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FDG PET BRAIN SCAN IN MONITORING THE EFFECT OF TONGUE ACUPUNCTURE (TAC) IN TREATMENT OF AUTISM

D. W. Yeung*, V. Wong, J. G. Sun, C. L. Ho and M. S. Chan, Dept. of Nuclear Medicine & PET, Hong Kong Sanatorium & Hospital, Hong Kong, China; Dept. of Pediatrics, University of Hong Kong, Hong Kong, China; University of Hong Kong, Hong Kong, China and Dept. of Radiology, University of California San Diego, San Diego, CA.

Currently there is no effective medical therapy for Autism. An innovative method using Tongue Acupuncture (TAC), which theoretically would improve cerebral metabolism, had been tested in an ongoing study of 60 subjects in evaluating its therapeutic effectiveness. Aim: This is a prospective study to observe the effect of cerebral metabolism in autistic patients and correlate with the clinical response. Method: All subjects have received subjective evaluation of parents, and F-18 FDG PET Brain Scan prior to after TAC therapy. Subjects were placed in a quiet room with ambient light for 15 minutes prior to injection with 8 mCi. F-18 FDG /1.73 sq.m.BSA. 45 minutes later, 3D brain PET scan is performed on a Siemens ECAT EXACT scanner. Time of scan was reproduced in the pre- and post-intervention study as much as technically feasible. Cortical Mean SUVmax and SUVavg were calculated from 44 cerebral cortical regions (ROI), excluding the cerebellum, basal ganglia and the brain stem. Similar ROI were used for both pre-TAC and post-TAC scan. Result: A total of 9 patients had been analyzed at this point. 8 cases were treated, 1 case was untreated. Mean age of the treated group is 8.3 years (5-15 years). M:F=8:1. Mean difference in time of scan after injections between the pre and post scans was 0.25 min. 75%(6/8) treated cases was assessed by the parents as showing some improvement. 2 treated cases and 1 untreated cases were assessed as no clinical response. For the 6 subjects with clinical response, the Mean Cortical SUVmax showed a 22.3% increase (5.4%-74%), and the Mean Cortical SUVavg showed a 22.6% increase (4.7%-75%). For the non-responder group, the Mean Cortical SUVmax and Mean Cortical SUVavg have only 1.5% and 1.2% increase. Conclusion: 75% of patients with autism showed clinical improvement to TAC therapy. The responder group shows a ~22% increase in average cerebral metabolism. Quantitative FDG brain PET can serve as an objective assessment in monitoring response to this kind of alternate therapy.