Acoustic Analysis of Korean Stops in Patients with Dysarthria

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Comparison among manners of articulation:

1. NC showed a stop order of tense > aspirated > lax for the CD. On the contrary, DYS showed a longer CD of the tense stops than that of the other manners of articulation only at the alveolar place.

Comparison among places of articulation:

1. NC produced shorter CD as the place moves backwards especially at tense and aspirated manners. DYS showed no significant CD differences according to the place of articulation.

2. NC produced longer AD at the velar place of articulation than at the bilabial or alveolar place of articulation at all manners while DYS showed this tendency only at the tense manner of articulation.

MATERIALS AND METHODS

EXPERIMENTAL DESIGN

1. The CD of all stops was significantly longer in the DYS than in the NC.

2. The AD of all stops tends to be longer in the DYS than in the NC, but the difference was not significant.

3. The ratios of CD to CACD of /apa/, /at'a/ and /aka/ were significantly longer in DYS than in NC. NC showed a reduced ratio of CD to the CACD and an increased ratio of AD to the CACD as the place of articulation moves backwards such as bilabial, alveolar and velar for all three manners of articulation. Only at the tense manner of articulation did DYS show similar production tendency to that of NC.

DISCUSSION & CONCLUSION

DYS in this study showed abnormally longer CD than NC and relatively normal length of AD. These results agreed with the study findings of Ann (2001) and Jung (2005). Furthermore, according to Caruso (1987) and Kent (1979), the VOT of DYS, which corresponds to the AD in this present study, was not different from that of NC. This study result suggests that DYS have more difficulty in controlling tension in the speech mechanisms, such as making constrictions (or closure), than forming aspiration features for stops (Jung, 2005).

When DYS produced lax /apa/ and /aka/, voiced CD appeared in the speech samples in relatively high percentage(29%). Since when CD is voiced, it becomes harder to find bursts or aspirations on the spectrogram, it is presumed that mean CD ratio increased in lax /apa/ and /aka/. In addition, DYS replaced 21% of the /afa/ with /afa/. These tendency would have contributed to the significantly longer CD ratios of /afa/ in DYS.

Comparison between groups:

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REFERENCE


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