

## Autism and the pervasive developmental disorders

## Autismo e transtornos invasivos do desenvolvimento

Autism and related pervasive developmental disorders (PDDs), sometimes called the Autism Spectrum Disorders, refer to a family of early onset and lifelong disruptions of socialization variably impacting on multiple and core areas of development, from the establishment of intersubjectivity and personal relationships, to language and communication, to learning and flexibly adjusting to the surrounding environment.<sup>1</sup> The paradigmatic manifestation of the PDDs – autism – is a model of complex developmental disorder in that any attempt to understand it requires an analysis at many different levels, from behavior to cognition, from neurobiology to genetics, and all of which considered in closely dependent interactions over time. Over sixty years after the initial descriptions of autism, we now know that the PDDs are the most prevalent and strongly genetic conditions among all developmental disorders. The manifold increase in identification of individuals with autism in the past decade has renewed the urgency with which researchers worldwide are striving to elucidate its causes and develop more effective treatments. This supplement provides a summary of this effort, taking us from descriptions of the clinical features and diagnostic classifications of the PDDs, to what we know about neurobiological, neurofunctional and genetic mechanisms, to state-of-the-art biomedical, behavioral and educational treatments.

With globalization of science and easy access to parameters of best practices, individuals with autism should be provided with the best that clinical sciences have to offer wherever they are, with empirically validated treatments replacing beliefs unproven to be of any benefit to the persons with autism and their families. This supplement brings together clinical scientists from Brazil, the United States, The Netherlands and France. Through their multiple research collaborations, these clinical researchers weave systematic studies with their commitment to best clinical practices. This synergy is critical if we are avoiding research dead-ends, harmful practices, and geographic discrepancies or isolation.

The supplement opens with an overview of autism and Asperger syndrome,<sup>1</sup> the most well-known of the PDDs. We now know that these conditions are close 'cousins' from behavioral, neurobiological, and genetic perspectives. And they point to a vastly heterogeneous group of conditions with affected individuals ranging in intelligence from profound intellectual disability to the gifted range; some do not speak, whereas others are verbose, overwhelming others with unrelenting monologues; some have their lives dominated by unchangeable motor mannerisms and rituals, whereas others dedicate their entire intellectual energy to the exclusive pursuit of facts and information about unusual and highly circumscribed topics.

This continuum of affectedness not only gave rise to the term autism *spectrum* disorders, but also made clinical researchers aware that categorical nosologies had limitations, and that we should also pursue dimensional approaches in our studies of autism. In other words, what are the dimensions that generate

this spectrum of conditions and what are the factors that mediate the expression of the syndrome and eventual outcomes? Answers to these questions are still equivocal, but we do know that the most prevalent of the PDDs are not necessarily the most well-known – autism and Asperger syndrome, but those as yet poorly defined residual or variant forms of autism nowadays still captured by the term Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS). The second article<sup>2</sup> in this supplement covers this term, its importance, and the opportunities for research that variable manifestations of social and communication disabilities of early onset open to a better science of developmental psychopathology. Of importance, we now know that individuals with autism spectrum disorders, meeting criteria for the better defined syndromes or not, all require individualized, intensive and comprehensive support services. In addition, this second article also presents the current knowledge in the remaining two PDDs categories: Rett's syndrome and child disintegrative disorder.

The following two articles<sup>3-4</sup> cover the most exciting areas of current research in autism. While specific mechanisms impacting on brain growth and organization, and disruptions thereof, are still unknown, the past two decades have seen a radical transformation of the field, with a multi-prong and highly synergistic research strategy emerging from hundreds of studies. First, we know that brain morphometry is altered, but that this is particularly so early in life, raising hypotheses about disruptions of growth and connectivity, with cascading developmental events possibly leading to atypical brain systems that are most unusual if taken as circuitries rather than isolated structures.<sup>3</sup> Second, research has isolated the neural substrate of socialization, from the perception of faces and voices, gaze and social movement, to the capacity to attribute intentions to others and reading minds.<sup>3</sup> All of these are candidate "endophenotypes", or mediating phenotypes potentially being at the heart of heritability mechanisms involved in autism. Unfortunately, models of transmission are still unknown. And yet, genetics research has advanced at dizzying speed: research of affected families have defined the "broader autism phenotype", stretching autism beyond the individuals with a PDD diagnosis; molecular genetic approaches have isolated susceptibility regions though replicability of findings is still limited;

and cytogenetic approaches have isolated specific genes involved in some forms of the PDDs.<sup>4</sup> At present, we are still far away from being able to properly counsel families or to conduct genetic screening beyond our knowledge of rates of recurrence. And yet, despite the complexities expected in terms of gene-gene and gene-environment interactions, we cannot but expect major findings to be revealed in the next decade.

But it is unlikely that even with the elucidation of causative factors in autism curative treatments will follow. Hence the importance of the final two articles in this issue, which summarize psychopharmacological<sup>5</sup> and psychoeducational<sup>6</sup> treatments for individuals with autism. We are still far away from having drug agents that can effectively alter core symptoms of autism such as the social and communication deficits. But these approaches can be extremely helpful in allaying comorbid features and allowing the affected individuals to better profit from the staple of current evidence-based treatments, namely behavioral and educational interventions.

Ami Klin, Marcos T Mercadante

---

#### References

1. Klin A. Autism and Asperger syndrome: an overview. *Rev Bras Psiquiatr.* 2006;28(Suppl 1):3-11.
2. Mercadante MT, Van der Gaag RJ, Schwartzman JS. Non-Autistic Pervasive Developmental Disorders: Rett syndrome, disintegrative disorder and pervasive developmental disorder not otherwise specified. *Rev Bras Psiquiatr.* 2006;28(Suppl 1):12-20.
3. Zilbovicius M, Meresse I, Boddaert N. Neuroimaging in autism. *Rev Bras Psiquiatr.* 2006;28(Suppl 1):21-8.
4. Gupta AR, State MW. The genetics of autism. *Rev Bras Psiquiatr.* 2006;28(Suppl 1):29-38.
5. Nikolov R, Jonker J, Scahill L. Autistic disorder: current psychopharmacological treatments and areas of interest for future developments. *Rev Bras Psiquiatr.* 2006;28(Suppl 1):39-46.
6. Bosa CA. Autism: psychoeducational intervention. *Rev Bras Psiquiatr.* 2006;28(Suppl 1):47-53.

---

Note: This supplement has chosen the word Transtorno Invasivo de Desenvolvimento (TID) in detriment of the other two translations which have been used in Portuguese for the expression Pervasive Developmental Disorder (PDD): transtorno global do desenvolvimento and transtorno abrangente do desenvolvimento. Edusp, in the translation of the CID-10, has used the word "global" as a translation to "pervasive"; nevertheless, Artmed, which translated the CID-10 and the DSM-IV, has chosen the word "invasivo".<sup>1</sup> Due to fact that this option was present in the translation of both manuals, we have chosen to use this option.

<sup>1</sup>Lippi JRS. Autismo e Transtornos Invasivos do Desenvolvimento - Revisão histórica do conceito, diagnóstico e classificação. 2003. Available at: <http://www.autismo.med.br/pdf/Autismo/AUTISMO%20e%20Transtornos%20Invasivos%20do%20Desenvolvimento.pdf>