

**The clinical convulsive profile in children admitted in the Department of  
paediatrics in Qena University Hospital; Epidemiological study**

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**Abstract:**

**Background:** Seizures are a potentially life threatening problem with a variety of causes.

**Objectives:** The current study aimed to recognize different patterns of convulsions among children and identify different causes of convulsions in children with detection of the frequency of these causes.

**Patients and methods:** We evaluated 400 children who presented with seizure disorder. Variables including demographics, clinical presentations, laboratory tests, brain imaging studies, electroencephalography and hospital course were assessed and compared between patients.

**Results:** The mean age was  $3.9 \pm 3.5$  years, 238 (59.5%) were males. Generalized tonic-clonic (GTC) seizures were the most frequent type of seizures (62.5 %). The most frequent etiology for seizures was CP in 30 patients (7.5%) followed by CNS infection in 16 patients (4%). Family history was positive in 44 patients (11%).

**Conclusion:** The prevalence of seizures in children was common in males than females and common in preschool children than older children. The generalized tonic clonic seizures were the most common seizure type in children. Cerebral palsy and CNS infection were common causes of seizures. EEG and neuroimaging study are helpful in diagnosis of causes of seizures.

**Key Words:** Seizures; Epilepsy; Electroencephalography (EEG).

**Introduction:**

Seizures are defined as a transient occurrence of signs and symptoms due to abnormal, excessive, or synchronous neuronal activity in the brain characterized by abrupt and involuntary skeletal muscle activity (Trinka et al., 2015)

Seizures are a potentially life threatening problem with a variety of causes. Thorough and timely

evaluation of seizures is necessary to identify and treat the underlying etiology, thereby reducing potential morbidity and mortality. (Aziz et al., 2015). The aims of the current study were to recognize the different patterns of convulsions among children and identify the different causes of convulsions in children with detection of the frequency of these causes.

### Patients and methods:

This was an epidemiologic observational study involving 400 patients who presented with seizures.

**Setting:** Department of Pediatrics and outpatient clinic, Qena university hospital, Qena, Egypt

The inclusion criteria were: All children presented with seizures during one year duration who aged 1 month up to 16 years.

The exclusion criteria comprised Neonates  $\leq 28$  days.

All patients were subjected to full history including demographic data, developmental history, family history of seizures, past history about neonatal seizures, birth anoxia, head trauma or CNS infection and therapeutic history.

Full Clinical examination was performed with focus on neurological examination and description of seizures as regard of type, duration, frequency, postictal state, risk factors and precipitating factors.

Laboratory investigations were performed when indicated including Random blood glucose, Serum calcium, Serum ammonia and Serum lactate. Neuroimaging study (CT and MRI) and Electroencephalography (EEG).

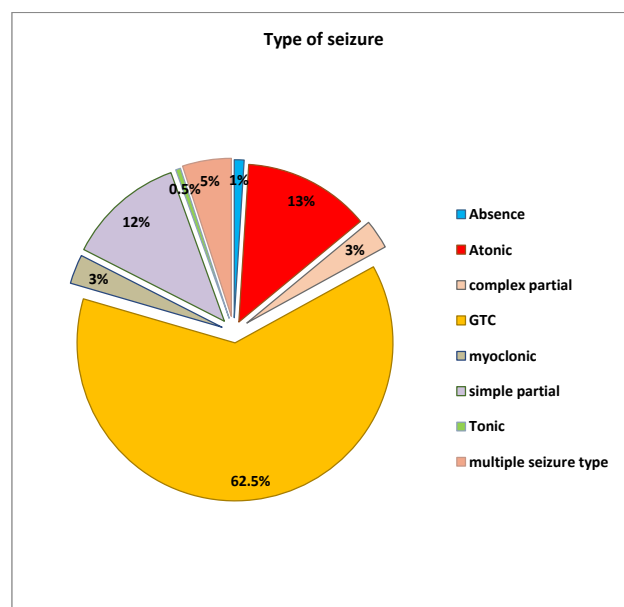
### Statistical analysis:

Data were analyzed using a Statistical Program for Social Science (SPSS) version 20. Quantitative data were expressed as mean  $\pm$  standard deviation ( $M \pm SD$ ). Qualitative data were expressed as tables, charts, proportions and percentages.

### Results:

The mean age of all studied patients was  $3.9 \pm 3.5$  years with minimum age of one month and maximum age of 16 years. As regard sex, there were 238 male (59.5%) and 162 females (40.5%).

As regard type of seizure, it was GTC in 250 patients (62.5%), atonic in 52 patients (13%), simple partial in 48 patients (12%), complex partial in 12 patients (3%), myoclonic in 12 patients (3%), absence in 4 patients (1%), tonic in 2 patients (0.5%) and multiple seizure type in 20 patients (5%).



**Figure 1. Demonstrating types of seizures in all studied patients.**

As regard of risk factors, there were no risk factors in 312 patients (78%), there were 30 patients (7.5%) who were known as cerebral palsy, CNS infection in 16 patients (4%), fever in 2 patients (0.5%), there was head trauma in 20 patients (5%), kernicterus in 2 patients (2%), neurosurgery (v-p shunt) in 2 patients (0.5%), tuberous sclerosis in 6 patients (1.5%) and there

was suspected inborn error of metabolism in 8 patients (2%).

### **Discussion:**

In our study, the mean age of all studied patients was  $3.9 \pm 3.5$  years with minimum age of 1 month and maximum age of 16 years.

These results were supported by a study in which 263 children with newly diagnosed seizures were enrolled. The mean age was 4.2 years with a range of 1 month -13 years. (AL-Suliman and Ismail, 1999) The current study demonstrated predominance of seizures among male (59.5%) than females (40.5%).

The results of current study were supported by a hospital based retrospective study of children admitted with acute episode of seizure included 551(12.7%) children had seizures as a presenting complaint. Seizures were more common in males 338 (61.3%) than in females 213 (38.7%). (Adhikari et al., 2013)

Our study showed that Generalized tonic-clonic (GTC) seizures were the most frequent type of seizures (62.5%), followed by atonic seizure in 52 patients (13%), simple partial seizures in 48 patients (12%), complex partial seizures in 12 patients (3%), myoclonic seizures in 12 patients (3%), absence seizures in 4 patients (1%), tonic in 2 patients (0.5%), and multiple seizure type in 20 patients (5%).

In agreement with our study, there was a study demonstrated that generalized tonic-clonic seizures were the most common type of seizures (49.5%), while absence seizure (1.0%) was the least frequent type. (Shawki, 1995)

Regarding etiologies and risk factors, the current study showed that most patients were had idiopathic epilepsy (79.5%) and 20.5% of them had structural/metabolic causes of epilepsy. Common causes were cerebral palsy (7.5%), head trauma (5%) and CNS infection (4%).

In agreement with our study there was a study showed that most of patients had idiopathic epilepsy, and common causes were perinatal complications (20%), CNS infection (7.6%) and head trauma (2.8%). (Farghaly et al., 2018).

### **Conclusion:**

In conclusion, the prevalence of seizures in children was common in males than females and common in preschool children than older children. The generalized tonic clonic seizures were the most common seizure type in children. Cerebral palsy and CNS infection were common causes of seizures.

### **Conflict of Interest**

The authors have no conflict of interest related to this publication.

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