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Autism biomarker seen as boon for new treatments

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Researchers at the UCLA Center for Autism Research and Treatment have identified a signature brain-wave pattern for children with autism spectrum disorder related to a genetic condition known as Dup15q

syndrome. The research team noted that this signature is among the first quantitative biomarkers identified in electroencephalogram tests discovered for any syndrome highly associated with autism spectrum disorder.

The number of children diagnosed with autism attributed to a genetic cause has rapidly increased. This is attributed to greater awareness of autism symptoms and advances in genetic testing methods. However, the increased diagnoses of genetic cases have outpaced doctors' ability to provide specific guidance or treatment plans for families. Researchers at the UCLA center study genetic syndromes associated with autism spectrum disorder in an effort to identify biomarkers that could lead to more targeted clinical care. Dup15q syndrome—a duplication of chromosome 15q11.2-q13.1—is among the most common genetic variants associated with autism disorders.

In a two-stage study, the UCLA team first acquired EEG recordings from 11 children with Dup15q syndrome, along with 10 age- and IQ-matched children with autism spectrum disorder but without the Dup15q syndrome, and nine age-matched children developing in typical fashion. EEGs were quantified and statistically analyzed to determine whether beta oscillations, a characteristic EEG signature, in children with Dup15q distinguished them from the two comparison groups. The UCLA team then collected EEG data from a larger group of children at a meeting of the Dup15q Alliance, a national support and research group that the researchers worked closely with on the project.

For children with autism spectrum disorder related to Dup15q, the findings provide a potentially valuable tool for early and accurate diagnosis, development of new drugs, selection of participants for drug trials, and measurement of whether treatments are making the desired impact. There is currently no drug for curing or treating the core symptoms of autism.

Although Dup15q syndrome affects a small proportion of people with the autism spectrum, the identification of a brain-based biomarker could also serve as a bellwether for findings associated with other genetic syndromes related to autism spectrum disorder.

More information: Joel Frohlich et al. A Quantitative Electrophysiological Biomarker of Duplication 15q11.2-q13.1 Syndrome, *PLOS ONE* (2016). DOI: 10.1371/journal.pone.0167179

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