

Brain single photon emission tomography in attention deficit hyperactivity disorder

Abou-El-Ela, E. E.

Ain-Shams Univ., Cairo (EGY). Fac. of Med.

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The aim of this work was to investigate the regional cerebral metabolism in children with ADHD using brain SPECT, also to investigate the psychological and clinical factors which could influence the pathophysiological changes in ADHD. Neuropsychiatric, psychometric and psychophysiological assessments were done on the cases (30 ADHD children) and controls (15 healthy individuals). The brain metabolism was assessed through brain imaging using 99m Tc HMPAO SPECT (Hexamethyl propylene Amine Oxime). The following tools are used: 1) Neuropsychiatric assessment by using psychiatric sheet and neurological sheet. 2) Assessment of handedness according to Lezak. 3) Assessment of attention by computerized derman programme. 4) Assessment of intelligence by using the block design and the vocabulary subtests of WISC. 5) Assessment of behavior by both revised behavior problem checklist and differential test of conduct and emotional problem.

Results: It was found that 33.3% of the children with ADHD show normoperfusion, 46.7% show hypoperfusion and 30% have hyperperfusion. The frontal lobe show the most frequent abnormalities (46.6%) of the brain SPECT followed by parietal lobes (30%) followed by temporal lobes (23.3%).

Conclusion: The major findings in children with ADHD is the abnormal perfusion that affects many areas either hypoperfusion or hyperperfusion.