Under Recognition of Prenatal Alcohol Exposure in a Child Inpatient Psychiatric Setting

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Prenatal alcohol exposure results in significant risk for psychiatric disorders, yet under recognition of exposed individuals in psychiatric settings may be common. A chart review was conducted on 130 consecutive admissions to the child psychiatry inpatient service at a large university medical center. Thirty percent of child inpatients had documented prenatal alcohol exposure and, within the exposed group, 26% met full criteria for fetal alcohol syndrome (FAS). None of the children had been diagnosed with FAS prior to admission. Children with prenatal alcohol exposure were more likely to be hospitalized for externalizing disorders compared to unexposed children. Prenatal alcohol exposure may represent a key risk factor for many children with externalizing psychiatric disorders.
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Alcohol is a well-known neurobehavioral teratogen, producing a wide range of neurocognitive and physical abnormalities.[16] In the most severe cases, children exposed to alcohol prenatally have a pattern of birth defects identified as fetal alcohol syndrome (FAS) that is characterized by a distinct cluster of features including growth retardation, a particular pattern of facial features, and central nervous system (CNS) dysfunction.[4] Estimates of the number of live births in the United States meeting criteria for a diagnosis of full FAS range from 0.5 to 3 infants per 1,000.[5]

Studies reveal that individuals with FAS have neurocognitive deficits affecting multiple domains of functioning including response inhibition, attention, as well as memory and executive functioning.[12,16] In spite of the wealth of literature on the neurocognitive deficits of prenatally exposed individuals, there is comparatively little research on their psychiatric functioning. However, O'Connor and associates have reported precursors to psychiatric disorders including internalizing (depression, anxiety) and externalizing (hyperactivity, poor impulse control) behaviors as well as insecure attachment relations.[7,8,11] Other investigators have found significant differences in child symptoms of depression and psychosis when comparing alcohol-exposed children with age and sex matched controls.[13] Further, 87% of children referred to a Fetal Alcohol Spectrum Disorders Clinic were identified as having a psychiatric disorder.[6] Similar findings have been reported in a large survey of adolescents and adults, in which mental health problems were noted in 90% of the sample.[15] Moreover, structured psychiatric interviews with a smaller sample of adults revealed that 74% met criteria for a psychiatric disorder including major depression, bipolar disorder, or psychosis.[3] Despite the evidence of an association between alcohol exposure in utero and psychiatric risk, experience suggests that exposure, and even FAS, is infrequently identified in psychiatric settings. This omission is unfortunate due to the observations of treatment resistance to both medications and psychosocial therapies, as well as the frequent need for specialized educational services in this population.[9,10,14] Given that many children with prenatal alcohol exposure may be unrecognized in the mental health system, the purpose of the current study was: 1) to determine the number of children with a history of prenatal alcohol exposure among a general sample of child psychiatric inpatients, and 2) to compare alcohol exposed children to children without exposure on demographic and other characteristics, including psychiatric diagnoses.

Method

Measures and Procedures

The study was conducted through medical chart review of 130 consecutive child admissions to a large university medical school's child psychiatry inpatient service. The protocol was approved by the university IRB. All children received admission

evaluations using a standardized intake form. Data abstracted from this form included prenatal alcohol and other teratogen exposure, age, gender, ethnicity, living situation, and number of placements.

1. Fetal Alcohol Syndrome diagnosis.

All children on the service with documented prenatal alcohol exposure were routinely evaluated by a pediatric dysmorphologist for features of FAS using criteria set forth in the Diagnostic Guide for Fetal Alcohol Syndrome (FAS) and Related Conditions Manual.[2] This system uses a 4-digit diagnostic code reflecting the magnitude of expression of four key diagnostic features of FAS: (1) growth deficiency; (2) the FAS facial phenotype, including short palpebral fissures, flat philtrum, and thin upper lip; (3) neurodevelopmental deficits; and (4) gestational alcohol exposure. The magnitude of expression of each feature is ranked independently on a 4-point Likert scale with 1 reflecting complete absence and 4 reflecting the full manifestation of the FAS feature. If a child met criteria for FAS, this diagnosis was provided on Axis III of the diagnostic section of the discharge summary.

2. Psychiatric diagnoses.

Clinical diagnoses using criteria set forth in the **Diagnostic and Statistical Manual of Mental Disorders–Fourth Edition (DSM-IV)**[1] were used for each discharge diagnosis and were made by a multidisciplinary team that included experienced attending psychiatrists and psychologists working on the child inpatient service. Only Axis I primary diagnoses were considered in the chart review.

Results

1. Number of inpatients with a history of prenatal alcohol exposure.

Of the 130 charts reviewed, 30% (39/130) of the children had prenatal alcohol exposure, 4% (5/130) had prenatal cocaine exposure, and 2% (3/130) had exposure to other teratogens.

2. Comparison of prenatal alcohol exposed children to those without exposure

For the analyses to follow, children with other teratogen exposure (5 cocaine, 3 other) were eliminated. Thus, the sample included 122 children (n = 39 alcohol exposed, 83 non-alcohol exposed). Analyses included Chi square and t-tests for independent samples.

3. Participant characteristics.

Children with prenatal alcohol exposure were compared to those without exposure on variables of age, gender, ethnicity, living situation (biological parent[s], relative and non-relative foster care, group home, or adoption), and number of placements. Children with exposure did not differ from those without exposure on age, gender or ethnicity; however, they were significantly more likely to be living with nonbiological parents, χ^2 (4, N = 122) = 28.66, p < .001, and to have experienced more placements compared to children without exposure, t (120) = 3.43, p < .001. (See Table 1.)

4. Diagnosis of FAS.

Twenty-six percent (10/39) or 1 in 4 of the children in the alcohol exposed group met criteria for FAS; whereas none (0/83) of the children in the unexposed group met criteria, Fisher's Exact Test, p < .0001. It should be noted that, prior to admission, none of these children carried an FAS diagnosis.

5. Psychiatric disorders.

In comparing the alcohol exposed to the unexposed group on Axis 1 primary diagnoses, only those diagnoses were considered for which there was at least one patient with the diagnosis in each group. Using this criterion, two children were omitted from the alcohol-exposed group and 11 from the unexposed group. Groups were found to have statistically significant differences in the distribution of their diagnoses, χ^2 (5, N = 109) = 15.92, p < .01. The children in the prenatal alcohol exposure group were more likely to have received a diagnosis of attention deficit hyperactivity disorder (ADHD), intermittent explosive disorder (IED), or bipolar disorder; whereas, the children in the unexposed group were more likely to have received a diagnosis of autistic disorder, depression, or psychosis NOS. (See Table 1.)

Discussion

Study results revealed a significant number of children with prenatal alcohol exposure in a psychiatric inpatient setting of a large university medical center. Thirty percent of the child inpatients were found to have documented prenatal alcohol exposure. Furthermore, 1 in 4 of the alcohol exposed children met criteria for FAS,

TABLE 1. COMPARISON OF PRENATAL ALCOHOL EXPOSED TO UNEXPOSED CHILD INPATIENTS			
Variable	**Alcohol Exposed**	**Unexposed**	***p***
■Age in years (*M, SD*)	8.64 (2.21)	8.70 (2.12)	ns
Gender (%, *n*)			ns
Males	85 (33/39)	80 (66/83)	
Ethnicity (%, *n*)			ns
White Non-Hispanic	60 (23/39)	67 (56/83)	
Black Non-Hispanic	26 (10/39)	10 (8/83)	
Hispanic	10 (4/39)	13 (11/83)	
Other	4 (2/39)	10 (8/83)	
Living Situation (%, *n*)			.001
Biological parents	46 (18/39)	82 (68/83)	
Foster care	41 (16/39)	8 (7/83)	
Adoptive care	13 (5/39)	4 (3/83)	
Group home	0 (0/39)	6 (5/83)	
■Number of Placements (*M, SD*)	2.70 (2.34)	1.36 (0.90)	.01
Psychiatric Diagnoses (%, *n*)			.01
Attention deficit hyperactivity disorder	30 (11/37)	21 (15/72)	
Intermittent explosive disorder	27 (10/37)	11 (8/72)	
Bipolar disorder	32 (12/37)	20 (14/72)	
Depressive disorder	4 (1/37)	14 (10/72)	
Psychosis NOS	4 (1/37)	11 (8/72)	
Autistic spectrum disorder	3 (1/37)	23 (17/72)	

although none carried an FAS diagnosis prior to admission. The high incidence of FAS in this sample, 7.7% (10/130) or approximately 77 in 1000, is in dramatic contrast to the 0.5 to 3 per 1000 rate found in the general population in the United States.[5] Although studies have shown that a high percentage of prenatally exposed children have psychiatric problems, to our knowledge, this is the first study to show that these children may also be over-represented in inpatient psychiatric settings. Study results also support the assertion that children with psychiatric disorders are characteristically under diagnosed for FAS.

Although children in the prenatal exposure group did not differ from children in the unexposed group on variables of age, gender, or ethnicity, results confirmed the assumption that children with prenatal alcohol exposure are more likely to be placed outside of their biological parents' homes and to have encountered a higher number of placements than unexposed children.[10] Because of their neurocognitive deficits, children

with prenatal exposure to alcohol have complicated special needs requiring significant skill in caring for them. These children are frequently placed outside their biological homes since their biological parents often experience considerable stress and are frequently compromised by ongoing alcohol abuse or dependence. This hypothesis is supported by the recent findings of increased stress in the biological mothers of children with prenatal alcohol exposure, particularly those children with externalizing problems.[11] Multiple placements are experienced because caregivers often are over whelmed by the behavioral dysregulation of these children and have difficulty caring for them.

Consistent with some of the literature, this study demonstrated that children with prenatal alcohol exposure were more likely to have externalizing symptoms. These results are similar to previous findings that extreme mood liability, including early-onset bipolar disorder, is common in child inpatients with prenatal alcohol exposure.[6] Furthermore, although the characteristics and correlates of organically based disorders such as IED in children has not been subject to a great deal of research, our observation of an association with prenatal alcohol exposure may be important for future studies.

The study has limitations due to the modest sample size, the possibility of ascertainment bias, and the retrospective nature of the chart review. Nevertheless, findings highlight the need for training of mental health professionals in the identification of children with FAS and the provision of specific treatments to address the unique features of these children since early identification and treatment may be protective against more serious psychiatric outcomes.[14] Failure to recognize the broad and unique needs of these individuals with developmental disabilities and their families can lead to multiple treatment failures and consequent worsening of symptoms.

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