



Correlation of Demographic & Clinical Characteristics in Patients with Generalized Seizures

KEYWORDS

Epilepsy , Tonic , Clonic , Myoclonic ,Infantile Spasm ,Postictal, Absence Seizures

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ABSTRACT Introduction - Seizure being a complex Symptom of underlying disease, a detailed work up is generally required . No fixed guidelines exist to evaluate the cases of seizures.

Aims & objectives:- To Study & Correlate Demographic & Clinical characteristics in Patients with Generalized Seizures.

Material & Methods:- 266 patients of any age with history of generalized seizures were included .Demographic characters & clinical features were studied.

Observation & Results :- Primary GTCS were in 81.58% & 18.42% had secondary generalized seizures. 53.38 % of patients were in 2nd & 3rd decade with 59.77%, females .32.33% had drug omission as precipitating factor & 26.45% had head injury as risk factor. Loss of consciousness in 94.74, h/o fall during the episode in 40.23%, uprolling of eyeballs in 59.02%, tonic clonic movements in 86.09%, frothing from mouth in 58.65%,urinary incontinence in 39.10% were commonest clinically.

Conclusions :- Adolescents, adults , females , right handed affected more . Primary generalized seizures were more common than tonic clonic. Drug omission was most common precipitant followed by mental stress & stroke , Head injury was most common risk factor . Mental stress ,head injury, seizures occurring at any time of the day , urinary incontinence, bowel incontinence ,postictal unconsciousness/ drowsiness were statistically significant for primary generalized seizures while Stroke & Aura was for secondary generalized seizures

INTRODUCTION:-

Seizure is a paroxysmal event due to abnormal, excessive, hyper synchronous discharges from an aggregate of CNS neurons & epilepsy is a condition in which person has recurrent seizures due to a chronic underlying process . Seizure being a complex Symptom of underlying disease, a detailed work up is generally required. No fixed guidelines exist to evaluate the cases of seizures^{1,2}

In the past a large number of cases used to be labelled as epilepsy of unknown origin. The evaluation of cases of seizures includes a detail history, clinical examination, electroencephalography, advanced neuroimaging. Various physicians use various combinations of these methodologies considering their cost and yield of information^{1,2}.

In view of the above facts we conducted a study to find out various demographic & clinical presentations in patients with generalized seizures & to correlate these features in generalised seizures .

AIMS AND OBJECTIVES:-

1. To study various demographic & clinical features in patients with generalized seizures.
2. To correlate demographic & clinical characteristics in patients with generalized seizures.

MATERIAL AND METHODS:-

The study was carried out in a tertiary care center in 266 patients in a cross-sectional non-randomised manner. The study protocol was approved by Ethics committee. Patients with any age with history suggestive of generalized seizures were included in the study . Patients of any age with partial seizures with secondary generalization were also included while Patients with simple partial seizures & Complex partial seizures were excluded from the study . Demographic characters like age ,gender, residence whether rural or urban , occupation ,handedness and clinical features like duration

of disease ,age of onset of disease ,precipitating factors ,risk factors ,number of seizures, timing of seizure , distribution of symptoms, distribution of postictal duration were noted.

OBSERVATION & RESULTS: -

As shown in table 1, based on clinical presentation 217(81.58%) patients had primary generalized seizures while 49(18.42%) patients had secondarily generalized seizures. Among primary generalized seizures , generalised tonic clonic seizures were observed in 178(66.92%) of patients , atonic seizures in 22(8.27%), myoclonic in 8(3.01%) , absence seizures in 4(1.50%),while tonic seizures , infantile spasms & GTC plus myoclonic seizures were observed in less the one % patients each .

As shown in table 2, Maximum number of patients were in 2nd (n=85 ,31.95%) and 3rd (n=57 , 21.43%) decade accounting for 53 .38%. Mean age was 28.5 years. 59.77% were females(n=159) and 40.23% were male (n=107) patients. (n=186, 69.72%) were residing in rural area while 30.08% were in urban area. Occupationally 44.74% were students followed by housewives (n=51) 19.17 % & labourers (n=43) 16.17%. 62.78% patients were right handed while 37.22% were left handed. Maximum number of patients had (n=90,33.43%) disease onset between 11-20 years of age followed by onset less than ten years of age (n=77, 28.95%) . 52.26% patients had seizures for less than one year duration followed by 1.1 to 2 years duration (14.66%).When all demographic characteristics were statistically correlated none of the demographic character had statistically significant bearing on type of generalized seizures.

As shown in table 3,32.33% patients had drug omission as precipitating factor followed by fever in 11.65% patients while 71%(n=35) patients did not have any precipitating factor . 189 (71.05%) patients had risk factors while 28.95% did not have any of the risk factor . Head injury as a risk factor was present in 26.45% patients followed by smoking & alco-

holism in 16.40% each Prior stroke as a risk factor was present in very few patients (n=4, 2.12%) 19.55% patients had more than 30 episodes of seizures before presenting while less than five episodes were present in 43.61% patients. 63.53%(n=169) patients had seizures during any time of the day .25.94%(n=69) had during daytime while 10.53%(n=28) had seizures during night time. Minimum postictal duration ie less than one min was observed in 29 (10.90%) patients while more than 30 minute postictal duration was observed in only 3 (1.13%) patients. Maximum number ie 45.49% patients had postictal duration of 1-5 minutes. When correlated statistically mental stress as precipitating factor had significant (p<0.005) bearing for primary generalized seizures,stroke as a risk factor for secondarily generalized seizures (p<0.01) , head injury(p<0.005) as a risk factor for primary generalized seizures while seizures during any time of the day had statistically significant bearing for primary generalized seizures(p<0.005)

Table 4 shows symptom distribution in all patients .Aura was present in 49 (18.42%), loss of consciousness in 252 (94.74%), h/o fall during the episode in 107(40.23%), uprolling of eyeballs in 157 (59.02%), tonic clonic movements in 229(86.09%), frothing from mouth in 156 (58.65%) ,urinary incontinence in 104(39.10%) . Postictally maximum number of patients had amnesia of the event in 248(93.23%) followed by postictal unconsciousness in 229(86.09%) while headache & asthenia was more or less equal in upto 37 to 40% patients When analysed statistically presence of Aura was found to be statistically highly significant for secondarily generalized seizures (p<0.0001) ,while urinary incontinence (p <0.005), bowel incontinence (p <0.05), & postictal coma / drowsiness (p<0.01) was found to be highly significant for primary generalized seizures .

DISCUSSION :-

Clinical types of seizure – 81.58% of patients had primary generalized seizures & 18.42% patients had partial seizures with secondary generalization, Out of generalized seizures generalized tonic clonic was most common accounting for 66.92 % . Atonic seizures were next common (8.27 %). Various investigators in the past have found variable incidence of generalized seizures in their studies (27% to 69 %),while Redda Tekl et al¹⁴ found it in 81% . Study carried out by Surendra kumar pai¹⁵ in India showed generalized seizures in 58.5 % of cases , out of them 49% of patients had generalized tonic clonic type & 23% had partial seizure with secondary generalization

Age distribution :- Maximum number of patients were in 2nd and 3rd decade. The prevalence in developed countries is highest in older age (> 70 years)as compared to developing countries where prevalence is highest in 2nd & 3rd decade³. This is consistent with age-specific prevalence of seizures in developing countries³. This difference may be explained by the differing distribution of the risk factors & short life expectancy of developing countries. Age distribution seen in our study is quite similar with Indian study done by Sridharan R, Murthy B.N.⁴ Mean age in our study was 28.5 years.

Gender, handedness, residential occupation distribution – In our study 59.77% were females and 40.23 % were males which is in contradiction to worlds most population based studies & Asian studies⁵. These studies showed high prevalence in males and was due to higher incidence of head injury, CVA, CNS infection in males as compared to females & increased outdoor activities seen in males. Around two third patients resided in rural area Epilepsy occurred more in right handed patients & in students .Maximum episodes were during any time of the day.

Precipitating factors – More than fifty percent of our patients had precipitating factor while only 35 % did not have precipitants . Of patients who had seizure precipitants , drug omission (32.33%) was the most common precipitating

factor followed by fever (11.65%). Previous studies have reported seizure precipitants in 53% to 92% of patients.^{6,7,8} and emotional stress as common precipitant followed by sleep deprivation.^{6,7,8,9,10} study carried out by Tan JH¹⁰ showed noncompliance as the most common potentially preventable precipitating factor in 45% cases but study Tan J H showed drug omission as most common¹⁰ .

Risk factors - In our study head injury (26.45%) & chronic alcoholism (16.40%) and smoking were most common risk factors. In Annegers JF study¹¹ Head trauma, CNS infections, CNS malignancies, occlusive cerebrovascular disease, and Alzheimer disease were risk factors . Out of them head trauma was commonest.

Symptoms – Most common presentations of generalized seizures in our patients were loss of consciousness (94.74%), tonic clonic movements (86.09%), frothing from mouth (58.65%), post ictal amnesia (93.23%), post ictal unconsciousness (86.09%), post ictal head ache (40.98%). These are quite common finding in generalized tonic clonic seizure.¹², Tongue biting had a sensitivity of 24% and a specificity of 99% for the diagnosis of generalized tonic-clonic seizures.¹³

CONCLUSIONS :-

- Primary generalized seizures were more common than partial seizures with secondary generalization
- Among primary generalized seizures generalized tonic clonic type was most common followed by atonic seizures .
- Generalized seizures presented most commonly in adolescents & adults in females, in right handed patients , in students however these findings are statistically not significant for any type of generalized seizures
- Drug omission was most common precipitant followed by mental stress & sleep deprivation, Head injury & stroke were most common risk factors
- Mental stress ,head injury , seizures occurring at any time of the day ,urinary incontinence, bowel incontinence , postictal unconsciousness / drowsiness were statistically significant for primary generalized seizures .
- Stroke & Aura was found to be statistically significant for secondary generalized seizures

LIMITATIONS:- our study has certain limitations . We have not correlated demographic & clinical findings with EEG & Neuroimaging We also have not included patients with simple seizures, focal seizures In spite of these limitations our study is the largest study depicting various demographic findings , clinical features ,precipitating factors , risk factors & may be helpful in differentiating generalized seizure types & guiding for treating as treatment for primary & secondary generalized seizures differ.

Table 1: Clinical Seizure Type Of Cases In Study Group

Clinical seizure type	n=	(%)
Primary generalized seizures n =217 (81.58%)	Generalised tonic clonic	178 66.92
	Myoclonic	008 03.01
	Absence	004 01.50
	Atonic	022 08.27
	GTC with Myoclonic	002 00.75
	Infantile spasm	001 00.38
Tonic	002 00.75	
Partial seizures with secondary generalization n=49 (18.42%)	049	18.42
Total	266	100

Table 2 :-Correlation Of Demographic Characteristics Between Primary & Secondary Generalized Seizures

Demographic Parameters		No of cases(n=,%)	Primary generalized (n=217)	Secondary generalized (n=49)	Chi -square	P Value
Age (Yrs)	≤10	54(20.30)	43	11	7.40	>0.05
	11 – 20	85(31.95)	74	11		
	21 – 30	57(21.43)	49	08		
	31 – 40	24(09.02)	19	05		
	41 – 50	25(09.40)	17	08		
	51 – 60	12(04.51)	09	03		
	>60	09(03.38)	06	03		
Sex	Male	107(40.23)	127	32	0.76	>0.05
	Female	159(59.77)	90	17		
Residence	Rural	186(69.72)	148	38	1.66	>0.05
	Urban	080(30.08)	69	11		
Occupation	Students	119(44.74)	100	19	7.07	>0.05
	Housewife	51(19.17)	42	09		
	Labourers	43(16.17)	36	07		
	Farmer	21(07.89)	13	08		
	Children	17(06.39)	14	03		
	Servicemen	12(04.52)	09	03		
	Gurakhi	02(00.75)	02	00		
Contractors	01(00.38)	01	00			
Handedness	Right	167(62.78)	137	30	0.06	>0.05
	Left	99(37.22)	80	19		
Age of onset of diseases(years)	≤10	77(28.95)	63	14	6.17	>0.05
	11 – 20	90(33.83)	79	11		
	21 – 30	41(15.41)	33	08		
	31 – 40	22(08.27)	16	06		
	41 – 50	19(07.14)	13	06		
	51 – 60	10(03.76)	08	02		
	>60	07(02.63)	05	02		
Duration of disease(years)	<1.00	139(52.26)	116	23	12.57	>0.05
	0.1 – 2	39(14.66)	35	04		
	2.1 – 3	14(05.26)	10	04		
	3.1 – 4	21(*07.89)	14	07		
	4.1 – 5	10(03.76)	08	02		
	5.1 – 6	06(06.26)	04	02		
	6.1 – 7	07(02.63)	06	01		
	7.1 – 8	01(00.38)	00	01		
	8.1 – 9	03(01.13)	03	00		
	9.1 – 10	08(03.01)	07	01		
	>10	18(06.77)	14	04		

Table 3:- Correlation Of Precipitating ,Risk Factors ,Number Of Seizure Episodes & Timing Of Seizures & Postictal Duration Between Primary & Secondary Generalized Seizures

Table 4:Correlation of Symptoms between Primary & Secondary Generalized Seizures

Symptomatology		No of cases%	Primary generalized (n=217)	Secondarily generalized (n=49)	P value
Aura		049(18.42)	01	48	<0.0001
Ictal Phase	Loss of Consciousness	252(94.74)	203	49	>0.05
	H/O Fall	107(40.23)	095	12	>0.05
	Ictal Cry	031(11.66)	030	01	>0.05
	Up rolling of eyes	157(59.02)	128	29	>0.05
	Tonic Clonic movement	229(86.09)	184	45	>0.05
	Tongue Bite	145(54.51)	123	22	>0.05
	Frothing from mouth	156(58.65)	128	28	>0.05
	Urinary incontinence	104(39.10)	094	10	<0.005
	Bowel incontinence	020(07.52)	020	00	<0.05
	Post Ictal phenomenon	Unconsciousness/Drowsiness	229(86.09)	180	49
Headache		109(40.98)	094	15	>0.05
Amnesia		248(93.23)	203	45	>0.05
Asthenia		100(37.59)	086	14	>0.05

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