

Study of brain single photon emission computed tomography in a sample of Egyptian children with autism

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Autistic Spectrum Disorder (ASD) is a disorder characterised by impaired communication, reciprocal social interaction, language deficits and behavioural maladaptation. The aim of this research is to study the functional neuroanatomical correlates of ASD in a sample of Egyptian autistic versus non-autistic children using brain SPECT, and to investigate the relationship between SPECT findings and scores of adaptive and maladaptive behaviour measured by the Adaptive Behaviour Scale (ABS). Subjects and Method: Thirty autistic children and thirteen non autistic controls were examined using Technetium-99m HMPAO brain SPECT. The cortical regions of interests (ROIs) were the superior and inferior frontal, parietal, temporal, occipital, cerebellum, and basal ganglia. Results: findings indicate that the frontal lobe was the commonest site of hypoperfusion, followed by the cerebellum and other brain areas. Cerebral hypoperfusion was more on the left in comparison to the right hemisphere. Hypoperfusion of the right superior frontal and bilateral cerebellar regions correlated statistically with the low profile of milestones of development and social independence. Language development correlated statistically with bilateral cerebellar hypoperfusion. Social isolation had a significant statistical correlation with right parietal and bilateral basal ganglia hypoperfusion. Left occipital perfusion abnormality was detected with stereotyped behaviour, whilst self mutilation, hyperactivity and odd social behaviour related to hypoperfusion in different brain regions. Conclusion: this study postulates the complex dysfunction in some brain regions involved in the development of the autistic symptoms. SPECT is one of the investigation techniques that can give reliable information about the brain function in the autistic children and their relation to the pattern of adaptation.