

Hyperbaric treatment leads to significant clinical improvement in autism

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Autistic Disorder (autism) is part of a wider neurodevelopment disorders (called autism spectrum disorders or ASD), characterized by repetitive and restrictive behaviors in children, along with impaired social interaction and communication. Lately, the number of children suffering from ASD is rapidly increasing. Reports show that 1 in 150 children in the United States is affected by ASD. Still, there is no efficient treatment discovered for these patients, yet. Hyperbaric treatment has become more and more used for autistic children. It involves inhaling 100% oxygen at a pressure above 1 atmosphere (atm) in a pressurized chamber. Pressures above 2 atm are commonly used for carbon monoxide poisoning and wound healing (for example in diabetic patients). However, this is reported to be the first controlled trial to show the hyperbaric treatment efficacy and safety in autistic children.

This was a randomized, controlled, double-blind multicenter study, involving 6 centers in the USA. 62 autistic children were randomized to receive 40 hours of hyperbaric treatment at

1.3 atm and 24% oxygen (active treatment group) or slightly pressurized room air at 1.03 atm and 21% oxygen (non-treatment group). Three different scales were used to evaluate these children: the Clinical Global Impression (CGI) scale, the Aberrant Behavior Checklist (ABC) and the Autism Treatment Evaluation Checklist (ATEC).

Autistic children who received hyperbaric treatment at 1.3 atm and 24% oxygen for 40 hourly sessions had significant improvement in overall functioning ($p=0.0008$), receptive language ($p<0.0001$), social interaction ($p=0.0473$), eye contact ($p=0.0102$) in CGI score; irritability, stereotypy, hyperactivity and speech ($p<0.03$ for each) in ABC score; sensory/cognitive awareness ($p=0.0367$) in ATEC score, all compared with the control group. Also, the tolerability and safety were very good.

In conclusion, this is the first controlled trial to confirm that hyperbaric treatment at 1.3 atm 24% oxygen leads to significant clinical improvements in children suffering from autism, being safe and well-tolerated. \square

Comment on the paper:

Rossignol DA, Rossignol LW, Smith S, et al – Hyperbaric treatment for children with autism: b multicenter, randomized, double-blind, controlled trial. *BMC Pediatrics* 2009, 9:21