

Focus on Autism

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This issue of *Acta Neurobiologiae Experimentalis* is fully devoted to the issues of autism. The idea for this topic came from Professor Dorota Majewska, and some articles published in this issue are from participants of the symposium she organized in Warsaw in 2008. Debate on whether there is any real rise in the incidence of autism is very intense and complicated by changes in the qualification of various developmental problems as belonging to the spectrum of autism. Therefore we start this issue with the review of Pisula (Ref. 1), who draws a perspective on the spectrum of behavioral disturbances that are classified as belonging to the spectrum of autism. Additional information is given in the experimental paper of Kawa and Pisula (Ref. 2) on the novelty-seeking and locomotor behaviors of autistic children. They observe that the complexity of the environment creates a problem for autistic children, which may explain their withdrawal from the world. Furthermore, psychological symptoms are frequently paralleled with purely somatic disorders. Especially frequent are problems with digestion, detoxication and immunocompetence (Ref. 3). In fact, these features, based on poorly understood differences in genetic makeup of some children, may be the cause of their exaggerated reaction to some factors that are harmless to other children. An alarming finding is reported by Hewitson and coworkers (Ref. 4), showing that, in infant monkeys that were immunized, the amygdala does not show the normal pattern of maturation but is hypertrophied. Although these are only preliminary data, given the well-known role of the amygdala in generation of fear and other negative emotions, they support the possibility that there is a link between early immunization and the etiology of autism. DeSoto and Hitlan (Ref. 5) strongly argue for both the reality of the rise in the incidence of autism and the causal role of mercury in vaccines (specifically – thimerosal). While the reality of rise seems to be gaining still more arguments, a causal role of mercury from the medical sources is still debated, with DeSoto and Hitlan (Ref. 5) and Geier and coauthors (Ref. 6) coming to different conclusions than Shultz (Ref. 7). An experimental paper by Majewska and others (Ref. 8) brings important information, showing that individual susceptibility, in the form of incompetent detoxication, may be the cause of both higher accumulation of mercury and autism, but the causal relation between mercury and autism is not fully determined in light of these results. The problem of interaction of the genetic makeup of an individual, and exposure to heavy metals and vaccination, is further explored in the review by Geier and colleagues (Ref. 9). However, heated as it may be, the debate about the causal role of mercury should not make us stop investigating other possibilities, such as a lower tolerance of some children to a seemingly innocuous drug, for example acetaminophen (Ref. 10). The importance of a diversification of approaches of scientists to the problem of causes of autism is shown by the results of Kazek and coworkers (Ref. 11) that may indicate a role of the serotonergic system in this disorder. At the least, they may pave the way to an easy test that would quickly exclude patients that have only similar symptoms, but are not autistic. However, as serotonin is used by three major systems: central nervous system, platelets and the intestinal mast cells (the largest pool), then it may be hypothesized that a genetic variance of the immensely complex system of serotonergic receptors (16 types) may be a common cause of both digestive and emotional problems and the former could magnify the latter. What is more, a genetically-conditioned difference in susceptibility of a small fraction of children may make them vulnerable to the process of vaccination that is innocuous for the vast majority. Experiments of Hewitson and coauthors (Ref. 4) on monkeys again ring a bell about the safety of the generally accepted and necessary procedures of vaccination for a minority of children. I

am sure that only an open debate, searching for new mechanisms and many more experiments may solve the problem of what caused the rise of the incidence of autism that is becoming more and more real the more we investigate the problem.

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