Improving School Success for Students with Fetal Alcohol Syndrome

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Abstract

The consumption of alcohol during pregnancy is the cause of physical and behavioral defects known as Fetal Alcohol Syndrome (FAS) and Fetal Alcohol Syndrome (FAE). The diagnosis of FAS is determined by the following three criteria: (1) growth retardation, (2) central nervous system involvement (i.e., mental retardation), and (3) abnormal facial abnormalities. This article will review the issues of cause, diagnosis/characteristics, incidence/prevalence, and educational implications for the child exposed to prenatal alcohol.

Key Words: Fetal Alcohol Syndrome, Fetal Alcohol Affects, Alcohol, Prevention, Resources, and Education

Introduction

The term Fetal Alcohol Syndrome (FAS) refers to physical and behavioral defects that are associated with maternal use of alcohol during fetal development (Jones & Smith, 1973). More recently Sokol and Clarren (1989) refined the definition of Fetal Alcohol Syndrome to include the following diagnostic conditions: overall growth retardation, structural or functional abnormalities of the brain, and characteristic patterns of facial abnormalities. For discernment of issues concerning maternal consumption of alcohol, this article will examine the issues of cause, diagnosis/characteristics, incidence/prevalence, and educational implications for the child exposed to prenatal alcohol.

Causes of FAS

Several factors seem to influence the outcome of maternal alcohol consumption. Weinber (1997) and Plaiser (1989) state that the timing of alcohol use during pregnancy and maternal age appear to be variables in the delivery of a FAS child. Other authorities suggest that the amount of alcohol consumed during pregnancy is a significant variable in this preventable birth defect. Olson, Streissguth, Sampson, Barr, and Bookstein (1997) describe the relationship between prenatal alcohol exposure and FAS as a dose-response relationship. Low levels of alcohol exposure tend to emerge as problems in behavior and adaptive function; whereas high levels more likely cause physical, mental, and structural problems.

Early research by Streissguth, Herman, and Smith (1978) suggested that maternal alcohol consumption of 89 milliliters or more of alcohol (the equivalent of six drinks per day) could result in a child being born with FAS. By comparison, Little (1977) and Abel (1985) found that daily consumption of as little as two drinks per day is associated with a wide variety of fetal problems, contributing to the diagnosis of Fetal Alcohol Effects (FAE). Supporting the dose-response relationship, some researchers report that binge drinking is associated with more retardation of brain development than drinking the same amount of alcohol during a long period (Bonthius, Goodlett, & West, 1988; Olson et al, 1997). However, Olsen, Pereira, and Olsen (1991) found that the low to moderate drinking was more detrimental than binge drinking, but still cautioned against binge drinking. After reviewing the accumulated research, Waterson and Murray-Lyon (1990) concluded that women should be advised not to consume any alcohol, but if they choose to drink, to limit their alcohol consumption to no more than one drink per day when they are either pregnant or planning a pregnancy. Finally, the Surgeon General has advised that all women should abstain from alcohol consumption during pregnancy because there is no "safe" level (US Dept. of HHS, 1991).

Diagnosis/Characteristics of FAS

Early studies have clearly documented that alcohol interferes with normal prenatal development (Clarren & Smith, 1978; Chernoff, 1977; Jones & Smith, 1973). For diagnosis of FAS, the Fetal Alcohol Study Group of The Research Society of Alcoholism proposed the following three criteria: Growth retardation, either prenatal or postnatal - with abnormally small-for-age weight, length, and/or head circumference; central nervous system involvement - with signs of abnormal brain functioning, delays in behavioral development, and/or intellectual impairment and; at least two of the following facial features - small head, small eyes or short eye openings, a poorly developed philtrum (flat area under the nose), thin upper lip, short nose or flattened midfacial area (Sokel & Clarren, 1989). Included on Table 1 are descriptions of the principal physical features of FAS and FAE (see Seward & Barber, 1991 for a detailed review of specific physical characteristics of FAS).

Table 1 here

Children exposed to alcohol during pregnancy may exhibit a variety of behavioral, physiological and cognitive problems (Handmaker, Miller, & Manicke, 1999; Weinber, 1997; Randall & Riley, 1995). McCance-Katz (1991) describes these problems as continuum-like. At the most severe end of the continuum are individuals with the unique facial features (FAS); on the other end of the continuum individuals manifest fewer or less obvious problems (FAE). Burgess and Streissguth (1992) note that FAE is not the less severe form of FAS, rather a child with FAE does not have the physical abnormalities of FAS. The cognitive and behavioral characteristics are similar for both, thus both have educational implications. Both terms Fetal Alcohol Effects (FAE) and Alcohol -Related Birth Defects (ARDR) have been used to classify the child exposed to alcohol (Conner & Streissguth, 1996). Most recently the Institute of Medicine (1996) suggested a new category of prenatal alcohol exposure that would replace the FAE nomenclature. The classification, referred to as "alcohol-related neurodevelopmental disorders" (ARND) focuses specifically on brain dysfunction in the presence of significant alcohol exposure.

Bower (1991) studied 38 males and 23 females ranging from the age of 12 to 40 years. From that sample, 43 had received a diagnosis of FAS before the age of 12 and the remaining 18 participants had a prior diagnosis of "possible fetal alcohol effects." All 43 participants displayed little evidence of facial abnormalities or low body weight and their IQs ranged from 20 to 102. However, the participants did exhibit the following characteristics: (1) lower academic achievement, specifically in the area of arithmetic, (2) nearly the entire population lived under some type of supervision, and (3) behavioral problems, such as poor judgment and problems with lying, cheating and stealing. Results of the study found that the participants diagnosed with FAS had a poorer prognosis than those with FAE did. Streissguth, Randels, and Smith (1991) examined IQ scores administered during adolescence of 40 older FAS or FAE patients. Fetal Alcohol Syndrome patients have IQ scores in the mildly retarded range during adolescence and adulthood while the patients with FAE had borderline IQ scores.

Despite the present criteria and characteristics of FAS and FAE, many professionals voice concern about diagnosing a child with FAS or FAE because there is no diagnostic test to determine the presence of either syndrome. Currently there is no way to describe fetal alcohol affected individuals in the *Diagnostic and Statistical Manual of Mental Disord*ers (DMS-IV) (APA, 1994). Because FAS and FAE are not quantifiable conditions, diagnosing a child with FAS or FAE is difficult because of fear of discriminatory labeling (Sokel & Clarren, 1989). Thus, Hoyme contends that we risk stigmatizing children and missing other diagnoses which requires medical follow-up if we too easily point to alcohol (Searchrist, 1995). Others (Streissguth, Barr, Kogan, & Bookstein, 1996; Streissguth & O'Malley, 2000) strongly contend that a diagnosis must be made for appropriate intervention to occur.

Incidence/Prevalence of FAS

The National Household Survey on Drug Abuse (US Dept. of HHS, 1991) estimated that 30.5 million (50.8%) women of childbearing age (15 to 44 years) used alcohol. In a 1991 study conducted by the Oklahoma State Department of Health-Maternal and Child Health Services, 45.2% of the mothers surveyed consumed at least some alcohol in the three months before conception. According to Serdula, Williamson, Kendrick, Anda, and Byers (1991) the national prevalence of alcohol use by pregnant women tended to be higher among smokers, the unmarried, college graduates and those aged 35 and up. The data from Oklahoma differs from Serdula et al. (1991) in that the proportion of mothers who completed college were 1.7 times more likely to drink during pregnancy and the mothers with less than 12 years of school were 1.3 times more likely to drink when compared to those with some college education. More globally, it has been noted that that the levels of harmful drinking by pregnant women has increased fourfold from 0.8% in 1991 to 3.5% in 1995 (CDC, 1997).

Incidence of FAS varies from 1 per 600 births (Harwood & Napolitano, 1985); 0.5 to 3 births per 1,000 (Weinber, 1997); 1 and 2 lve births per 1,000 (Abel & Sokel, 1987; Clarren & Smith, 1978; March of Dimes, 1997); to 5.2 cases per 10,000 live births (Cordero, Floyd, Martin, Davis, & Hymbaugh, 1994). According to a surveillance study reported by the Centers for Disease Control and Prevention the incidence of FAS among African Americans and Native Americans was about seven times and over 30 times higher respectively than among Caucasians (Chavez, Corder, & Becerra, 1988). The postulated incidence rate of FAS in Native Americans in the Northern Plains area was 8.5 cases of FAS per 1,000 live births. Contradictory to these findings, the Oklahoma State Department of Health data (1991) showed that Caucasian mothers were more likely to drink during pregnancy than their African American and Native American counterparts.

Abel and Sokel (1991) contend that there is a research consensus - FAS has a higher incidence among minorities in the United States. One reason for minority differences in FAS may be in the way ethnic groups metabolize alcohol. An early study conducted by Fenna, Schaefer, Mix, and Gilbert (1971) found that Native Americans metabolize alcohol differently than non-Native Americans, however, May (1994) rejects the myth that Native Americans "can't hold their liquor." Another reason for the higher incidence of FAS among minorities may be due to differences in ethnic facial features (Abel & Sokel, 1991). Two of the most common facial features associated with FAS are epicanthic folds - a prolongation of a fold of the skin of the upper eye over the inner angle of both angles of the eye and short palpebral fissures – small eyes. Native Americans have a genetic trait for epicanthic folds and African Americans have different palpebral fissure sizes than non-African Americans.

Despite the ambiguity in the incidence rate of FAS/FAE, there is no doubt the syndromes are costly to society. In 1987 Abel and Sokel estimated the annual cost of treating FAS in the United States as high as $321 million. In a revised estimate, Abel and Sokel (1991) estimated that about 1,200 African American and Caucasian children (Native Americans were not included in the estimate) are born with FAS each year in the United States. Based on this incidence rate the annual cost of treating this disorder was estimated to be $74.6 million, excluding the cost of FAE. More recently the annual cost estimates for FAS and related conditions in the United States range from $75 million to $9.7 billion (Institute of Medicine [IOM], 1996).

Educational Implications of FAS

The detrimental effects of maternal alcohol use are numerous, pervasive, and costly (Weinber, 1997). It is well documented that school-aged children with FAS or FAE have special educational needs (Alberta Department of Education, 1997; Hawks, 1993; Guinta & Streissguth, 1988). Programs that have addressed the cognitive and behavioral characteristics of a child with FAS or FAE have been more successful in "educating" the child than traditional education programs (Streissguth & Kanter, 1997; Kleinfield & Wescott, 1993; Kvigne, Struck, & West, 1992). Table 2 shows the cognitive and behavioral characteristics of a child with FAS or FAE. Keys to educational success include early intervention, emphasis on functional skills, teaching of functional communication skills and social skills, construction of a classroom environment that allows for learning, and collaboration with parents or caregivers (Ackerman, 1998).

Table 2 here

Burgess and Streissguth (1992) reported children with FAS or FAE have debilitating academic and behavioral problems but go undetected in most school programs. Although difficult, early diagnosis and intervention can help prevent secondary disabilities such as mental health problems, dropping out of school, and trouble with the law (The TRUIMP Project, 1999). Streissguth, Barr, Kogan, and Bookstein (1996) earlier defined secondary characteristics as the disabilities that an individual is not born with, but may acquire as a result of the central nervous system deficits associated with FAS. Streissguth et al. contends that if a diagnosis is made before the age of six the severity of the secondary disabilities could be decreased. Unfortunately, children with FAS or FAE are often not diagnosed because of the unavailability of trained medical personnel and lack of DMS-IV description. However, Burgess and Streissguth (1992) believe that school personnel can still identify (not to be confused with diagnosis) children they believe may have been exposed prenatally to alcohol. Streissguth (1997) believes that with a proper diagnosis or identification and if knowledgeable about appropriate programs, educators can guide the learning of appropriate functional skills and decrease the occurrence of secondary disabilities.

Burgess and Streissguth (1992) believe that an academic curriculum is important for FAS and FAE students but the curriculum must be complemented with "functional" living skills. Saint-Laurent and Lessard (1991) contend a functional curriculum is necessary for the complete education of the individuals with central nervous system involvement. The abilities of a FAS and FAE child varies because of the degree of central nervous system

involvement thus the functional curriculum will differ from child to child. However, this functional curriculum should teach basic life skills (riding a bus or filling out a job application), safety skills (crossing the road and recognizing stranger danger), and interpersonal relationships (interacting with peers) (Burgess & Streissguth, 1992; Giunta & Streissguth, 1988). Educational goals and objectives should go beyond the classroom as the development of independence warrants the acquisition of these basic life skills.

As noted in Table 2 one of the characteristics of FAS or FAE children is impaired language development. A child with FAS or FAE may experience difficulty with the following: distinguishing between talking and effectively communicating; understanding sequential verbal instructions, retrieving words, and drawing conclusions; going beyond stereotypic utterance, and/or; going "off-topic" in conversation and classroom discussion (Conry, 1996). Because of these difficulties, a major focus of education should be on developing social skills through communication acquisition. Communication skills can be enhanced in the context of social skill instruction or "teachable moments." For example, a FAS child may want a book and instead of asking for it, she or he grabs its. This is a "teachable moment" were the child can be taught appropriate communication and social skills.

Root (1997) believes that the first and most important goal of working with FAS or FAE children is the development of social skills, because until children with FAS/FAE have satisfying interpersonal relationships their academic progress will be blocked. Root (1997) suggests using multiple instructional methods with an emphasis on visual and kinesthetic learning methods because FAS/FAE children are often good kinesthetic learners (for example, placing a rope on the floor around the desk of a FAS/FAE child to demonstrate the idea of accepted and expected boundaries). Conroy (1996) suggests giving students direct and immediate feedback about unacceptable behavior. For example, label unacceptable behavior specifically, "The way you are poking the student is not acceptable. You need to stop doing that right now!" See Root (1997) and Conry (1996) for additional goals and techniques for improving social skills. Burgess and Streissguth (1992) state that although teaching communication and social skills is challenging it should not be viewed as add-ons, but essential components of the curriculum.

Equally important for educational success is the classroom environment (Streissguth & Kanter, 1997). Because students with FAS or FAE have fewer inner resources for coping with stress, the classroom should be low stress. Conry (1996) suggest the following strategies for the physical environment of the classroom: Organize classroom materials in closed boxes to avoid clutter; keep all of the child's work in one binder and color code the materials; use photographs to show where things belong; define and organize a space that belongs to the child; make all working areas separated and quite; arrange desks to minimize distractions; avoid harsh lighting; provide moderate heating and ventilation; use soothing colors; have consistent, predictable schedule of activities; and plan for transitions. See Osborne (1994) for additional strategies in developing an appropriate classroom environment.

Lastly, the educator should obtain information about the child's strengths and weaknesses from the parents or caregivers to allow for efficient delivery of education. Rainforth, York, and MacDonald (1992) believe that the best educational practices require children with special needs to be taught behaviors that help them participate fully in both home and school settings. Thus, the development of an appropriate curriculum warrants gathering information from the home environment. Unfortunately this is not always possible as mothers may be still abusing alcohol.

Conclusions

Fetal Alcohol Syndrome and Fetal Alcohol Effects are preventable, however one in five American women continue to drink during pregnancy (Handmaker, Miller, & Manicke, 1999). Appropriate educational programs are warranted for these children for long-term success to occur. Excellent resources now exist for the development of these programs and are provided in Table 3. As a mother of a FAS child so eloquently stated, "Successes take place when we stop trying harder and start trying differently" (Kleinfeld & Wescott, 1993).

Table 3 here

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