Medical Xpress

Fluoxetine increases aggressive behavior, affects brain development among adolescent hamsters

October 1 2012

Fluoxetine was the first drug approved by the FDA for major depressive disorder (MDD) in children and adolescents, and to this date, it remains one of only two selective serotonin reuptake inhibitors (SSRIs) registered for treatment of MDD in children and adolescents, despite reports that indicate this class of drugs is associated with side effects, such as agitation, hostility and aggression.

SSRIs have been amongst the most widely prescribed medications in psychiatry for over a decade. While there is a wealth of information regarding their effectiveness and safety in adults, considerably less data exists regarding whether they are safe for children.

A study published in *Behavioral Neuroscience* by Prof. Richard Melloni of Northeastern University shows that repeated administration of a low dose of fluoxetine to adolescent hamsters dramatically increased offensive aggression and altered the development of brain areas directly associated with controlling the aggressive response. "These data show clearly that repeated exposure to fluoxetine during adolescence directly stimulates aggressive responding and alters the normal development of two important brain systems, i.e., the serotonin and vasopressin neural systems, in a fashion consistent with the expression of the highly aggressive behavioral characteristics."

For over a decade, Prof. Melloni and his team have researched the neural

and behavioral consequences of illicit drugs and prescribed medications on the adolescent brain. Importantly, the data collected during the study indicates that clinically relevant doses of fluoxetine, when administered during adolescent development, can dramatically alter the wiring of brain circuits implicated in aggression control. "These data support the notion that interactions between adolescent fluoxetine and the developing vasopressin neural system might underlie fluoxetine-induced aggressive behavior and hint that serotonin, perhaps by acting on vasopressin neurons, may play a more permissive role in this response."

Provided by Northeastern University

Citation: Fluoxetine increases aggressive behavior, affects brain development among adolescent hamsters (2012, October 1) retrieved 2 May 2024 from
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