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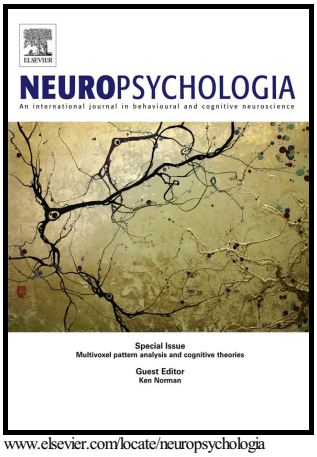

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Auditory time perception in Huntington's disease

S. Vez[1], J. Köhli[1], B. Frey[1], D.A. Magezi[2], J.-M. Annoni[2], J.-M. Burgunder[1,3*]

[1]Swiss Huntington's Disease Centre, Neurozentrum Siloah, Gümligen, Switzerland
[2]Department of Neurology, University of Fribourg, Switzerland
[3]Department of Neurology, University of Bern, Switzerland

[*]Corresponding author. Swiss HD Centre, Siloah, CH 3073 Gümligen.
jmburgunder@bluewin.ch

Abstract

Background

Huntington's disease (HD) is characterized by early involvement of the striatum. It affects the pace of repetitive motor activity, as motor timing depends on basal ganglia activity. However, data are lacking on the impact of this process on auditory time perception in motor non-affected gene carriers.

Objective

This work aims to test the performance in time perception of a group of mutation carriers, either without motor symptoms or at an early stage of motor involvement. This should allow designing therapies targeting compensation strategies and possibly be used as a disease progression marker.

Method

Time was assessed using two different tasks. An absolute, duration-based time perception was assessed in a first task and a relative, beat-based time perception was assessed in a second one. HD-mutation carriers with low-to-middle grades of motor involvement (HD-motor, n=10) or without motor signs (HD-premotor n=21), were compared with age- and sex-matched healthy controls (control (n=27). Thresholds of time difference perception where assessed.

Results

For both tasks, poorer performances were found in HD-motor patients as compared with HD-premotor and controls. Thresholds of time difference perception correlated positively with the CAP score for the whole group of HD-gene carriers in both tasks. In a post-hoc exploratory analysis performed by a multiple regression, a negative correlation was found between the thresholds in both tasks and the Stroop interference test. Furthermore, in the first task, a positive correlation was found between thresholds and a trail making B test and a negative one with a total functional score.

Conclusion