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Influence of stuttering on the P300

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Background: Stuttering is a disturbance of language that affects 1% of the adult population and about one hundred thousand Portuguese people. This speech disturbance may show changes in the processing of information received through the sense of hearing. After several theories, the need to evaluate neurophysiological processes in individuals with stuttering arises and in this sense, electrophysiological tests can be used.

Material and methods: The sample consisted of 10 individuals with stuttering (study group), and 10 fluent individuals (control group), with an age range between 19 to 57. All subjects have undergone an otoscopy, tympanogram and a research of the Stapedial Reflex in 1000 Hz and 2000 Hz frequency, pure tone audiogram screening (pass-fail) at the frequencies of 1000 Hz, 2000 Hz and 4000 Hz. To collect the electrophysiological responses (P300), we used some inclusion criteria, such as being aged between 18 to 60, speaking the European Portuguese, without diagnosis of psychiatric and/or neurological alterations, otoscopy without alterations, the Tympanogram being of type A or C1 and getting response up to 40 dB in the frequencies 1000 Hz, 2000 Hz and 4000 Hz in the pure tone audiogram screening. Then, every subject did the evoked auditory potential of long latency (P300).

Results: There were statistically significant differences ($p = 0.005$) between the right ear latency values in subjects with stuttering (347.10 ms ± 18.24) compared to fluent individuals (315.80 ms ± 22.51). In the left ear there were also statistically significant differences ($p = 0.023$) in mean values of latencies that were higher in stutterers (344 ms ± 32.50) compared to fluent individuals (311 ms ± 20.75).

Conclusion: In this study it was verified a change in the electrophysiological response of the P300 in individuals with stuttering. Although the values of latency are within the normal range, in both groups (300-400ms) the individuals with stuttering need more time to process and discriminate auditory stimuli.