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RESEARCH ARTICLE

PREVALENCE OF SEIZURE DISORDERS IN KASHMIR - A TERTIARY CARE EXPERIENCE

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Abstract

Background: Seizure is a sudden surge of electrical activity and seizure episodes are a result of excessive electric discharges in a group of brain cells. Seizures can vary from the briefest lapses of attention or muscle jerks to severe and prolonged convulsions. Major etiology of seizures in elderly being subdural haematoma, stroke, degenerative disorders.

Objective: To investigate the incidence and prevalence of epilepsy and seizure disorders.

Methods: I conducted a survey on adults (>14 years) and the net study population was 10,368 (60%) of the total study population. Before starting the study an information campaign was undertaken through television, radio, newspapers, Govt. Officials and local medical staff to make the residents aware of the research and emphasize its importance.

Results: The results show higher incidence of seizures in the age group of 20-29 followed by 40-49 and 30-39. Meningitis was observed as the leading cause of seizures in the (14%) followed by SAH (14%), meningoencephalitis (12%, tuberculoma (9%), infarct, hypoglycemia and haemorrhage.

Conclusion: The results obtained will be useful for health care policy makers in planning for the better management and prevention of seizure disorders.

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Introduction:-

Neurological disorders are a major cause of morbidity and mortality across the globe and constitute significant part of overall disease burden.^{1,2} The specificity of neurology, earlier relegated to the periphery is now gaining importance due to increased awareness and development of newer diagnostic and therapeutic modalities. A seizure is a sudden surge of electrical activity and seizure episodes are a result of excessive electric discharges in a group of brain cells. Seizures can vary from the briefest lapses of attention or muscle jerks to severe and prolonged convulsions. Seizures can also vary in frequency, from less than 1 per year to several per day.² Seizures and epilepsy are common neurological disorders which significantly affect the quality of life. About 10% of the population experiences a seizure in their lifetime and are a common source of referrals for neurological consultation.³ A seizure is a sudden surge of electrical activity and seizure episodes are a result of excessive electric discharges in a group of

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brain cells. Seizures can vary from the briefest lapses of attention or muscle jerks to severe and prolonged convulsions. Seizures can also vary in frequency, from less than 1 per year to several per day⁴. Major etiology of seizures in elderly being subdural haematoma, stroke, degenerative disorders. Persons with seizures have lower educational achievement and high rate of unemployment than the general population, even when seizures are well controlled³. It is estimated that 1 in 26 people will develop epilepsy during his or her lifetime⁵. The incidence of single unprovoked seizures is 23-61 cases per 100,000 persons-years, while the incidence of acute symptomatic seizures is 29-39 cases per 100,000 population per year⁶.

Symptomatic seizure is a seizure caused by a previously known or suspected disorder of the CNS. This type of seizure is associated with a previous CNS insult known to increase the risk of developing epilepsy. An acute symptomatic seizure is one that occurs following a recent acute disorder such as a metabolic insult, toxic insult, CNS infection, stroke, brain trauma, cerebral hemorrhage, medication toxicity, alcohol withdrawal, or drug withdrawal. An example of an acute symptomatic seizure is a seizure that occurs within 1 week of a stroke or head injury. Studies have reported that 25-30% of first seizures are acute symptomatic seizures⁷. Epilepsy is a treatable condition, with up to 80% entering prolonged periods of seizure remission and up to 50% continuing to be seizure-free after treatment discontinuation^{8,9}. However, reports from several LMIC (where treatment gap is high) give prevalence and remission rates overlapping to HIC¹⁰. As in most LMIC, the incidence of epilepsy is higher than in HIC and increased mortality can explain only in part the difference between incidence and prevalence, misdiagnosis and acute symptomatic seizures must be also considered. Studies in newly diagnosed patients have consistently shown that 55–68% of cases tend to achieve prolonged seizure remission¹⁰. However, in a long-term population-based study done in patients with childhood-onset epilepsy, differing remission patterns were seen. Half of the patients entered terminal remission, without relapse, and one-fifth after relapse. About one-third had a poor outcome in terms of absolute absence of remission or relapsing seizures after periods of remission⁹.

Epilepsy per se carries a low mortality risk, but significant differences in mortality rates are expected when comparing incidence and prevalence studies, children and adults, and persons with idiopathic and symptomatic seizures¹¹. As with prevalence and incidence, epilepsy mortality reflects the quality of case ascertainment, the accuracy of the information on causes of death and the survey methods¹². People with epilepsy are at an increased risk of death than the general population¹¹. Among deaths attributable to epilepsy or seizures, important immediate causes include SUDEP, SE, unintentional injuries, and suicide. According to the 2016 Global Burden of Disease Collaborators¹³, epilepsy represents a relevant fraction of the worldwide disease burden, accounting for about 46 million people. Nearly 80% of people with epilepsy reside in LMIC, where rates of epilepsy prevalence and incidence are higher than in HIC¹⁴. The differences are likely due to differing causes, a higher incidence of injuries, and lack of access to health care.

Aims And Objectives:-

To investigate the incidence and prevalence of epilepsy and seizure disorders in district Ganderbal of Kashmir.

Material And Methods:-

The present study was conducted in the Ganderbal block in the Srinagar District which is located in north-east of Kashmir (22 km from Srinagar city, summer capital of Jammu and Kashmir situated between 34° 7 to 34° 22 N latitude and 74° 40 to 74° 56' E longitude at an attitude of 5100 Ft and measuring 107.9 sq km. with population density of 108 person/sq. km.

Population Profile:

Ganderbal block has a population of 67,717¹⁵ and constitutes of 95 villages. The total study population was 17280 (28%) of total population which was selected by randomization. I conducted survey on adults (>14 years) and the net study population was 10,368 (60%) of the total study population. Before starting the study an information campaign was undertaken through television, radio, newspapers, Govt. Officials and local medical staff to make the residents aware of the research and emphasize its importance. A training programme was conducted for multiple-purpose workers (MPW's), Aganwardi workers, field-staff of SDH Ganderbal and medical students working under the social and preventive medicine, Department of Govt. Medical College Srinagar, utilizing their services for collecting data in this door-to-door survey to determine the prevalence of neurological disorders¹⁶. The topics covered briefly were (1) overall plan (i.e.; objectives, study design, time schedule and staff responsibilities); (2) administering screening instrument (Questionnaire as per local vernacular of WHO protocol 1981),¹⁷ (3) choosing

housing units and respondents for the screening interview (4) requesting and scheduling neurological examination and (5) principles of interviewing (e.g.; asking questions in a neutral sensitive manner, promising confidentiality of responses). A training manual from the copiah county study was adopted and used in the current study.

PHASE-I: This phase constituted screening of the population by means of door-to-door survey by trained staff and two postgraduates with the help of a pretested questionnaire. The questionnaire was administered in local vernacular to all individuals living in the households visited by the interviewers. A household was defined as a group of subjects related by blood or marriage living in the same income source and in the same housing unit.⁸ To assist interviewers in gaining co-operation posters were placed all along the area ahead of household screening. The catch up posters beared the labels 'Health Census' in local vernacular. To gain more confidence and more co-operation, Village/Mohalla head (Muqdam) was taken into confidence and he was motivating people.

PHASE-II: All those screened positive in phase- were examined by neurologist in phase II. Patients who were having referral slips with documentation of various neurological disorders were taken authentic and were not examined by the neurologist. The neurologist used common diagnostic criteria (according to the WHO protocol study) whether or not the disorder existed¹⁸ Disability was estimated by barthel index¹⁹.

The data obtained was saved in Microsoft Excel and analyzed using Statistical Package for Social Sciences.

Results:-

A total of 100 patients were enrolled in the present study. Among the etiological causes, neuroinfection was the predominant cause of seizures in 34% patients. Among the neuroinfection, encephalitis accounted for 24.8%. Meningitis was responsible for 8.5% of seizures. Other causes included cerebrovascular accidents (50.9%), metabolic (34.4%), miscellaneous (17.1%) and idiopathic (25.4%). While CVT (21.3%) was major causes among CVA, hypoglycaemia, hyponatraemia and hypocalcemia were main metabolic cause of seizures. Tumour was observed as most common etiology under miscellaneous group.

The results show higher incidence of seizures in the age group of 20-29 followed by 40-49 and 30-39. Meningitis was observed as the leading cause of seizures in the (14%) followed by SAH (14%), meningoencephalitis (12%, tuberculoma (9%), infarct, hypoglycemia and haemorrhage.

Table 1:- Age distribution in study subjects.

Age	Male		Female	
	No.	%	No.	%
<19	6	6	2	2
20 – 29	14	14	12	12
30 – 39	10	10	8	8
40 – 49	12	12	10	10
50 – 59	8	8	8	8
60 – 69	4	4	2	2
>70	2	2	2	2
Total	56	56	44	44

Table 2:- Etiology of seizures in study subjects.

Etiology	No. of Patients	Percentage
Meningitis	14	12
Encephalitis	6	6
Meningoencephalitis	12	14
Tuberculoma	9	9
Infarct	8	7
Haemorrhage	6	6
SAH	14	14
Hypoglycemia	7	7
Hyperglycemia	3	3
Hypocalcemia	5	4

Hyponatremia	5	5
Tumours	4	4
Poisoning	3	3
Alcohol withdrawal	4	6
Total	100	100

Discussion:-

Seizures are common disorders found all over the world affecting the quality of life significantly. They are a common source of referrals for neurology consultations. A careful history and guided evaluation is necessary to avoid misdiagnosis, to establish causation and to determine prognosis. Etiological spectrum depends on age, sex, geography and medical setting²⁰. The etiology of seizures in developing countries is different from developed countries. These etiologies even vary from region to region with in India²¹.

In the present study out of 100, 8% patients were in the age group of below 19 years while majority of 26% were recorded in the age group of 20-39 years followed by 38% in the age group of 40-59. These observations are correlated with the findings of BS Rao et al, and Sridharan and Murthy^{21,22}. The incidence and etiological profile of seizures was found to be comparable with other such studies.

The present studies showed 41% patients had seizures because of neuroinfection with meningitis as the major cause followed by meningoencephalitis^{21,23-26}. In the present study neuroinfection was recorded in 2nd and 3rd decade followed by 4th and 5th decade. Amongst neuroinfections, neurocysticercosis was not found in the etiological spectrum of seizures in Kashmir although it has been recorded as the major cause of seizures elsewhere in India. Radhakrishnan et al in his studies on epilepsy also did not observe the presence of neurocysticercosis in Kerala²⁷. Cerebrovascular accidents occurred in all age groups in 4th decade followed by 2nd, 3rd and 5th decade each. Metabolic seizures were predominant in 5th and 6th decade followed by 3rd and 4th decade. Sailaja and Chukka while showing neuroinfection occurring in 3rd and 4th decade recorded CVA in 2nd and 3rd decade²⁸. Our results on metabolic seizures in the 5th decade are, however, comparable with the findings of Sailaja and Chukka²⁸.

Conclusion:-

Majority of seizures occurred in the age groups of 20-49 years. Etiological spectrum of seizures was varied and included CVA, neuroinfection, metabolic, tumor, idiopathic. Neuroinfection and CVA account for significant number of seizures in all age groups. We believe that the results obtained will be useful for health care policy makers in planning for the better management and prevention of seizure disorders.

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