Time-course of word production in younger and older speakers: an electrophysiological study.

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Abstract

The transformation of an abstract concept into an articulated word is achieved through different encoding processes, which time-course has been investigated with psycholinguistic and neuroimaging paradigms. The estimates of the timing of encoding processes hold for mean production speed, but the overall production time for identical words can vary across speakers from simple to double. In particular it is well known that production latencies increase along the ageing process.A previous research conducted on fast and slow younger adults, showed a production speed modulation on ERPs both on amplitudes and the duration of a stable electrophysiological configuration within a single time-window, from around 200 to 350 ms, presumably associated with the encoding stage of lexical selection (Laganaro, Valente & Perret, 2012).Here we investigated whether longer production latencies in older speakers are accounted for by the same processes as speed variation in younger subjects. We compared ERP correlates during an overt picture naming task between a group of 16 older adults and two subgroups of younger speakers - one with comparable and the other one with faster reaction times.Older adults showed the same sequence of topographical maps as the two younger groups. In relation with the previous study, the same differences in the time window associated with lexical selection were observed between older and younger fast subjects. In addition, the stable early electrophysiological pattern ranging from 140-180 ms, presumably associated with visuo-conceptual processing, also displayed longer duration in older adults.

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