Investigating infants' production of syllables following full cleft palate surgery: early syllable sequences as a marker of the typical vocal trajectory.

A. Langner, M. Aldridge-Waddon, G. O'Grady & C. Laing

Cardiff University

This study examined ~10,000 vocalisations from 28 English-acquiring 14-month-olds after cleft palate (CP) repair. Each infant was analysed once 1-9 months post-surgery. All infant vocalisations produced in hour-long segments from day-long LENA recordings were phonetically transcribed and analysed alongside data from clinical assessments at 24 and 36 months. Analyses revealed sample-wide preferences: glottal articulations; voiced, plosive consonant categories; vowels with high acoustic-articulatory contrast; and an absence of fricatives until 24 months. The rarest sounds–e.g., post-alveolar fricatives–tended to be produced by infants with consistent consonants in their repertoire (produced 50+ times), suggesting they were further along the vocal trajectory than infants with fewer. Vocalisation complexity was numerated using a mean babble level (MBL) measure between 1 and 4, with the highest score allocated to vocalisations with >1 supraglottal consonant, and the lowest with only a vowel, glottal and/or glide. Initial findings revealed that palatal age (months since surgery) was a significant predictor of vocalisation frequency (intercept=4.03, p=0.003) and MBL (intercept=2.33, p=0.04) at 14-months; higher palatal ages predict higher vocalisation count and MBL. Highest within-group variability on frequency, length, and complexity of vocalisations was found between 1-3 months post-repair, while such variability seems to stabilise 4+ months after surgery. Given these results, the sample was indexed based on palatal age. The relationship between MBL and number of consistent consonants in infants' production repertoire was significant (R=058, p=0.001), as was MBL with number of mature consonants–excluding glottals and glides–produced (R=0.72, p<0.001). Findings provide evidence that phonetic measures of babble may be a rich tool for predicting and/or recognising production milestones in infants with CP, which could be valuable to parents and therapists for treating earlier ages than provisions currently target.