Canitano R.

New experimental treatments for core social domain in autism spectrum disorders

Frontiers in Pediatrics | 2014

Abstract: Current therapeutics in autism spectrum disorders (ASD) only treat the associated symptoms, without addressing core social dysfunctions. A paradigm shift in research of the pathogenesis of ASD, its synaptic abnormalities and altered signaling in multiple dynamic systems, have led to new experimental treatments for treating the core social abnormalities of ASD. NMDA antagonists, especially memantine, have been introduced in clinical trials addressing glutamatergic transmission in children and adolescents with ASD. GABAergic signaling has been targeted in trials using the GABAB receptor agonist arbaclofen for ASD patients with promising results. Oxytocin has been recognized as implicated in social development and affiliative behaviors. Preliminary findings from clinical trials using oxytocin in children with ASD show encouraging improvements in social cognition, but larger studies are needed. In two of the single gene disorders associated with ASD, Insulin Growth Factor (IGF-1) is a new treatment that has been tested in Rett syndrome and Phelan-McDermid syndrome (Chromosome 22 deletion syndrome). IGF-1 has been demonstrated to reverse the reduction in the number of excitatory synapses and the density of neurons that characterize these conditions in animal studies and it is being introduced as an experimental treatment. As a novel approach to verify treatment efficacy, neural processing modifications were recently evaluated by fMRI after a pivotal response training intervention. Another study of neural changes in response to treatment examined variations in EEG signaling in patients after an Early Start Denver Model (ESDM) intervention.