

## May Heat-producing Metabolic Hormones Prevail in Autism Treatment?

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### Editorial

Autism is a neurological development disorder with a genetic background that is triggered by infections, toxic chemicals, heavy metals, hypoxemia and proteins/peptides and characterized with disconnection in social and communication skills that is not precisely revealed yet [1]. In a prospective research made by 30 autistic patients aged between 2-18, eye contact in 80% of the cases, verbal language use and higher concentration rate were reported as the body temperature of the patients increased (in other words when they have fever; body temperature  $\geq 38.0^{\circ}\text{C}/100.4^{\circ}\text{F}$ ). These researchers claimed based on their report that connection of the nerve cells of these patients was fixed during high fever and these children gave better responses in terms of sociality by making communications [2]. Despite the fact that the reason of autism is not completely revealed apart from all advances in medicine, there are some researches claiming that inflammatory disease history of the mother during pregnancy may be one of the reasons of autism [3]. This probably means that a mother suffering inflammatory disease during pregnancy may possibly deliver an autistic baby. In such case (in other words, inflammatory disease history during pregnancy), brain nerve cells of the children may be adapted to high fever and thus they may have better responses in terms of sociality by making communications. The increase of the nerve transmission in autistic individuals with high fever may also bring the question "May high fever lead to a positive outcome by contributing to biochemical and physiological process?" into mind beyond the acceleration of nerve transmission. The hypothesis we are about to claim for answering this question as a biochemists and endocrinologists seems reasonable. As we all know, heat increases the speed of chemical and biochemical reactions (enzymes). One of the underlying biochemical mechanisms of the autism is high level of norepinephrine levels in these patients [4]. Enzyme metabolizing norepinephrine in biological systems is renalase [5]. The activity of the enzymes may increase with heat. Better social responses and communication skills of autistic children in case of high fever may be caused by increasing renalase enzyme activity and higher metabolism of norepinephrine by renalase that mediates the increase of norepinephrine levels within physiological borders and resulting

in better social responses and communication skills (One day renalase enzyme may prevail in the treatment of autism).

The most important matter in here is to find the answers for the questions "How can we increase the body temperature?" and "How much should we increase the body temperature without harming the patient?" if high fever contributes autism positively. An ancient Greek doctor claimed that fever could eliminate all kind of diseases including cancer [6]. Metabolic hormones are present in biological systems that cause an increase in body temperature such as thermogene (contributes to heat regulation during infancy [7]). As autism is diagnosed at approximately 2 ages, the measurement of this protein in newborns may provide insight to the doctor about the presence of autism [8], progesterone and irisin [6]. Progesterone causes an increase in body temperature [9]. Progesterone levels are close to zero till the ages of 11-12. Heating property of thermogene and progesterone may be benefited in the treatment of autism. Best options causing heat increase in autism treatment may be thermogene and irisin one day. Irisin is a hormone that the secretion of it increases after exercises [10]. Recoveries in autistic patients observed as a result of exercises may be caused by increasing irisine level at the end of the exercise and cause of irisine for a partial increase in body temperature. As we gather all aforementioned information together, we foresee that heat producing metabolic hormones may prevail in autism treatment in future.

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