

EDITORIAL

Since Kanner and Asperger's work in the 1940s, and with the recent refutation of the pseudo-association between autism spectrum disorders (ASD) incidence rates and thimerosal (1), autism continues to draw its share of controversies and interrogations. According to the DSM-IV criteria, autism is a neurodevelopmental condition characterized by variable degrees of restricted stereotyped behavior, impairment in communication and establishing interpersonal relationships (2). There has been an exponential increase in interest and research in the area of ASD which now offers a fascinating spectrum of theories to find possible etiologies underlying the condition. These extend from neuroautoimmunity (3) to environmental factors affecting genetics (4-6), including parental occupation and teratogen exposure, with fascinating new developments that deepen the understanding of the differences – and similarities – between ASD subjects and the phenotypic population.

Qualifying intelligence as a single parameter, the intellectual quotient, would be an insult to the complexity of the human learning experience. As such, vast areas of study, ranging from population trends to the anthropologic and evolutionary rationalization of autism (7-8), and including relatively recent electrophysiological studies, neurological imaging (9) and deeper behavioral analysis, testify of the multi-factorial dimension of the autism spectrum disorders.

Understanding the thought processing differences characterizing cognition in ASD would allow the conception of standardized and effective educational materials tailored to the specific needs of those with the condition. A striking example of how targeted intervention brought about surprisingly rapid gains involved the creation of a DVD series specifically conceived to improve social intelligence and recognition of emotional modalities in children with pervasive developmental delay (10). The production of now widely-available educational materials, developed with federal funding and based on behavioral and psychological studies, clearly demonstrates how research in this field can be translated into concrete improvement in functionality and social integration of patients suffering from ASD.

The concept of mirror neuron system (MNS) – specific cells independent of any neural circuitry which fire irrespectively of whether the action is performed by oneself or witnessed in others – provides an interesting theory for the impairment in social intelligence characterizing most if not the entire ASD spectrum (11). The lack of development of MNS is an example of one

of the current hypotheses behind ASD causality, and the inability to vicariously experience an action or emotion manifested in a peer could be at the origin of impairment in empathy and emotional processing.

Interestingly, a similar MNS model associating subtle musicality cues to emotional undertones has been demonstrated to be more finely tuned in subjects with ASD (12), providing a rationale and reinforcing the current pertinence of the use of musicotherapy long before neurological models were studied.

Differences in auditory and visual processing in subjects with ASD (13-14) should also not be overlooked, as these provide major answers and can help ease the burden placed on family members and peers reaching out to a relative with ASD. Further, the design of educational resources, such as the use of only preferred motion patterns in the DVD series noted above, can help others to begin to understand some of the fundamental differences of how ASD affects an individual's perception of the world around them.

Sensorium differences characteristic in the ASD population (15) provide a better understanding of the motive behind the stereotypical movements characterized in ASD, such as hand flapping in young children, can be viewed as an enjoyable and soothing stimuli rather than dysfunctional behavior. Furthermore, those differences in processing and integration of external sensory stimuli shape the perspective of children with ASD, which plays a role in the manner in which they develop aversive or preferential behaviors, communication and social skills (16) to name a few.

The evolutionary point of view approaches existentialism pondering and offers interesting theories that translate into different anthropological considerations of ASD, looking at phylogeny, epistatic interactions and genomic imprinting among others (7). The apparent increase in rates of ASD as noted recently reflects drastic improvements in our ability to recognize ASD at an earlier age rather than a crude increase in incidence (8).

Although the resources have drastically improved in the past decade, in parallel to our understanding of ASD, a lot remains to be done in terms of social integration, especially during childhood and adolescence, education and availability of services. Waiting lists for initial assessment of young children with ASD are too long – up to one year and a half in Quebec – considering that the earlier stimulation is initiated, the better off is the child in terms of autonomy and acquired skills.

As the rates of ASD is currently estimated to be 1 in

150 children (17), it is imperative that healthcare and education professionals receive tailored training in order to improve communication and attending the particular needs of children and adults with ASD. As awareness is the first step to acceptance and social integration, education of the general public on one hand, and adaptation of teaching tools based on the outcomes of multidisciplinary studies on the other, we hope to see drastic improvements in both the functioning and quality of life for our peers diagnosed with ASD. Rather than a dichotomy, they incarnate an alternative way of being.

We therefore present, in this issue of the MJM, a collection of papers to provide our readers with a mere taste of the vast array of exciting advancements being made in understanding the complex issues associated with ASD.

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