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Review

Epilepsy in autism spectrum disorder☆

Arlene Mannion, Geraldine Leader *

National University of Ireland, Galway, Ireland

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ABSTRACT

The purpose of this review is to provide an overview of the research on epilepsy in autism spectrum disorder (ASD). Topics explored are the prevalence of epilepsy in ASD, the importance of studying epilepsy, as well as the questionnaire measures used to assess epilepsy side-effects. Research on the relationships between epilepsy and parental stress and psychological distress, developmental regression, language and communication, adaptive behavior, social skills, autism severity, challenging behavior, comorbid psychopathology, gastrointestinal symptoms, sleep problems, sensory issues and quality of life are also discussed. Finally, recommendations for treatment are given as well as areas where future research is needed.

Contents

☆ This research was conducted by the first author under the supervision of the second author in partial fulfillment of the requirements for her Ph.D. degree in ABA at NUI, Galway, Ireland.

* Corresponding author at: Irish Centre for Autism and Neurodevelopmental Research, School of Psychology, National University of Ireland, Galway, Ireland. Tel.: +353 49 3434; fax: +353 91 521355.
E-mail address: geraldine.leader@nuigalway.ie (G. Leader).

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1. Introduction

In their review of the literature, Matson and Goldin (2013) found epilepsy to be the most researched comorbid physical condition in autism spectrum disorder (ASD). The authors commented on how there are issues that are yet to be determined about comorbid physical conditions, such as epilepsy. These include how behaviors are expressed and identified, how often the various conditions co-occur and how they cluster together. Intellectual disability is a comorbid condition in those with autism spectrum disorder. In their review of comorbidity in intellectual disability, Matson and Cervantes (2013) found that epilepsy was the second most researched topic of comorbid medical problems. The authors commented that many of the papers focused exclusively on the one comorbidity of epilepsy. It is important for research to incorporate other comorbid conditions also. This review focuses on the relationship between epilepsy and other comorbid conditions in ASD, such as comorbid psychopathology, gastrointestinal symptoms and sleep problems.

Matson and Neal (2009) conducted a literature review on seizures and epilepsy and their relationship to ASD. The review explored prevalence, nosology, etiology, and autistic regression. The review also focused on recent trends in research. The current review aims to expand on Matson and Neal (2009), by focusing on the relationship between epilepsy and other variables in ASD, such as language and communication, autism severity challenging behavior as well as comorbid conditions. While we discuss topics explored in Matson and Neal (2009) such as prevalence and autistic regression, where possible we will include articles published since 2009. The current paper will focus on treatment of seizures, and areas where future research can be conducted.

2. Epilepsy and ASD

2.1. Prevalence

ASD and epilepsy co-occur in approximately 30% of individuals with either ASD or epilepsy (Tuchman, Cuccaro, & Alessandri, 2010). Matson and Neal (2009) discussed prevalence of epilepsy and ASD in their review. The authors commented on the need for systematic studies on prevalence of ASD and epilepsy. Mouridsen, Rich, and Isager (2013) investigated the prevalence of epilepsy in individuals with Asperger's syndrome, and found that 3.9% of individuals had a diagnosis of epilepsy. This was found to be a significant increase, when compared to the general population, where 2% of the population is estimated to have a diagnosis of epilepsy. Jedrzejczyk-Goral, Flisiak-Antonijczuk, and Kalinowski (2013) examined the frequency of different types of seizures. It was found that complex partial and generalized seizures were the most common types of seizures. The researchers also found that in electroencephalogram (EEG) records, generalized seizures and abnormal activity appeared mostly in temporal and parietal areas of the brain.

Lau et al. (2013) investigated autism traits in individuals with agenesis of the corpus callosum (AgCC). It was found that 45% of children, 35% of adolescents and 18% of adults exceeded the predetermined autism screening cut-off. The authors recommended that individuals with AgCC should be screened for ASD. They also recommended that disorders of the corpus callosum be considered in autism diagnostic evaluations. Matsuo, Maeda, Sasaki, Ishii, and Hamasaki (2010) retrospectively examined patients with epilepsy. It was found that 15.2% of those with epilepsy had ASD. ASD was detected after the onset of epilepsy in 46.8% of patients. The most frequent type of seizure was a complex partial seizure, where 68% of those with ASD presented with this type of seizure. The activity on EEG was located in the frontal lobe in about half of patients. It was found that 85% of seizures occurred before the age of 10.

2.2. Importance of studying epilepsy

Due to comorbid physical conditions in ASD, Matson and Goldin (2013) commented on the importance of medical examinations for children identified with ASD. It is important that epilepsy is diagnosed if present, so that seizures can be treated appropriately. A key aim of this review is to examine the relationships between epilepsy in ASD and other variables, such as challenging behavior, autism severity and adaptive behavior. By understanding more about the relationships between epilepsy in ASD and these variables, the effect epilepsy has on challenging behavior, autism severity and adaptive behavior can be better understood. Also, the relationships between epilepsy and comorbid conditions such as sleep problems and gastrointestinal symptoms can be better understood. In investigating any comorbid condition, it is important that the focus is on learning more about it, to provide the best possible treatment for children, adolescents and adults with ASD and a comorbid condition or multiple comorbidities.