceless sounds are difficult to produce. In general, children with cochlear implant faced difficulties in producing fricative phonemes which relies on multiple acoustic cues especially the lower frequency fricatives. Their ability is seen in producing al-Quran fricative phonemes which consist of higher frequency regions, produced anteriorly in the oral cavity and is a voiced sound. The potential value of this study is illuminated in explaining these children's ability and also in efforts to investigate the impact of the implant cochlear technology on their speech production abilities.