

Prenatal Cocaine Exposure and Problems in Self-Regulation

Claire D. Coles, Ph.D.

Director, Maternal Substance Abuse and Child Development Program
Department of Psychiatry and Behavioral Sciences
Emory University School of Medicine

Although some of the concerns about “crack babies”, raised during the cocaine epidemic of the early ‘90’s, have been put to rest, cocaine-exposed infants do seem to have more problems in one area, with arousal and behavior. Children born to substance using parents and growing up in their households are at risk in many ways. Many such children have behavior problems that begin early in life and persist. We have wondered whether these problems come from the prenatal exposure or the way in which the children are cared for after they are born. In an article published in April, 2007, we worked with colleagues in Buffalo, New York to examine how cocaine-exposed 7-month old infants self-regulate when they are in stressful situations. The investigators were concerned about the development of self control because infants born to women using cocaine may have regulation problems that affect their development. When the children become toddlers, self regulation problem lead to behavior problems later in childhood.

To investigate this problem, 154 (79 cocaine-exposed and 75 controls) 7-month olds were allowed to experience a mildly frustrating situation (being prevented from exploring an attractive toy for 30 seconds) while their heart rate (HR) and respiratory sinus arrhythmia (RSA) were measured. RSA, sometimes called the “vagal break” because it affects the vagus nerve, is a measure of how much control a person has over reaction to new and stressful situations. Researchers also looked at infant birthweight as a measure of infant health and at the mothers’ caregiving during the first year but these factors were not related to children’s self regulation.

In response to frustration, a negative experience, infants who were not exposed to drugs prenatally showed the expected response to stress. That is, their RSA rates decreased showing that they were able to regulate their physical response to stress. In contrast, the cocaine-exposed children showed a rise in RSA indicating that they were not able to self-regulate effectively. Other groups of infants with “regulatory disorders” show the same pattern of reaction and this kind of response is often associated with less adaptive behavior as the child grows older. This finding suggests the basis for some of the behavior problems that are often seen in children of substance abusers. Caregivers of such children should be aware that they may have more difficulty coping with frustration and plan how they can help children develop effective ways to learn self-regulation skills.

For further information regarding this article please contact Claire Coles, PhD. at the Maternal Substance Abuse and Child Development Project, Emory University School of Medicine, Department of Psychiatry and Behavioral Sciences, 1256 Briarcliff Road, N.E., Suite 309W, Atlanta, Georgia, 30306. You can also phone us at 404-712-9800 or visit our website at <http://www.emory.edu/MSACD>

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Reference

Schuetze, PM, Eiden, RD & Coles, CD (2007) Prenatal cocaine and other substance exposure” Effects on Infant Autonomic Regulation at 7 months of age. Developmental Psychobiology, 49, 276-289.