WPA Abstract

Oral presentation (Session OS-10-006)

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Title

Vocal acoustic Biomarkers as a diagnostic Tool in Attention Deficit Hyperactivity Disorder

Objective

It is a key concern to investigate objective measures in psychiatric research to improve diagnostic processes. In attention deficit hyperactivity disorder (ADHD) cognitive performance and actigraphy measures combined show reasonable sensitivity and specificity in separation of cases from healthy controls, but poor separation from clinical controls. Established EEG markers till now showed limited value in meta-analytic literature. Neuroimaging studies, especially resting state analyses, begin to show very promising results, but methods lack practicability.

We reach out to test separating ADHD cases from healthy controls using a digital voice pattern analysis approach.

In this presentation data and spectral patterns of the currently ongoing voice analyses are displayed and sound samples are demonstrated, including samples of the ADHD Voice Analysis study (NCT01104623) funded by the German Ministry of Economics and Technology (ZIM-KF2247401AK9).

Method

1028 recordings from 521 ADHD patients, thoroughly diagnosed in our adult ADHD outpatient clinic, and from 254 healthy controls (Age from 19 to 68 years, mean 35.0, standard deviation 11.2) have been collected and were examined using a pattern analyses approach.

Results

ADHD-specific vocal acoustic patters have preliminarily been identified. Separation between ADHD cases and healthy controls was established with sensitivity and specifity rates ranging from 70% to over 90% for single acoustic markers and to over 90% when markers are combined.

Discussion

Separation of ADHD from healthy and via vocal acoustic patterns shows to be promising in psychiatric diagnostics. The method presented here could provide an objective biomarker in psychiatric diagnostics, which on top is highly convenient to use in clinical practice. Further studies to evaluate its potential are strongly encouraged.