TOHOKU FORUM for CREATIVITY

Crosstalk between neuroscience and clinical psychiatry with oxytocin in a neurodevelopmental disorder

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Autism spectrum disorders, a highly prevalent neurodevelopmental disorder, currently have no established treatment for its core symptoms. The disorders are characterized by two core symptoms including deficits in social communication and interaction, and repetitive and restricted behavior. Since accumulating evidence supports the concept that oxytocin can induce effects on social and affiliative behaviors, the neuropeptide is thought to be a potential therapeutic approach for deficits in social communication and interaction in individuals with autism spectrum disorders. In fact, our previous studies have revealed oxytocin-induced temporal improvements of autistic behavior and its neural basis such as brain activity. Ongoing studies are further conducting to examine several unresolved issues such as 1) clinically meaningful effects after long-term administrations of oxytocin, 2) bio-markers predicting individual differences in therapeutic effects in advance, and 3) potential genetic and molecular mechanisms of effects of oxytocin on autism spectrum behaviors. In the forum, integration of previous findings and introductions of ongoing studies will be presented to promote productive interactions with other speakers and audiences from various research fields.

References:

Yamasue H et al.: Integrative approaches utilizing oxytocin to enhance prosocial behavior: from animal and human social behavior to autistic social dysfunction. J Neurosci 32(41), 14109-14117, 2012.

Watanabe T et al.: Mitigation of Sociocommunicational Deficits of Autism Through Oxytocin-Induced Recovery of Medial Prefrontal Activity: A Randomized Trial. JAMA psychiatry 71(2), 166-175, 2014

Aoki Y et al.: Oxytocin improves behavioural and neural deficits in inferring

others' social emotions in autism. Brain 137(Pt 11), 3073-3086, 2014
Aoki Y et al.: Oxytocin's neurochemical effects in the medial prefrontal cortex underlie recovery of task-specific brain activity in autism: a randomized controlled trial. Mol Psychiatry 20(4), 447-453, 2015
Aoki Y, Yamasue H: Reply: Does imitation act as an oxytocin nebulizer in autism spectrum disorder? Brain, First published online: 11 March 2015.