The Effect of Methylphenidate on Cervical Vertebral Maturation and Dental Age in Patients with Attention Deficit Hyperactivity Disorder

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Abstract

STATEMENT OF THE PROBLEM:
It is postulated that attention deficit/hyperactivity disorder (ADHD) with or without medication has an inhibitory effect on the children's growth and development.

PURPOSE:
This study aimed to assess the dental age and cervical vertebral maturation (CVM) stage in ADHD patients with or without medication.

MATERIALS AND METHOD:
This cross-sectional study evaluated the pretreatment panoramic and lateral cephalograms of 129 patients (70 males, 59 females aged 8-14 years). Demirjian index and Baccetti's CVM index were used to determine the dental age and CVM stage, respectively. The subjects were evaluated in two groups of ADHD (case, n=59) and healthy individuals (control, n=70). The ADHD patients were divided into two groups of AWT (ADHD with Treatment, n=43) and AW (ADHD without treatment, n=16) based on the use of methylphenidate. Paired t-test was used to compare the mean dental age between the groups. Linear and ordered logistic regression models were used to detect differences between the groups. The association between dental and chronological age was assessed by using Pearson correlation coefficient (p< 0.05).

RESULTS:
After age and sex adjustment, the skeletal maturity stage was found to be similar to the control group based on the presence of the disorder or use of medication (p= 0.711 and p= 0.436, respectively). Similarly, the patients' dental age was similar to the controls in AW and AWT groups (p= 0.180 and p= 0.421, respectively). The correlation between dental age and chronological age was 0.79 in AWT, 0.88 in AW, and 0.88 in control group (p< 0.001 for all the three).

CONCLUSION:
After age and sex adjustment, the dental and skeletal age of ADHD patients with or without Methylphenidate treatment do no manifest a significant delay compared with the controls.