Blood pressure in children with attention deficit/hyperactivity disorder

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Abstract

Objectives
Children with attention deficit/hyperactivity disorder (ADHD) are frequently treated with psycho-stimulant agents causing a modest but significant increase in blood pressure and heart rate. The objective of this study was to define blood pressure characteristics in children with ADHD treated with a variety of medications in a community setup.

Methods
Children registered at a large pediatric clinic in Calgary, AB with documented histories of ADHD were randomly contacted. Consenting participants had standardized office BP measurements, ambulatory blood pressure monitoring (ABPM) studies and were asked to complete the sleep disturbance scale for children (SDSC) questionnaire. Findings were compared with data from the Canadian Health Measures Survey (CMHS).

Results
Fifty-five children (47 males) aged 7 to 17 years (average 11.6 ± 2.5 years) with an average BMI z-score of −0.37 ± 1.22 completed the study. All children were medicated, the majority (82%), with various types of stimulant agents. Elevated office BP values were more prevalent than in the CMHS; >90th percentile in 5 (9.1%) and >95th percentile in 3 (5.5%). ABPM confirmed ‘white coat hypertension’ in 3 (5.5%), masked hypertension in 2 (3.6%) and nondipping in 28 (51%). The SDSC score suggested that 43 (78%) children had disturbed sleep. Logistic regression modelling indicated that nondipping correlated with disturbed sleep.

Conclusion
The ‘white coat’ phenomenon may be responsible for increased prevalence of elevated rest/office BP values in children with ADHD. Prevalent sleep ‘non-dipping’ in this population is associated with sleep disturbances but clinical significance of this finding requires further investigation.