

Altered levels of IL-18 in sera of autism patients as well as in reeler brain

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Autism spectrum disorder (ASD) is a neurodevelopmental disorder with onset in the first 3 years of life, with an incidence in Italy of 6–10 new cases per 10,000 children per year. Affected children show impaired social interactions, repetitive or stereotypical behaviors and interests.

Disruption/dysregulation of neuroimmune functioning, whether expressed in the patient or during the course of the individual's brain development, are implicated in Idiopathic ASD (1).

Quantitative and qualitative differences in immune function between children with ASD and typically developing controls have been demonstrated, including evidence for increased neuroinflammation and cytokine production in brain specimens obtained from individuals with ASD(2). Peripheral innate immune activation is starting to be recognized as a prominent feature of diseases affecting the central nervous system.(3) In a recent study we have shown that elevated levels of the pro-inflammatory cytokines including interleukin-1, interleukin-6, interleukin-12, interleukin-23, tumor necrosis factor-alpha and BDNF were present in sera of autistic patients (4). We have recently observed that the levels of IL-18 detected in the sera of autistic children were rather lower than those measured in the sera of matched healthy children. We decided to inquire if an alteration in the amount of IL-18 in different areas of the CNS and in the serum was also detectable in Reeler heterozygous mice, a mouse model of autism, compared to wild type mice. IL-18 was localized in different brain regions by immunohistochemistry and in whole brain homogenates by western blots. Quantitative analysis of the cytokine in serum was performed by ELISA.

References

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Keywords

Autism, Reeler mice, cytokines, IL-18, immunohistochemistry, ELISA.