



The Impacts of Childhood Epilepsy in School Children

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Authors' contributions

This work was carried out in collaboration between all authors. Authors LK and IVP conceptualized the study. Authors LK and AR developed the framework. Author AR managed literature searches. Authors IVP and CK reviewed and revised successive drafts of the manuscript. Author IVP provided background guidance. All authors read and approved the final manuscript.

Review Article

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ABSTRACT

This literature review highlights the psychological and social impact of epilepsy, as well as the behavioral problems in school children with epilepsy. From the study of the literature it is found that children with epilepsy have an increased risk of psychological disorders and hyperactivity compared with healthy children, in particular, they have a greater risk for developing emotional disorders.

Keywords: Epilepsy; behavioral problems; psychopathology.

1. INTRODUCTION

Epilepsy is the most common neurological disorder of childhood. It is a chronic disease that it is attributed to a brain disorder characterized by the presence of seizures [1]. It is estimated that over 60 million people worldwide suffer from epilepsy and up to 5% of the

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population will have at least one seizure during their lives. In Greece it is estimated that approximately 100,000 to 120,000 people suffer from epilepsy [2]. A research study estimated that in Greece 40 new cases of epilepsy are appear per 10,000 people per year and the risk is extremely higher in childhood and adolescence [3].

Epidemiological studies conducted in the last thirty years have shown that behavioral disorders in children with epilepsy are 4.8 times greater than children from the general population and 2.5 times greater than children who suffer from other chronic disease in which it is not involved the central nervous system [4]. These problems if not diagnosed and treated early, can adversely affect the quality of life and psychosocial development of children with epilepsy. Thus, they can lead to difficulties in school, emotional and social functioning of children and adolescents and can have long term effects on psychosocial adjustment in adulthood. Studies have shown that mental health problems of children with epilepsy often remain undiagnosed and untreated in children [5].

The purpose of this review study is to identify the behavioral problems of school children with epilepsy and risk factors that exacerbate these problems.

1.1 Method Review

Performed literature search in electronic biomedical database "Medline" and via the search engine "Google scholar" with keywords: epilepsy, behavioral problems, psychopathology, for the period 2001-2012. Exclusion criteria of articles were the language, except English and Greek.

2. CHILDHOOD EPILEPSY IN BRIEF

The term epilepsy is used to describe situations which have in common a tendency for the occurrence of paroxysmal clinical events known as seizures. The seizure is the appearance signs and symptoms due to an abnormal excessive or an synchronous neuronal activity of the brain [6].

In treatment of children with epilepsy, the choice drug was evaporating which can be administered either as a monotherapy or in combination with other antiepileptic drugs. The other drugs used are oxcarbazepine, carbamazepine, phenytoin, sodium valproate, clonazepam and lamprigini [7,8].

The major issues which exhibit in school the epileptic children are [6,9]:

- Intense impatience that can get most often to disturb the other class mates
- Slowness in execution which can affect their homework
- Concentration of attention decay
- Fatigue.

For the benefit of the child the parents need to discuss these problems with their teachers. It is important, however, to inform the teacher of the school for the child's condition in order to be able to cope with any unexpected situations and to show understanding on any specifics.

3. MENTAL DISORDERS IN CHILDHOOD EPILEPSY

Generally, the largest number of patients presents no mental disorders or low intelligence. Children and teens with epilepsy may attend regular school without difficulties. Among the common population both healthy and epileptic the intelligence levels can be low, medium and high [6].

The review of the literature indicates that the most common disorders appeared at children with epilepsy are mood disorders and especially depression, anxiety disorders and disruptive behavior disorders such as attention deficit hyperactivity disorder (ADHD). Moreover, another category of children with epilepsy, children with symptomatic epilepsy and epileptic syndromes such as infantile spasms, Landau-Kleffner syndrome, Syndrome Lennox-Gastaut, West and Dravet syndrome have high levels of developmental delay , hyperactivity and autistic symptoms [2,4].

Studies have shown that children with epilepsy are at an increased risk of developing emotional and behavioral problems compared with healthy children and with children who suffer from non-neurological chronic diseases [10,11].

Findings of recent studies in children with new onset idiopathic epilepsy showed higher rates of psychopathology than healthy children. Jones et al. [12] studied children aged 8-18 years with epilepsy duration of less than one year, idiopathic etiology and healthy children. The results showed high rates of behavioral problems in children with epilepsy. Specifically, 22.6 % of children met the diagnostic criteria for depression, 35.6% for anxiety disorder and 26.4% for attention deficit hyperactivity disorder. The corresponding values for healthy children were 4 %, 22% and 10 %, respectively.

4. ATTENTION PROBLEMS AND HYPERACTIVITY

Association between attention deficit hyperactivity disorder and childhood epilepsy has also been demonstrated by a previous study. The main characteristics are severe and persistent symptoms of inattention, hyperactivity and impulsivity. A smaller percentage of children (10-15%) have the diagnosis of the predominantly inattentive type and 5% of a predominantly hyperactive-impulsive type [13].

According to researchers children with epilepsy have more attention problems and hyperactivity from healthy children and children who suffer from other chronic disease. Attention problems in epilepsy may be part of the ADHD syndrome or a characteristic of other conditions or disorders. A number of children may have both epilepsy and ADHD, while others may have a dysfunction of the central nervous system who cause epilepsy and attention difficulties. Moreover, attention problems may be secondary and may follow epilepsy [14].

The main risk factors for attention problems in children with epilepsy are low intelligence, concomitant neurological damage and side effects of antiepileptic treatment [15].The frequency of seizures, perhaps, is an important risk factor because frequent generalized seizures are associated with attention problems and low capacity information processing [4].

5. EMOTIONAL DISORDERS

Emotional disorders are common in children with epilepsy, as studies indicate that the rate of these disorders in children with epilepsy ranges from 12% to 31% [2,4]. Despite the increased levels of psychopathology most parents and children with epilepsy haven't addressed to a specialist for treatment and improvement of their symptoms. Not seeking for psychological aid and treatment can have negative effects on quality of life and psychosocial development [16].

The most important reason for not seeking psychological treatment is the fear of social stigma of psychological disorder beyond the stigma of epilepsy. Also, the difficulties of these children are not easily understood by parents, teachers or even specialists since aren't often accompanied by overt behavioral difficulties. Children with anxiety or depressive disorder won't create serious problem in the classroom [17].

Moreover, the most common emotional disorders shown by children with epilepsy are anxiety disorders and depression.

5.1 Anxiety Disorders

General anxiety disorders in children and adolescents are reported as the most frequent psychiatric diagnoses and the incidence is estimated at 5% to 18% in the general pediatric population, with a higher incidence in prepubertal and puberty [18].

The fear of seizures or accidents during the crisis may lead to a different type of agoraphobia. Feelings of shame for a potential crisis in public can lead to social phobia and result in a limitation in social activities. Also, fear of seizures in children may be associated with separation anxiety from parents or home [19].

Moreover, parents of children with new-onset epilepsy had higher levels of stress than parents of children already monitored by the clinic. In contrast, children with debutante epilepsy had significantly lower anxiety than children with already diagnosed epilepsy. This, according to the researchers, shows that parents and children face different situation and that probably the effect of the disease in children is associated with growing anxiety [20].

5.2 Depression

The frequency of depression in the general pediatric population is estimated at around 1% to 3% in children and 4% to 8% in adolescents. In children with epilepsy rates are higher, ranging between 23% and 26%. [2,19].

The main symptoms of depression seen in children with epilepsy are irritability, anger, drop in school performance, but also anxiety, low self esteem, feelings of guilt, somatic complaints [21].

Also, a number of studies have examined the presence of suicidal ideation in children and adolescents with epilepsy and showed that children and adolescents with epilepsy think more about suicide than healthy children. This probably means that children with epilepsy exhibit more severe and complex forms of depression than children in the general population [19,21].

In addition, psychosocial and family factors such as stigma and its effects on life quality, family history of depression, maternal depression and relationships within the family, has been shown to contribute to the development of depression in children with epilepsy [2].

6. THE EPILEPTIC CHILD IN SCHOOL

Epilepsy consists of clinical syndromes, characterized by different frequency and severity and the almost whole number of the participants has missed at least one school day due to epilepsy [17]. Epilepsy contributes to school absences and affects in a certain degree the children's participation in school activities, especially in Greece [3,17]. The great number of lost school days has been found to be related with shorter duration of the disease, greater disease severity, and lower educational level, insufficient knowledge of epilepsy, greater seizure worry and overprotection [6,22]. Non-participation in specific activities is generalized seizures, greater seizure worry, overprotection and stigma [3,22]. Also, a great number of the parents are seemed not to inform the school of their child's disease and even greater number of the children tended not to reveal their disease to their peers [3,22].

Not only the knowledge and perceptions about the disease, but also how to deal with a seizure is important for the safety and the improvement of the quality of life for those children. From this point of view, the knowledge and the perceptions of teachers are particularly important for children, because a significant part of time and activities is spent out in their presence. Therefore, the teacher training on how to react to an emergency situation will increase the safety of children, reduce their isolation and help teacher to participate effectively in response to an epileptic crisis [23].

Generally, insufficient knowledge about epilepsy and its causes leads to stigmatization and negative stereotypes about people with epilepsy even in modern Western societies. According to studies, the stigma attached to epilepsy can lead a child to poor self-esteem, rejection by peers, avoiding activities appropriate for their age and social isolation [24]. Also the stigma in childhood epilepsy is associated with a poorer quality of life and adjustment problems, particularly in adolescents [25].

The stigma or fear of stigma may also affect the behavior of parents and the consequences are negative for the child. When the reaction of parents is negative the child learns to be ashamed of the disease, and when parents think that epilepsy would cause hostile reactions the child learns that epilepsy is something should not be discussed [26].

7. CONCLUSION

Children with epilepsy have more frequent symptoms of emotional disorders, hyperactivity, conduct disorders, peer problems and total difficulties than healthy children. This review is mainly highlighting the increased number of risk factors that associated with epilepsy in children suggesting that these children have to face more difficulties than their peers.

Therefore, development and implementation of training programs for teachers and other civil servants are important factors for improving the safety of children with epilepsy and promoting their quality of life.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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