From Birth to Adolescence: Long-Term Effects of Alcohol Exposure

By Claire D. Coles, Ph.D.

Although Fetal Alcohol Syndrome (FAS) was first described in the United States in 1973 by Jones and Smith, prevention efforts have not been very effective in lowering the number of births affected by exposure to alcohol in pregnancy. In addition, most children affected by alcohol are not identified during infancy although early identification would allow treatment of both mothers and infants. Many health care professionals believe that fetal alcohol effects cannot be seen in newborn infants and that children must wait until the preschool period for treatment. Because the Emory Maternal Substance Abuse and Child Development Program has followed a cohort of children from birth to 15 years, we were able to test several questions about diagnosis of alcohol effects in the newborn nursery. The questions that we examined were: 1) Are there signs in newborns that indicate that they have been affected by alcohol exposure? 2) Is there any relationship between these signs and development in adolescence? 3) Could these signs be used for early identification of children needing services?

One hundred and ninety one babies were seen from 1980 to 1986 at Grady Memorial Hospital in Atlanta, Georgia, and the same children were seen again when they were 14 to 15 years old. About one third of these children were not exposed to alcohol because their mothers did not drink. The rest had mothers who drank at least two drinks a week during pregnancy with an average of 20 drinks a week. After the babies were born, we collected information on growth (birth weight, head circumference), facial features associated with FAS, and behavior on the Brazelton Neonatal Assessment Scale (BNBAS; Brazelton, 1984). The BNBAS gives information about paying attention, motor ability, state control, and reflexes. In teenagers we also looked at growth (height, weight, head circumference) and facial features. In addition we looked
at IQ, school performance and attention.

Right after birth, alcohol-exposed children weighed less than non-exposed babies and were less able to pay attention to adults. They also had more difficulty with state control and had less mature motor skills. When these children were teens we did not see differences in growth, although facial features associated with FAS were still visible. However, alcohol-affected children had lower IQs than other teens and were less able to maintain attention in a computerized task. They also had more difficulty with math at school than the other adolescents.

When we used a number of the newborn signs, birth weight, physical features and behavior on the BNBAS to predict development 15 years later, we found the following: physical factors associated with alcohol exposure as well as the babies' newborn behavior was significantly related to IQ scores, particularly nonverbal and speeded tests, to school achievement and to the ability to sustain attention.

While many other influences, particularly the caregiving environment, are very important in long-term development, these findings suggest that it would be possible to identify the most affected children before they leave the newborn nursery and to refer them for early intervention to prevent or reduce the long-term negative outcomes of prenatal alcohol exposure. The infant, the family and society in general would benefit from such interventions.

(If you are interested in knowing more about this study, see Alcoholism: Clinical and Experimental Research Vol. 27, February 2003. The article is called, "Neurobehavioral Consequences of Prenatal Alcohol Exposure: An International Perspective" and the authors are Riley, Mattson, Li, Jacobson, Coles, Kodituwakku, Adnams, and Korkman, pp 362-373.)
For further information regarding this article please contact the Maternal Substance Abuse and Child Development Project, Emory University School of Medicine, Department of Psychiatry and Behavioral Sciences, Emory West Campus, 1256 Briarcliff Road N.E., Suite 323-West, Atlanta GA, 30306. You can email us at msacd@listserv.cc.emory.edu, visit our website at http://www.emory.edu/MSACD, or phone us at 404-712-9800.

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