RESULTS

Age distribution

Table (3): Description of age in this study

	N	Range	Min.	Max.	Mean	Std. Deviation
age	50	14.50	.50	15.00	8.1050	4.22187

Sex distribution

The total number of patients in outpatient clinics was 5319 patients; 2751 of which were females and 2568 were males. Of this group of children; 28 females and 22 males were epileptics.

Table (4): Sex and age specific prevalence of epilepsy for each age group in epileptic children in Benha (2008- 2009).

Age Group	Female			Male			Total			Z	P
	Num.	Cas.	Prev.	Num.	Cas.	Prev.	Num.	Cas.	Prev.		
< 2	201	3	14.9	106	1	9.43	307	4	13	0.4	>0.05
2-	305	2	6.6	402	3	7.5	707	5	7.1	-0.14	>0.05
4-	307	2	6.5	533	4	7.5	840	6	7.14	-0.16	>0.05
6-	718	6	8.35	247	2	8	965	8	8.29	0.04	>0.05
8-	411	5	12.1	510	6	11.76	921	11	11.9	0.06	>0.05
10-	102	1	9.8	258	2	7.75	360	3	8.3	-0.19	>0.05
12-	707	9	12.7	512	4	7.8	1219	13	10.6	0.83	>0.05
Total	2751	28	10.1	2568	22	8.56	5319	50	9.4	0.61	>0.05

Num. =total number of outpatient clinic attendants

Cas. =number of epileptic patients

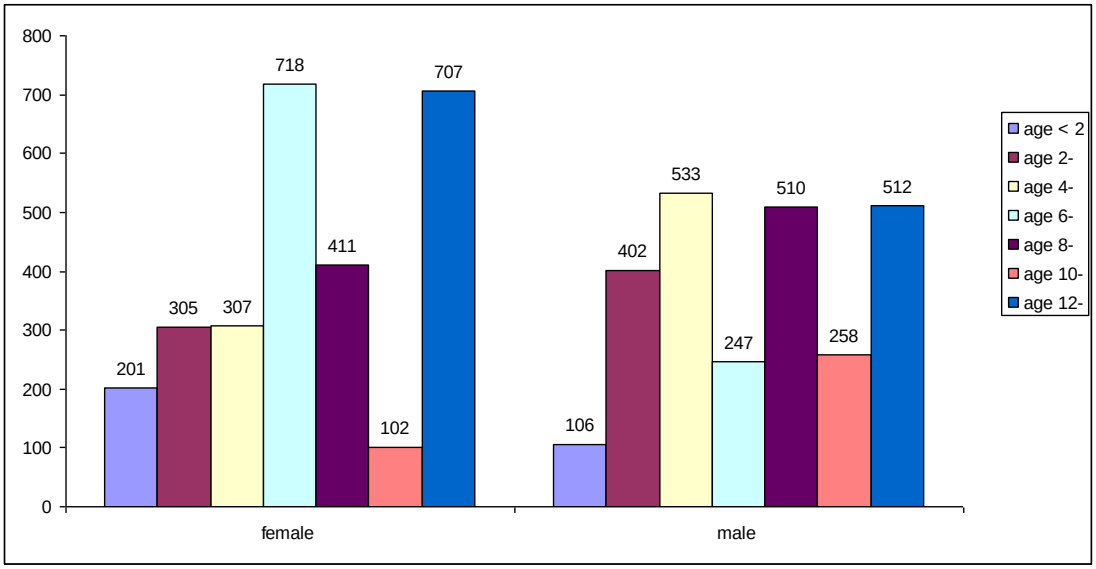

Figure (1): Patients studied regarding male and female distribution according to age in out patient clinics of Benha children hospital (2008- 2009).

Age at onset:

Twelve percent of the epileptic children had their first seizure before they were one year old, 44. % of children had their first seizure at the age from 1-5 years old, 28% of children had their first seizure at the age from 6-9 years and 16% of children had their first seizure after the age of 9 years.

Table (5): distribution of epileptic children according to age at onset (2008- 2009).

Age at onset	Number of cases	Percentage
< 1 year	6	12.0%
1-5 years	22	44.0%
6-9 years	14	28%
> 9 years	8	16.0%
Total	50	100%

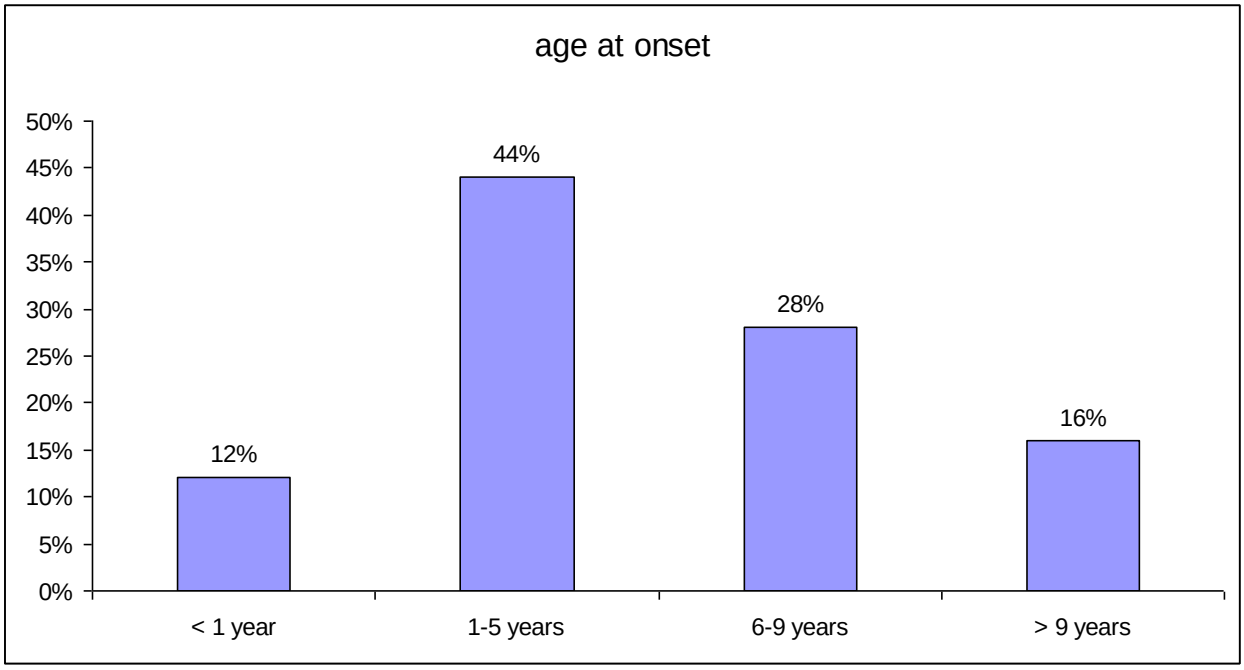

Figure (2): distribution of epileptic children according to age at onset (2008- 2009).

Seizures type:

Seizures were classified by seizure type based on the clinical description according to 1993 international league Against Epilepsy (ILLAE) commission recommendations on classification and terminology.

Partial seizures were responsible for 44% (22 patients) of seizures; generalized seizures were responsible for 36 % (18 patients) of seizures, mixed type were responsible for 8% (4 patients) of seizures and unclassified seizures were responsible for about 12% (6 patients) of seizures.

In partial seizures, 10 cases (45.5%) were males and 12 cases (54.5%) were females, while in generalized seizures 8 cases (44.4%) were males and 10 cases (55.6%) were females. In mixed seizures, 2 cases (50%) were males and 2 cases (50%) were females. In unclassified seizures, 2 cases (33.3%) were males and 4 cases (66.6%) were females.

Table (6): distribution of epileptic children according to type of seizures (2008- 2009).

Type of seizures	Male Number	Female Number	Total Number	Z	P	Percentage	
Partial seizures	10	12	22	0.18	>0.05		44%
Simple	1	4	5	-1.3	>0.05	22.7%	
Complex	5	6	11	0.0	>0.05	50%	
+2ry generalization	4	2	6	1.2	>0.05	27.3%	
Generalized	8	10	18	0.05	>0.05		36%
Absence	0	2	2	-1.34	>0.05	11.1%	
Tonic	1	2	3	-0.42	>0.05	16.7%	
tonic- clonic	4	5	9	0.0	>0.05	50.04%	
myoclonic	2	0	2	1.7	<0.05*	11.1%	
Atonic	1	1	2	0.17	>0.05	11.1%	
Mixed	2	2	4	0.25	>0.05		8%
Unclassified	2	4	6	-0.56	>0.05		12%
Total	22	28	50	-0.86	>0.05		100%

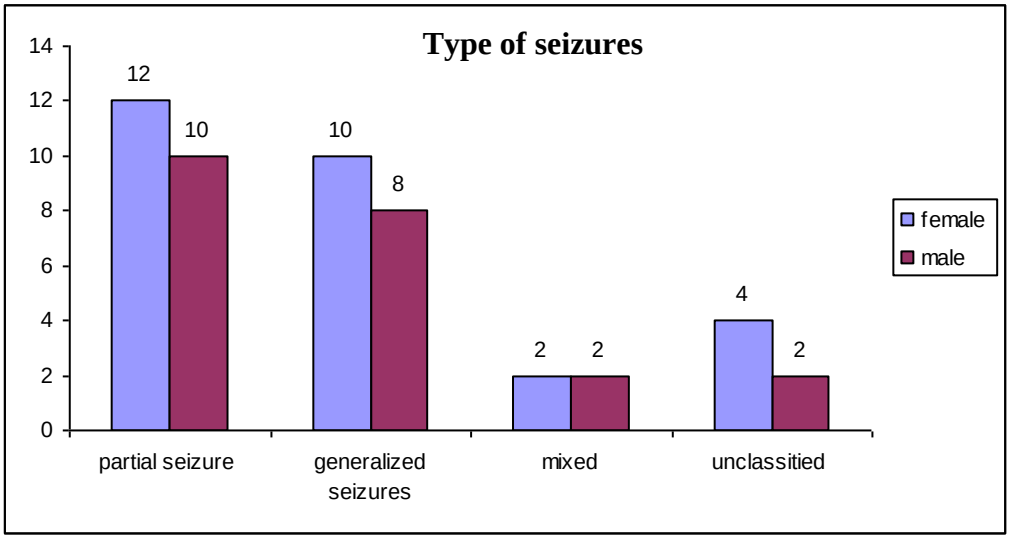

Figure (3): distribution of epileptic children according to type of seizures (2008- 2009).

Description of seizures

Precipitating factors

Most of our patients reported no specific precipitant for their seizures. Fever was the most common seizure precipitant reported in 8 patients, while stress (physical, psychic) was accused in 4 cases and sleep deprivation was reported in 2 cases.

Auras

Fifteen cases (30%) reported either single or multiple types of auras. which are shown in table

Table (7): distribution of epileptic children according to type of aura (2008- 2009).

Type of aura	Number (N= 50)	Percentage
Somatosensory	3	6%
Olfactory	4	8%
Auditory	1	2%
Autonomic	5	10%
Psychic	2	4%
No specific aura	35	70%

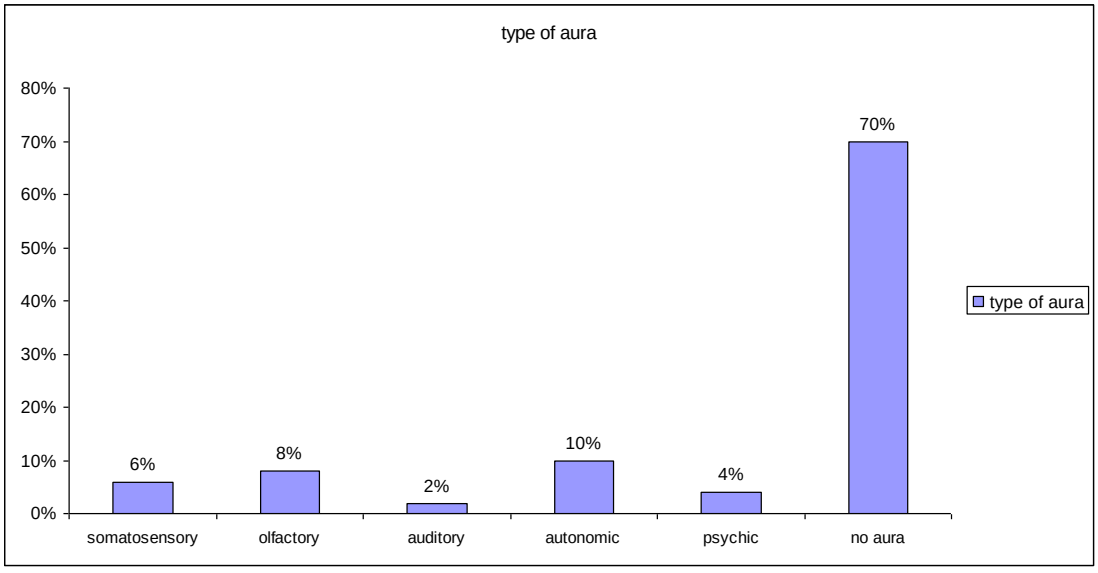

Figure (4): distribution of epileptic children according to type of aura (2008- 2009).

Seizures pattern

Most of the patients in this study showed no particular seizure pattern. In 5 patients seizures were mainly nocturnal and in 3 patients seizures were mainly diurnal. In the remaining 42 patients seizures were both nocturnal and diurnal.

Seizure occurred mostly as a single events, but seizure clusters or serial fits occurred as a constant pattern in 9 patients.

As regards the course of the disease, 23 patients showed improvement (at least one year seizure - free) on medical therapy, 12 patients showed a steady decrease in the frequency or change in the character of seizure from wild picture to mild presentation, 11 showed worsening of their seizure control and 4 patients had an undetermined course with alternating good periods and bad periods with no apparent cause.

Seizures Frequency

Table (8): The frequency of seizures per year in 50 epileptic children in Benha (2008- 2009).

Frequency	Number of cases (N= 50)	Percentage
No seizures	23	46%
1-12 months	7	14%
Monthly	5	10%
Weekly	6	12%
Daily	5	10%
Unknown	4	8%

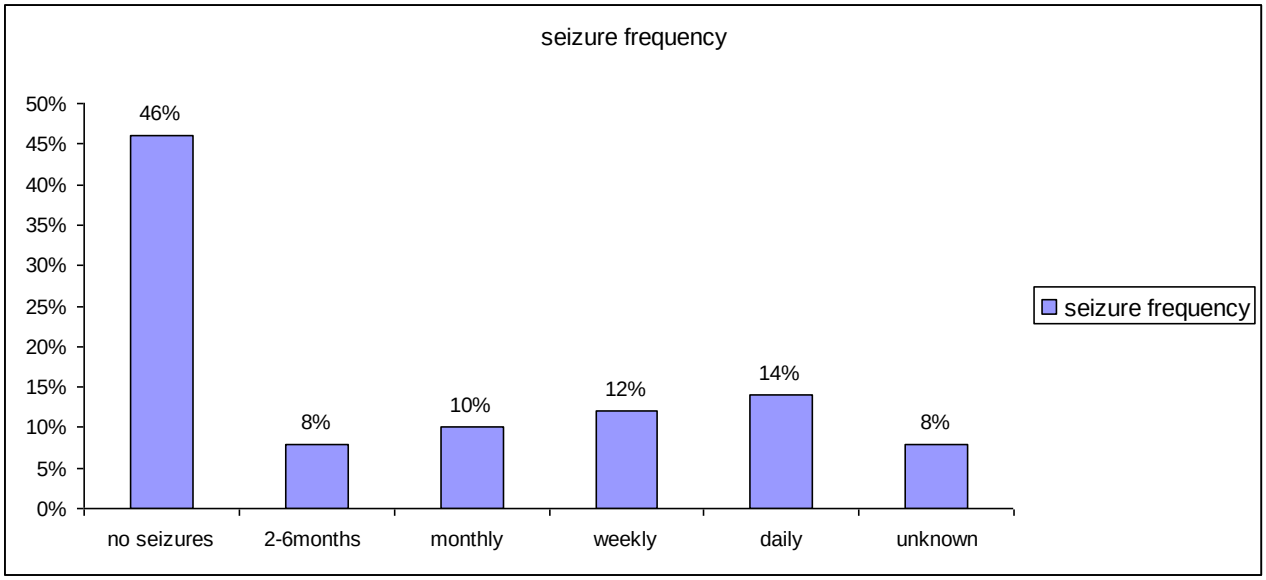

Figure (5): The distribution of epileptic patients in Benha children hospital according to the seizure frequency (2008- 2009).

Postical phenomena

In our study no postictal phenomena in 23 child (46%). And postictal sleep was reported in 12 epileptic child (24%) , brief fatigue was reported in 5 cases (10%) , headache reported in 3 cases (6%) and brief confusion reported in 7 cases (14%).

Table (9): Postictal phenomena in epileptic children in Benha (2008- 2009).

postictal phenomena	**Number of cases** (N= 50)	**Percentage** 100.0
Nothing reported	23	46%
Sleep	12	24%
Brief fatigue	5	10%
Headache	3	6%
Brief confusion	7	14%

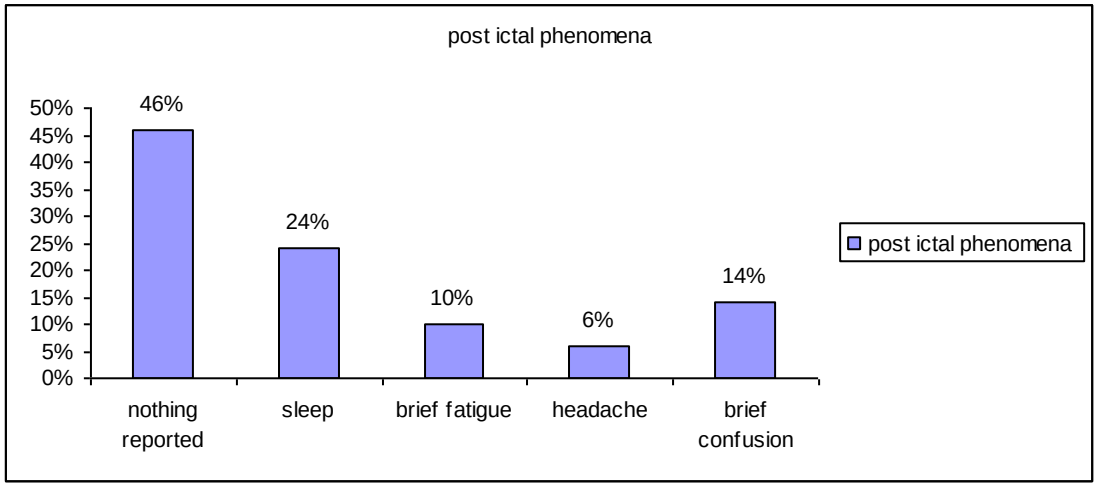

Figure (6): The distribution of epileptic patients in Benha according to post ictal phenomena (2008- 2009).

Status epilepticus

Status epilepticus occurred in 6 patients .Recurrent status epilepticus occurred only in 2 patients. In all cases with status epilepticus we were not able to report specific precipitating factors.

Possible aetiology:

37 (74%) children showed no apparent cause or precipitating factors for epilepsy, 4 children (8%) were thought to have prenatal causes, 4 children (8%) were thought to have perinatal causes, and 5 children (10%) were thought to have postnatal causes of epilepsy.

Table (10): possible aetiological factors in epileptic patients in Benha (2008- 2009).

Etiology	Number of cases (N= 50)	Percentage (100.0)	
Idiopathic	37		74%
Prenatal	4		8%
CNS malformation	2	50%	
Chromosomal abnormalities	1	25%	
Congenital infection	1	25%	
Perinatal	4		8%
birth asphyxia	3	75%	
neonatal jaundice	1	25%	
Postnatal	5		10%
Head trauma	1	20%	
Infection	3	60%	
Brain tumor	1	20%	

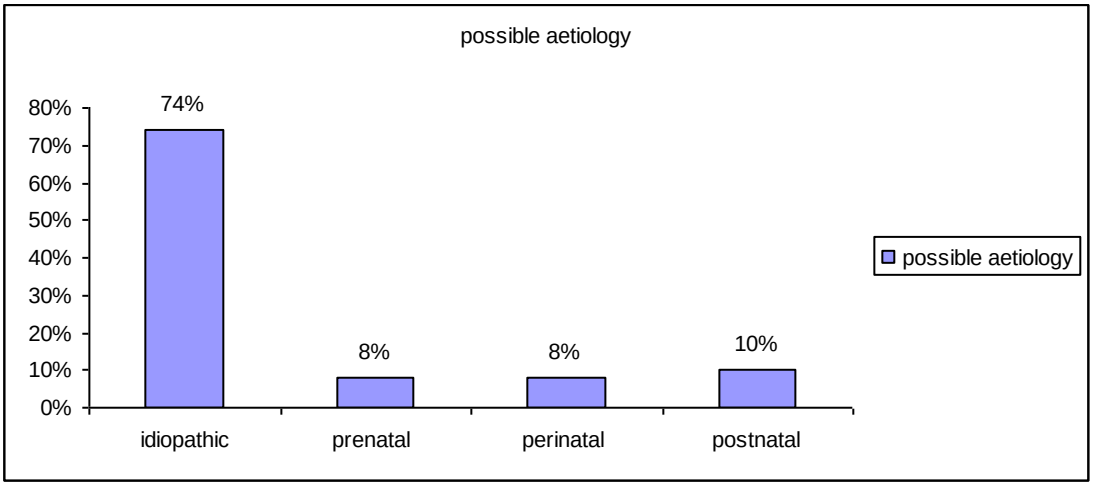

Figure (7): distribution of epileptic patients in Benha according to possible aetiology (2008- 2009).

Antiepileptic drugs:

In this study epileptic children were found to use 5 types of antiepileptic drugs (carbamazepine, valproic acid, phenytoin, clonazepam, and Phenobarbital). 28 children were found to use a single drug to control seizures (56 % of cases), 15 children were found to use 2 drugs to control seizures (30 % of cases) and 7 children use more than 2 AED to control seizures. (14% of cases).

As a monotherapy drug, 15 cases use carbamazepine as single AED (53.6% of cases), 8 cases use valproic acid as single AED (28.6% of cases) and 5 cases use phenytoin as single AED (17.9% of cases).

Table (11): numbers of antiepileptic drugs and their percentage used by epileptic children in Benha (2008- 2009).

Number of AED	**Number of cases (N= 50)**	**Percentage** 100.0	
Monotherapy	28		56%
carbamazepine	15	53.6%	
valproic acid	8	28.6%	
phenytoin	5	17.9%	
Ditherapy	15		30%
Polytherapy	7		14%

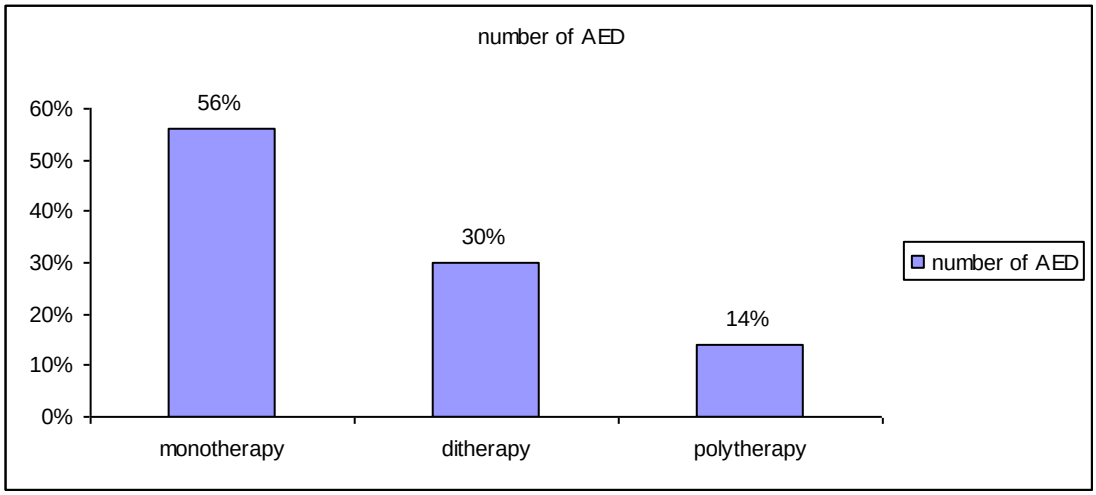

Figure (8): The distribution of epileptic patients in Benha children hospital according to number of AED in the year 2008- 2009.

According to the different drug combinations, 20 children were found to use valproic acid, 20 used carbamazepine, 10 children used phenytoin, 3 children used clonazepame and 2 children used phenobarbital.

Table (12): The antiepileptic drugs used and their percentage of use in epileptic children in Benha (2008- 2009).

AED	Number of cases *	Percentage
carbamazepine	20	40%
valproic acid	20	40%
phenytoin	10	20%
clonazepam	3	6%
Phenobarbital	2	4%

* **Many patients receive more than one drug**

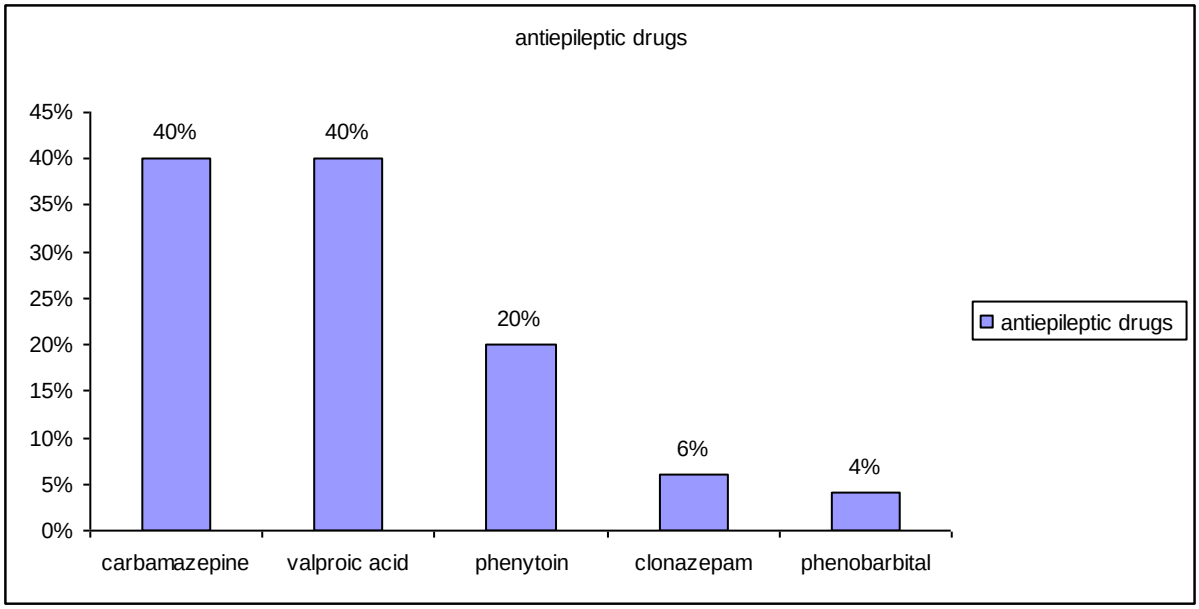

Figure (9): The distribution of epileptic patients in Benha according to the type of antiepileptic drugs (2008- 2009).

History of associated conditions:

During assessment of the epileptic children cognitive impairment was reported in 3 children, recurrent attacks of headache was described in 10 children, 6 children were found to have nocturnal enuresis, 5 children had speech disorders .

History of febrile seizures was obtained in 8 patients. In 3 patients febrile seizures were prolonged, lasting more than 10 minutes, and these are considered as complex febrile seizures. The other 5 patients had simple febrile seizures.

Table (13): Possible associated conditions occur in epileptic in Benha (2008- 2009).

Associated conditions	Number of cases	Percentage
cognitive impairment	3	6%
Headache	10	20%
nocturnal enuresis	6	12%
speech disorders	5	10%
febrile seizures	8	16%

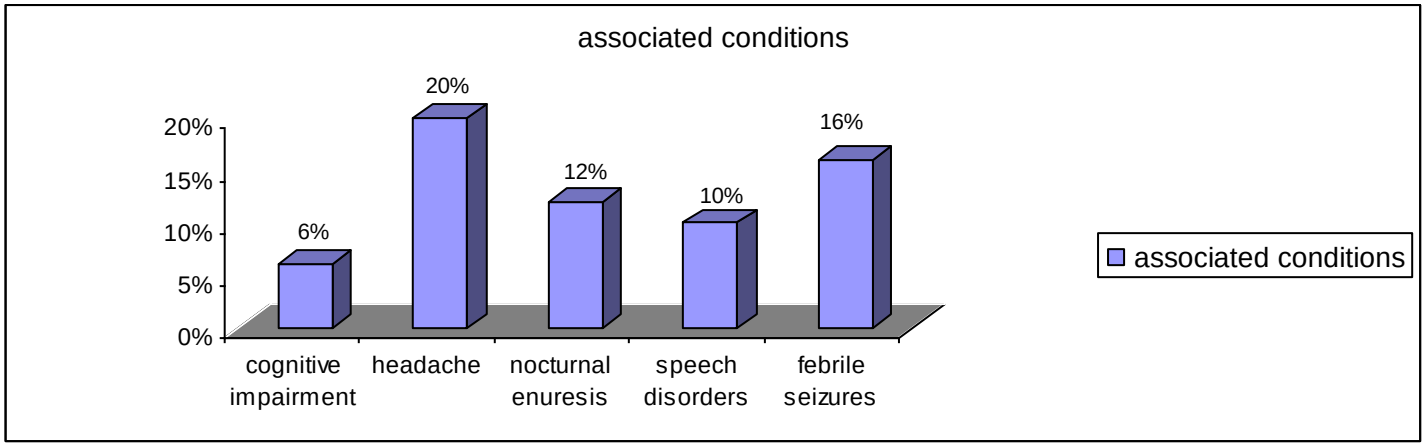

Figure (10): The distribution of epileptic patients in Benha children hospital according to seizures associated conditions (2008- 2009).

Family History:

Positive family history was found in 14 children (28% of cases), 9 of them were found to have first degree relatives and 5 were known to have other relatives suffering from epilepsy. 8 patients (16% of cases) had parental consanguinity.

Table **(14):** showing correlation between family history and type of seizures

Type	Family History		Total
	Positive	Negative	
partial	3	19	22
Generalized	10	8	18
mixed	1	3	6
unclassified	0	6	4
Total	14	36	50

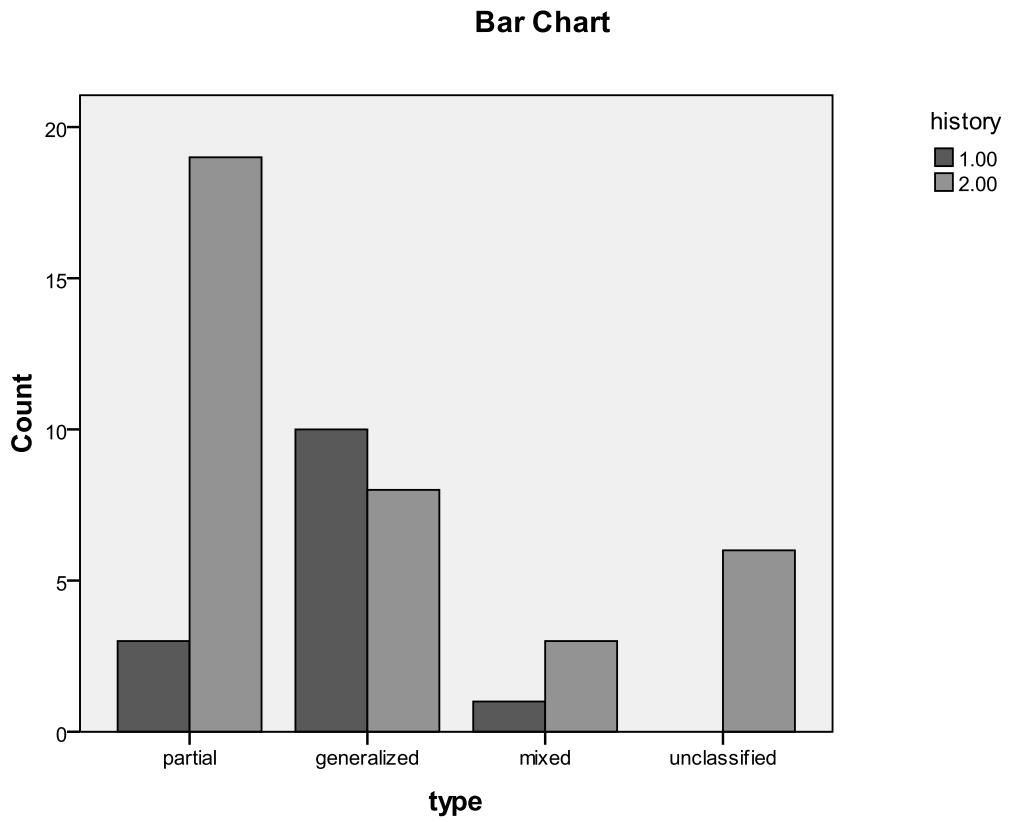

Figure (11): Bar chart showing correlation between family history and type of seizures

1= Positive Family History **2=** Negative Family History

EEG data

18 patients (36%) had normal interictal EEG record (neither background abnormality nor epileptic activity in the EEG). background slowing was seen in 6 patients. Focal EEG activity was detected in 14 patients with secondary generalization in 6 patients and no generalization in 8 patients. Epileptogenic focus was frontal in 6 patients, temporal in 5 patients and parietal in 3 patients. Generalized epileptic discharge was evident in 12 patients. In 3 Patients the EEG features were non conclusive for seizure characterization.

Table (15): shows the incidence of different interictal EGG activity in epileptic patients in Benha (2008- 2009).

Type of EEG activity	**Number of cases (N= 50)**	**Percentage**
None	18	36%
Slowing	3	6%
Sharp waves or spikes	11	22%
Spike and slow wave complexes	18	36%

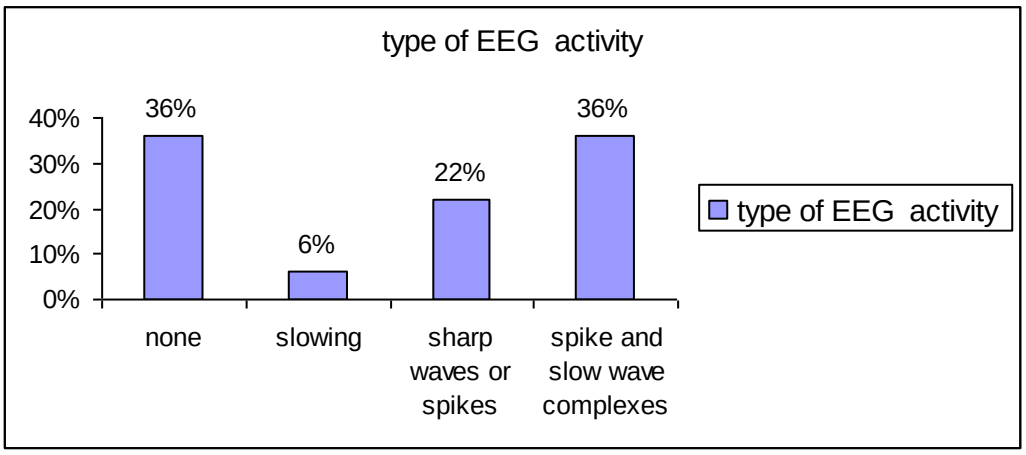

Figure (12): The distribution of epileptic patients in Benha children hospital according to type of EEG activity (2008- 2009).

Imaging studies

Most cases had CT brain and in 13 cases MRI was done to confirm the diagnosis. The following table summarizes the imaging data obtained from 50 epileptic children.

Table (16): imaging findings in epileptic children in Benha (2008- 2009).

Imaging finding	Number of cases	Percentage
Mesial temporal sclerosis	3	6%
space occupying lesions	2	4%
encephalomalecia and gliosis	2	4%
Brain atrophy	3	6%
cortical dysgenesis	3	6%

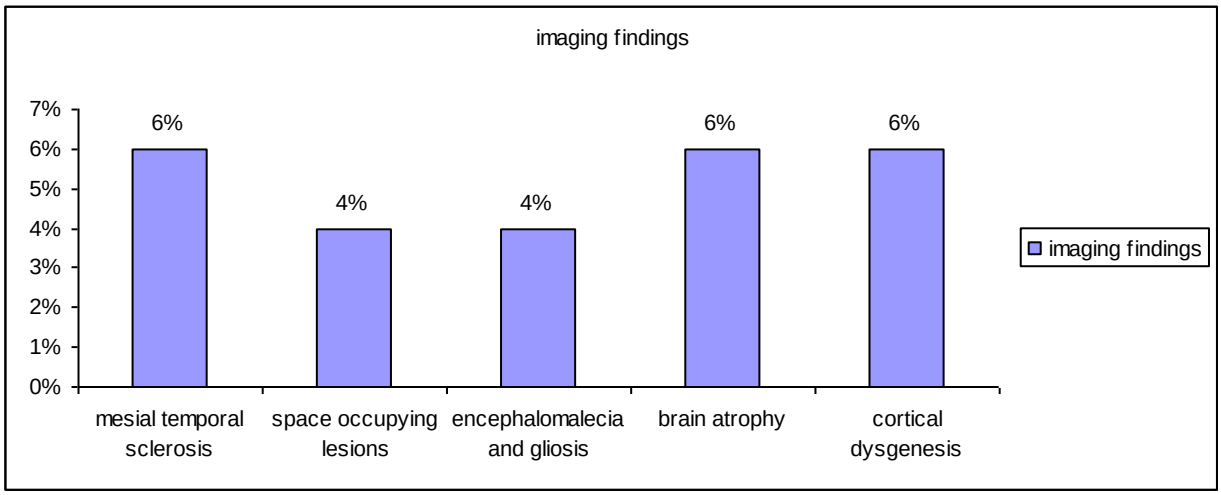

Figure (13): The distribution of epileptic patients in Benha children hospital according to imaging findings (2008- 2009).