Medical Xpress

Could nasal spray of 'love hormone' treat autism?

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Preliminary study of 7 children saw more activity in 'social' areas of the brain.

(HealthDay) -- Children with autism given a squirt of a nasal spray containing the hormone oxytocin showed more activity in brain regions known to be involved with processing social information, a small study found.

Researchers and other experts stressed that the study was small, involving only seven children, that the kids were given just a single dose of oxytocin and that they haven't yet studied whether the differences in the brain activity will translate into differences in the children's behavior.

And yet experts said they were hopeful that oxytocin, which is nicknamed the "love hormone" and is believed to be involved with

romantic love and human bonding, will one day be used to treat problems with reading social cues and social communications that mark the neurodevelopmental disorder.

"These findings add to a growing body of evidence that points to oxytocin and oxytocin-based therapeutics as having great potential for addressing core social deficits in autism," said Robert Ring, vice president for translational research at Autism Speaks, who was not involved with the study.

For the study, researchers from Yale University and colleagues gave seven children either a nasal spray containing oxytocin or an inactive placebo on two occasions.

While having their brain activity measured using a functional MRI, the kids were then given a series of tests to measure their responses to social cues and situations.

Children given the oxytocin showed increased activity in areas of the "social" brain, including the medial prefrontal cortex, the temporal parietal junction, the fusiform gyrus and the superior temporal sulcus. Their brain activity looked much more like a typically developing child's brain activity, noted lead study author Ilanit Gordon, a postdoctoral research fellow at Yale.

"For these seven kids, it seems the oxytocin really enhances brain activation in regions that are very important to how we function in the social world," Gordon said.

The research was to be presented May 19 at the International Meeting for Autism Research in Toronto.

What, if any, role oxytocin plays in autism isn't clear, Gordon said, but

it's been a tantalizing area of research. One small study from the 1990s found that people with autism tended to have lower blood levels of oxytocin, but those findings were never replicated, she said. More recent research found that people with autism are more likely to have a specific variation of a gene that codes for the oxytocin receptor, but what the variation means functionally isn't known.

In 2012, French researchers reported that people with high-functioning autism became more socially engaged after being given oxytocin.

And yet, there isn't nearly enough evidence to recommend parents seeking out oxytocin now, experts said.

"Although enormously interesting, these findings are not sufficient to warrant use of oxytocin in clinical practice for autism today," Ring said. "Rather, they give reason to be hopeful that down the road, the knowledge being generated by studies such as this can be translated into safe and effective medicines."

Gordon added that even if oxytocin is proven to be effective, parents shouldn't expect that autism symptoms will suddenly disappear. Instead, it's more likely that oxytocin could one day be used in conjunction with behavioral or other therapies, perhaps to enhance the ability of children to learn to pay attention to social cues.

The study is ongoing and will eventually include 40 kids aged 7 to 18, according to Gordon.

The data and conclusions of research presented at medical meetings should be viewed as preliminary until published in a peer-reviewed journal.

More information: The U.S. National Institutes of Health has more on

autism.