Fetal Alcohol Spectrum Disorders (FASD) and Seizure Disorders: A Basic Review

Author: Jerrod Brown
Contributors: Lisabeth Mackall, Pamela Oberoi, & Ellie Biglow

Fetal Alcohol Spectrum Disorders (FASD) is a condition that can cause serious lifelong impairments. The prevalence rate associated with prenatal alcohol exposure is believed to be 2%-5% of the population in the United States (5th ed.; DSM-5; May et al., 2009). The prevalence of FASD strongly correlates with lower socioeconomic status (Butcher, Mineka, & Hooley, 2004).

Seizure Disorders: An Introduction

Roughly 4% of all people will have a seizure at some point in life, and 2% will develop a condition of repeated seizures with no acute cause (low blood sugar, meningitis, etc.), known as epilepsy (Blume, 2003). Epilepsy is a common neurologic condition that impacts as many as 3% of the world’s population (Annegers, 2001). In fact, approximately 2 million individuals are affected by this condition in the United States (Velagapudi, Turagam, Laurence, & Kocheril, 2012). Some seizures cause involuntary muscle contractions, while others cause the individual to lose awareness of the world around them (Blume, 2003).

FASD and Seizure Disorders

Seizure disorders are more common in individuals with developmental disabilities (Camfield, & Camfield, 2007; Lindblom, 2001) such as Fetal Alcohol Spectrum Disorders (FASD). Individuals with an FASD experience a higher incidence of seizure disorders compared to the general population (Bell et al, 2010; Stephanie et al, 2010). Previous studies estimate that the prevalence of seizure disorders range from 3% to 21% in individuals with an FASD (Bell, 2009; Bell et al, 2010, Iosub et al., 1981; Majewski & Goecke, 1982; O’Malley & Barr, 1998; Olegard et al., 1979; Spohr & Steinhausen, 1987). Given the literature base suggesting that individuals with an FASD experience seizure disorders at rates significantly above those without an FASD (Sokol, Delaney-Black, & Nordstrom, 2003), additional attention may be warranted by clinicians, researchers, and policymakers.

Comorbid Conditions

Given the fact that the rate of comorbid conditions are high for individuals with FASD (Streissguth et al., 2004; Streissguth, et al., 1996) it should be considered as a possible contributing factor in incidents where FASD and seizures co-occur. One of the most common co-occurring conditions associated with FASD is Attention Deficit/Hyperactivity Disorder (ADHD). Approximately 60% of individuals with an FASD are also diagnosed with ADHD (O’Connor & Paley, 2009; Fryer et al., 2007). Just like the increased rate of epilepsy in people with an FASD, the prevalence of ADHD in individuals with a seizure disorder is significantly higher compared to those without the condition. In fact, the occurrence of ADHD in individuals with epilepsy has been reported to be at least 30% (Dunn & Kronenberger, 2005; Reilly, 2011). Given the fact that
ADHD is a common secondary condition associated with FASD, and the fact that seizure disorders are commonly associated with both conditions, further research is warranted.

Seizures and FASD can be directly and indirectly exacerbated by comorbid conditions. Other factors such as maternal malnutrition, prenatal substance use exposure, premature birth, and other adverse prenatal exposures may indirectly contribute to seizure problems in individuals with an FASD (Bell, 2009). It should be mentioned that a high percentage of women who consume alcohol during pregnancy may also ingest other substances including nicotine and/or drugs (Leonardson & Loudenburg, 2003; as cited in Bell, 2009). These are additional factors to be considered when addressing the topic of FASD and seizure disorders.

**FASD, Seizure Disorders, and Problems of Sleep**

Although sleep problems are common in individuals with FASD, very few studies have examined the correlations between FASD, seizure disorders, and problems of sleep. Data from one study suggested that sleep disruptions could be due to a variety of health and behavioral problems, such as hyperactivity, inattention, cognitive impairments, mood swings, and decreased growth (Chen et al., 2012). This same study found that sleep disturbances were related to the severity of cognitive loss, rather than to the specific diagnosis of the disability. Thus, researchers considered the sleep disturbances in children with an FASD to be similar to the sleep disturbances of children with other forms of severe brain damage. The most common sleep disturbances described by caregivers included difficulty falling asleep, waking frequently during the night, and early morning awakenings (Jan et al., 2007). The causes of sleep disturbances in individuals with Fetal Alcohol Spectrum Disorders are complex, since sleep problems may be secondary to emotional issues, health problems, and inadequate sleep activities. Without appropriate treatment of sleep problems, the effectiveness of all other interventions may be reduced.

One area of particular relevance to the topics of both FASD and seizure disorders is disturbed sleeping patterns. One study found that 85% of children with an FASD had some kind of sleep disturbance (Chen, 2012). As a result, this population typically struggles with sleep disturbances throughout life, which may exacerbate ancillary cognitive and neurobehavioral problems, such as hyperactivity and anxiety (Volgin, 2012), which in turn, may indirectly trigger a seizure.

**Conclusion**

The relationship between FASD and seizure disorders is complex and often misunderstood by professionals. Given the fact that past research has suggested that individuals with an FASD experience seizure disorders at rates significantly higher than those without the disorder, further research and attention is warranted by clinicians, researchers, and policymakers. Seizure disorders are one of the many secondary conditions affecting the lives of individuals with an FASD. Preventing the impact of co-morbid conditions, including seizure disorders in people with an FASD will not only reduce related costs for society, but also serve an important role in reducing distress in the lives of the individual and their caregivers. An important step toward an increased understanding of FASD and co-occurring seizure disorders is proper diagnosis. It is crucial that providers inquire about prenatal alcohol/drug exposure when patients have seizures,
ADHD, and sleep challenges. Once an accurate diagnosis is made, appropriate interventions and treatments can be implemented. Increased education and awareness related to the connection between FASD and seizure disorders by caregivers and professionals will not only serve to improve the quality of life for those impacted by such conditions, but also promote a better understanding and a more compassionate response from the community.

References


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About the Author:

Jerrod Brown, MA, MS, MS, MS is the Treatment Director for Pathways Counseling Center, Inc. Pathways’ focus is to provide programs and services that benefit individuals impacted by mental illness and addictions. Mr. Brown is also the founder and CEO of the American Institute for the Advancement of Forensic Studies (AIAFS). Email: Jerrod01234Brown@live.com

About the Contributors:

Lisabeth Mackall, M.S.CCC-SLP is a speech-language pathologist with nineteen years of experience treating adults and children with neurological impairments.

Pamela Oberoi is currently the manager of the refugee mental health program at Pathways Counseling Center.

Ellie Biglow is a Mental Health Practitioner with Pathways Counseling Center, Inc.