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Psychiatric Comorbidity in Children and Youth with Epilepsy

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Abstract **Original Research Article**

Introduction: Psychiatric comorbidities of epilepsy are common. Yet psychiatric disorders are often under-prevented, under-diagnosed, and under-treated. ***Objectives*:** to assess the prevalence of different psychiatric disorders in children and adolescents with epilepsy and to determine associated risk factors. ***Methods:*** This is a descriptive and analytical cross-sectional study of patients treated for a psychiatric disorder comorbid with epilepsy, conducted in the Child Psychiatry Department at Ar-Razi Hospital in Salé, Morocco, from January 1st to December 31st, 2022.Data were collected using a questionnaire concerning the socio-demographic and clinical characteristics of our patients. Psychiatric disorders were assessed using the diagnostic criteria of the DSM-5 psychiatric manual. ***Results*:** Our study included 70 patients followed for epilepsy comorbid with a psychiatric disorder. The most common psychiatric comorbidities were intellectual development disorder, autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD). 72.9% suffered from a single psychiatric comorbidity, while 27.1% had two or more. Several sociodemographic and clinical factors were associated with different psychiatric disorders. Gender was associated with conduct and behavior disorders, with males predominating (p=0.043), while age was significantly associated with psychosis (p=0.047). Mood disorders were associated with the type of epilepsy. Seizure recurrence was associated with behavioral and anxiety disorders. ***Conclusion***: The co-morbidity of psychiatric disorders and epilepsy in children and adolescents is common, underscoring the importance of early detection for improved management.

Keywords: Epilepsy, Psychiatric Comorbidities, Children and Adolescents, Prevalence, Risk Factors.

I. INTRODUCTION

Epilepsy is one of the most common neurological disorders in children, with a lifetime prevalence of 5.8 to 15.4 per 1000 people [1].

The International League against Epilepsy defines epilepsy as the occurrence of two or more unprovoked seizures more than 24 hours apart, or one unprovoked seizure with a risk of recurrence exceeding 60% [2]. Its etiologies are diverse, and it is classified according to the type of seizure, as generalized or focal epilepsy [2].

Epilepsy is a public health issue, and the prognosis of this pathology remains problematic [3]. Epilepsy, even in its benign forms, is likely to hamper a child's cognitive and social development, and the earlier the onset of the disease, the greater the impact [3].

Worldwide, comorbidity between psychiatric disorders and childhood epilepsy is common [4, 5], which may be explained by the pathophysiology and chronic nature of the disease [6]. An estimated 43% of children with epilepsy present with psychiatric disorders [7]. These comorbidities have a considerable impact, not only in terms of psychological suffering and quality of life, but also on seizure control and the efficacy and tolerance of antiepileptic treatments [8].

Yet psychiatric disorders are often under-prevented, under-diagnosed, and under-treated [4]. Only 33% of children receive treatment for their psychiatric disorders [9]. The objectives of our study is to assess the prevalence of various psychiatric disorders in children and adolescents with epilepsy and to determine the associated risk factors.

II. MATERIALS AND METHODS

1) Study type and Population:

This is a descriptive and analytical cross-sectional study conducted over a seven-month period from January 1 to December 31, 2022, of patients followed for a psychiatric disorder comorbid with epilepsy at the Child Psychiatry Department, Ar-Razi Hospital, Salé, Morocco.

2) Eligibility Criteria:

- **Inclusion Criteria**
  - Patients aged 3 to 17 years followed in the Child Psychiatry Department.
  - Patients diagnosed with epilepsy and a concurrent mental disorder.
  - Adherence to anonymity and confidentiality of data.

- **Exclusion Criteria**
  - Subjects over 18 years of age were excluded from the study.

3) Data Collection and Measuring Instrument:

For this purpose, we used a questionnaire to gather sociodemographic and clinical data from our patients, including age, sex, marital status, level of education, residence, socioeconomic status, type of seizures, age of seizure onset, duration of epilepsy, prescribed treatment, personal and family history of epileptic seizures, and mental disorders.

Psychiatric disorders were assessed using the diagnostic criteria from the DSM-5 psychiatric manual.

4) Statistical Analysis:

Qualitative variables were expressed in numbers and percentages, and quantitative variables were expressed as mean +or- standard deviation because the variable distribution was symmetrical.

Univariate analysis was performed using the chi-square test or Fisher's exact test, depending on the test conditions.

Data analysis was performed using jamovi 2.3.19 statistical software.

III. RESULTS

Our study included 70 patients with epilepsy comorbid with one or more psychiatric disorders. The characteristics of the total sample were as follows (Table 1). They had an average age of 9.13 years, were all single, predominantly male (74.3%), and from urban areas (95%). Regarding educational level, 45.7% were not attending school.

Medical and surgical histories were reported in 24.3% of our patients, including conditions such as asthma (4.3%), anemia (2.9%), hypothyroidism (2.9%), encephalopathy (2.9%), medulloblastoma (1.4%), Tuberous sclerosis of Bourneville (1.4%), phenylketonuria (1.4%), and pyelourethral junction syndrome (1.4%).

Table I: Socio-demographic characteristics of our patients

Characteristics	n	%
Age range		
under 11 years	44	62.9%
≥11 years	26	37.1%
Sex		
Male	52	74.3%
Female	18	25.7%
Educational level		
Never attended school	32	45.7%
Primary school level	30	42.9%
Secondary school level	8	11.4%

- **Clinical Characteristics of Epilepsy:**
  - Mean age at diagnosis was 3.86 years.
  - Average duration of the disease was 5.31 years.
  - Family history of epilepsy was reported in 15.7% of cases.

Table II: Clinical characteristics of epilepsy

Characteristics	n	%
Types of seizures		
Generalized	36	51.4%
Focal	27	38.6%
Unclear	7	10%
Recurrence of epileptic seizures		
Yes	43	61.4%
No	27	38.6%
Electroencephalogram (EEG) tracing		
Not done	5	7.1%
Normal	14	20%

Characteristics	n	%
Pathological	51	72.9%
Treatment of epilepsy		
Sodium Valproate	50	71.4%
Clobzam	15	21.4%
Carbamazepine	8	11.4%
Lamotrigine	8	11.4%
Phenobarbital	2	2.9%
Vigabatrin	1	1.4%

- **Psychiatric Comorbidities:**

Among epileptic children and adolescents, 72.9% suffered from a single psychiatric comorbidity while 27.1% suffered from two or more (Figure 1).

The most frequent psychiatric comorbidities were intellectual developmental disorder (IDD), autism spectrum disorder (ASD), and attention-deficit/hyperactivity disorder (ADHD) (Table 3).

Family history of psychiatric disorders was reported in 31.4% of cases.

Table III: Psychiatric comorbidities

Characteristics	n	%
Intellectual disabilities	30	42.9%
Autism spectrum disorder	17	24.3%
Attention deficit/hyperactivity disorder	15	21.4%
Conduct disorder	8	12.9%
Specific learning disorder	6	9.1%
Anxiety disorder	4	5.7%
Depressive disorder	3	4.3%
Schizophrenia	3	4.3%
Addictive disorder	2	2.9%
Pica syndrome	1	1.4%

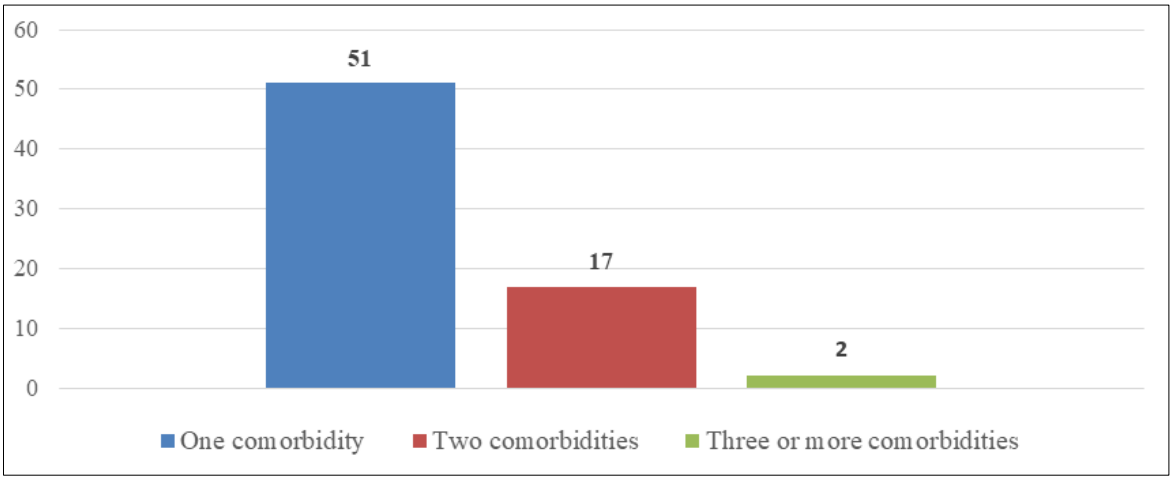

Figure n° 1: Distribution by number of psychiatric comorbidities

- **Factors Associated with Psychiatric Disorders in Children and Adolescents with Epilepsy**

Several sociodemographic and clinical factors were associated with different psychiatric disorders in a univariate analysis. Gender showed an association with behavioral and conduct disorders, with males predominating (p=0.043), while increasing age was significantly associated with psychosis (p=0.047). Mood disorders were linked to epilepsy type. Seizure recurrence was associated with behavioral and anxiety disorders.

IV. DISCUSSION

The prevalence of psychiatric disorders in the pediatric population with epilepsy is high (10, 11). Indeed, psychiatric comorbidities are nearly five times higher in children and young people with epilepsy compared to the general population [11].

However, the psychiatric comorbidities most frequently reported in the pediatric epilepsy population are depression, anxiety and ADHD [1-12].

In our study, around ¼ of our patients suffered from ADHD. A meta-analysis showed that the prevalence of ADHD was 2.5 to 5.5 times higher in children and adolescents with epilepsy than in healthy groups [13]. The high co-occurrence of the two disorders may be explained by a common neurological pathophysiology affecting cognitive and behavioral functions [1]. Some studies suggest that children with epilepsy have higher prevalence rates of inattentive than combined ADHD [14].

The association between autism and epilepsy is well known. In our sample, 21.4% of our patients suffered from ASD, while Serra-Pinheiro *et al*., [10], found a slightly higher prevalence of 26.8%. A family history of autism is common in children with epilepsy [10]. It is therefore possible that they share common heritability and risk factors [15].

The etiology of these comorbidities in children with epilepsy is multifactorial, involving psychosocial as well as neurobiological factors [16, 17].

In our case series, gender was associated with conduct and behavior disorders, with males predominating (p=0.043), in line with the findings of Burton *et al*., [18]. However, increasing age was significantly associated with psychosis (p=0.047), in line with the literature [6].

Nevertheless, in our study, behavioural disorders were associated with seizure recurrence. This may be linked in part to the epileptic seizure (post-critical state or underlying brain lesions). Seizure management has been described in the literature as a good predictor of improved behavior in children with epilepsy [19].

Anxiety disorders have also been associated with seizure recurrence. Children with epilepsy may be predisposed to anxiety due to the unpredictability of seizures and their consequences.

There was also a statistically significant difference between the type of epilepsy and mood disorders. According to the literature, children suffering from complex partial or absence seizures were five times more likely to develop a depressive or anxiety disorder [20]. Additionally, comorbid anxiety and depressive disorders were common in children with epilepsy [20].

Our study did not include a large number of patients; nevertheless, these preliminary results encourage us to consider psychiatric assessment in epileptic patients and, if necessary, to request a liaison psychiatric consultation in epileptology units.

V. CONCLUSION

The comorbidity of childhood epilepsy and psychiatric disorders is common. Early diagnosis and multidisciplinary management of psychiatric comorbidities in children and adolescents with epilepsy are essential to improve prognosis.

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