How well do Parent, Clinician and objective Measures of Hyperactivity in the Office Correlate with Actigraph Measures at Home and at School in Typically Developing Controls and Children Evaluated for ADHD?

Kyoko Ohashi, Mc Greenery CE, Bolger EA, Teicher MH

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Abstract

Clinicians evaluating children for ADHD frequently rely on parental reports and their own impressions in assessing hyperactivity. However, it is well known that parental ratings only correlate modestly with teacher ratings. An alternative means of assessing hyperactivity in the office are tests that use motion tracking devices to quantify how much children fidget during a cognitive control attention task (e.g. QuotientTM ADHD System). We sought to ascertain whether clinician, parent and office-based objective measures correlated with hourly levels of activity assessed over 3-5 school days by belt-worn actigraphs in 83 unmedicated children (10.6±3.1 years), including 15 typically developing controls and 68 being evaluated for ADHD. Overall, there was no significant correlation between clinician ratings of hyperactivity and actigraph measures at any time. Parent ratings only correlated with actigraph measures at 6-7 AM. In contrast, the QuotientTM Hyperactivity Index correlated with actigraph measures at 9-12AM, 1-3, 4-5, and 6-9 PM. Parent and clinician ratings were highly correlated with each other but only correlated modestly with the QuotientTM Hyperactivity Index (r =0.318 and 0.298, respectively, both p < 0.01). Hyperactivity, as an objectively quantifiable sign of psychopathology, was not well captured by parent or clinician ratings. Likely, this is due to parents and clinicians focusing not only on levels of movement or difficulty sitting still but also on the intrusiveness of the behaviour. This may lead to false negative evaluations in children who fidget less intrusively and to false positive evaluations in children with oppositional or disruptive behaviours.