BIO-ELECTROGRAPHIC METHOD IN DETECTING HETEROGENEITY AND UNIQUE FEATURES IN AUTISM

Nataliya Kostyuk 1,2, Rajendram V. Rajnarayanan 3, Raphael D. Isokpehi 2, Mark Yeager 4, Helene Mann 5, Korotkov Konstantin 6, Baraka Williams 2, Jennifer Sims 2, Susan Jean Howcroft 1, Taunjah Bell 7 and Hari H.P. Cohly 2

1 Center of Languages and Cultures, Department of Languages and Cultures, University of Aveiro, Campus Universitário de Santiago, Aveiro 3810-193
2 Center for Bioinformatics & Computational Biology, Department of Biology, Jackson State University, PO Box 18540, Jackson MS 39217, USA
3 Department of Pharmacology and Toxicology, School of Medicine and Medical Sciences, SUNY Buffalo, NY 14214, USA
4 FAAIDD, PO Box 37, Mize, MS, 39116, USA
5 Department of Education, Iroquois Point El. School, Hawaii Ewa Beach, HI 96706,
6 St. Petersburg Federal University of Informatics, Mechanics and Optics, Russian Federation, Saint Petersburg, Drovyanny Pereulok 22, Russia
7 Department of Psychology, Jackson State University, PO Box 18540, Jackson MS 39217, USA

Abstract: Six families were screened during the Autism Awareness Walk that took place on the 18th of April 2009 at the Winner’s Circle Park in Flowood and Brandon, Mississippi. The objective of the study was to screen autistic children and their parents to record bio-electrographic parameters of the autonomic nervous system thus assessing the general functional state of autistic individuals and their relatives. Hypothesis: The bioelectrographic method is a good measure to evaluate unique features associated with autism spectrum disorder (ASD) as well as to determine the heterogeneity in ASD. The autistic children tested were previously diagnosed with mild autism and Asperger’s Syndrome. The equipment used was electro-photonic impulse analyzer. Results revealed heterogeneity and unique features in the participants with ASD and their parents. The unique signature in our preliminary study for ASD was related to misbalance in the zones of the gastro-intestinal tract, immune system, cerebral cortex, and cerebral vessels. Additionally, the bio-electrographic study detected epiphysis, kidneys, adrenal gland, cervical zone, thorax zone and sacrum as the zones of misbalance in autistic children. As to their parents, they showed misbalance of electro-photonic emission in the zones of cerebral cortex and cerebral vessels. The heterogeneity was observed in variability of values assigned for the same organ within the same phenotype.

Key words: autism, heterogeneity, bio-electrography, electro-photonic emission

Acknowledgements: This research was supported by a grant from Mississippi NSFEPSCoR “Innovations through Computational Sciences” Award (EPS-0556308); Pittsburgh Supercomputing Center's National Resource for Biomedical Supercomputing (T36 GM008789); U.S. Department of Homeland Security Science & Technology Directorate (2007-ST-104-000007; 2009-ST-062-000014); Mississippi Computational Biology Seed Research Grant Program; and Research Centers in Minority Institutions (RCMI) – Center for Environmental Health (NIH-NCRR G12RR13459).