

Prevalence of Seizure Disorder in School Children in Kashmir

Gurmeet Singh¹, Sheikh M. Saleem², Sheikh Mushtaq Ahmad², Mohammad Ismail³, N. S. Neki⁴

¹Consultant, Medicine District Hospital Baramulla.

²Additional Professor, Department of Neurology Sheri Kashmir Institute of Medical Sciences Soura Srinagar Jammu and Kashmir 190011.

³Lecturer, Medicine Govt Medical College and Associated Hospitals Srinagar.

⁴Professor, Medicine Department, Govt Medical College, Amritsar, India.

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ABSTRACT

Background: Seizure disorder is highly prevalent disorder particularly in developing countries. This study was undertaken to determine the prevalence of seizure disorder of school going children (6-16) years of age in all the six districts of Kashmir. **Methods:** The selection of schools was done by PPS (proportionate to population size) used in cluster survey. Questioner Performa was given to 60 randomly selected children from each selected school, 30 boys and 30 girls were screened to find out the prevalence of seizure disorder. To give adequate representation to all individuals of various strata both Govt and Private run schools from rural as well as urban areas were selected. **Results:** A total of 19 positive cases of epilepsy were detected during the survey period, After screening of 5760 children (rural and urban) the crude prevalence of epilepsy was found to be 3.3/ 1000 which is comparable to the other studies in the world. The Male prevalence in school going children was 3.8/1000 while female prevalence of epilepsy was 2.77/1000. Commonest type of seizure was generalized tonic clonic (GTC) 78.9%. **Conclusion:** The prevalence of seizure disorder in children of lower socio economic class was 3.5/1000.

Keywords: Children, Seizure.

INTRODUCTION

Seizure disorder is a major health problem in developing countries including Southeast Asia. Prevalence of seizure disorder in school going children reported from different countries is 4.4 to 9.9 per 1000.

The results published till date is discordant because of various methodologies, asymmetric protocols, age ranges.

Sidnvall R et al in Scandinavian study reported prevalence of epilepsy among school children in range of 2.6 to 11.6 per 1000. The aim of our study was to access the prevalence of seizure disorder in school going children from 6 to 16 years.

As per recent study 70 million people have epilepsy 90% of them are in developing countries.^[10] Epileptic episodes vary from brief to nearly undetectable episodes to long periods of vigorous shaking.^[11] These episodes can result in broken bones.^[12] In Epilepsy seizures trend to recur as a rule and have no immediate underline cause.^[13]

Name & Address of Corresponding Author

Dr. Gurmeet Singh
Consultant
Department of Medicine
District Hospital
Baramulla.

MATERIALS AND METHODS

Survey area

The study was conducted in the J&K state which comprises of 3 provinces Jammu Kashmir and Ladakh. The study was conducted in all the six districts of Kashmir namely Baramulla, Anantnag, Kupwara, Srinagar, Budgam and Kulgam.

Survey Population and Methods.

Population Chosen was based on Cluster Sampling the study was conducted in Kashmir with total population of 5476970 (male 2877211 females 2519759). The population of school going children was (Males 1231139 females 1101028). The selection of schools was done by PPS method (proportionate to population size) used in cluster surveys (1).

Four steps were used to select the schools to be used in the survey.

Step 1st :- List of schools along with their enrolment was procured from directorate of school education Kashmir Division. The Schools were numbered from 1 to total number of schools with their enrolment (student population cumulative population).

Step 2nd:- Sampling interval was calculated by dividing the cumulative by cluster number (30)

Step 3rd:- One school which had cumulative population between one and the sampling interval was randomly selected. Sixty students (30 boys and 30 Girls) were screened to find the prevalence of epilepsy.

Step 4th:- Next school was selected by adding sampling interval to the cumulative population of the 1st selected school (which was selected in the step 3rd) and so on. 30 children each boys and girls were screened for the epilepsy.

Selection of Schools Using PPS Method

Schools	Enrollment (6-16 Yrs)	Cumulative frequency	Cluster
A	200	200	
B	150	350	230th
C	100	450	Individual 1st
D	250	700	630th
E	100	800	Individual 2nd
F	----	----	

Let total Population A+B+C+..... = 12000

Interval = 12000/30=400

First selection will be school B, Second school D and so on the study was conducted over a period of two years

Total No of Districts screened in Kashmir Valley	06
Total No of schools screened in each district	16
Total No of schools Screened in Valley	96
No of Govt Schools screened in Kashmir Valley	48
No of Private Schools Screened in Kashmir Valley	48
Total no Children screened in each district	960
Total no Children screened in Kashmir valley	5760

Before getting permission from the head of school a preformed questioner of WHO was administered in vernacular local language. Seizures were classified according to ILAE guidelines with following exclusion criteria.^[2]

1. Provoked seizures
2. Febrile Seizures
3. Single Isolated Seizures.
4. Seizures with stroke or trauma
5. Seizures with CNS infections like meningitis encephalitis or brain abscess
6. Pseudo-Seizures, Syncope.
7. Seizures with metabolic and toxic encephalopathy.

On the prefixed day random cluster of 30 boys and 30 girls was taken each children was interviewed in presence of teacher and questioner completed further information regarding onset of seizure, place of birth, obstetric history, income, occupation, antenatal history was sort from the parents . Family history of seizure and to visit to Quack/ (PIR) was sort out. The data collected was subjected to statical analysis. From a Methodological prospective difference exists across the studies due to varying sample size, data collection, personal nature of population (Urban/Rural) duration of study, data collection tools, Questioner and other factors.^[14]

RESULTS

Out of the total no of screened children for epilepsy in Kashmir 19 positive cases were confirmed by the neurologist. The crude prevalence of seizure disorder was found to be 3.3/1000 in the study. The prevalence rate of epilepsy was higher in Govt schools 57.9% as compared to 42.1% in private schools reflecting socio economic status of the children. Age specific prevalence was found to be higher in age group (10-12 Years) 52.6%. Among the types of seizures GTC was the commonest type 78.9%, followed by partial seizure 10.3%. Absence seizure 5.3% unclassified 6.3%, gender specific prevalence males had higher prevalence 57.3% as compared to females.

Table 1: Demographic Profile

District	Total Surveyed	Population	No. of Positive Cases (n)	Prevalence Male	Prevalence female
Anantnag	960		3	4.16	2.08
Pulwama	960		2	2.06	2.08
Srinagar	960		4	4.16	4.16
Budgam	960		3	4.16	2.08
Baramullah	960		3	4.16	2.08
Kupwara	960		4	4.16	4.16
Total	5760		19	3.81	2.77

$\chi^2 = 0.540, P=0.991 (>0.05)$ NS

Table 2: Age Specific Prevalence of Epilepsy in School going Childrens in Kashmir valley.

Age in Years	No of Positive Cases (N)	Percentage %	Population at Risk	Prevalence /1000
6-9	07	36.8%	1709	4.09
10-12	10	52.6%	2994	3.34
13-16	2	10.5%	1057	1.89
Total	19			

Table 3: Gender Specific Prevalence rate of epilepsy in school going childrens aged (6-16 years) in Kashmir valley.

Sex	No of Positive Cases (N)	Percentage %	Population at Risk	Prevalence /1000
Males	11	57.9%	2880	3.81
Females	8	42.1%	2880	2.77
Total	19			

Table 4: Prevalence of epilepsy in school going children in Kashmir valley according to their socioeconomic status

Socio Economics Status	No of Positive Cases (N)	Percentage %	Population at Risk	Prevalence /1000
Upper Class	1	5.2%	306	3.26
Upper Middle Class	5	26.3%	1538	3.25
Average Middle Class	6	31.57%	1791	3.35
Lower Middle Class	4	21.0%	1123	3.56
Lower Class	3	15.7%	912	3.28
Total	19			

Table 5: Seizures types (Age group 6-16 years) all the six districts of Kashmir valley.

Demographic Variables	Generalized tonic clonic (GTC)	Partial	Absence	Unclassified mixed	Total percentage
Districts					
Anantnag	2 (66.7%)	1(33.3)	----	----	3(15.8)
Pulwama	1(50%)	----	50%	----	2(10.5)
Srinagar	4 (100%)	----	----	----	4(21.0)
Budgam	3 (100%)	----	----	----	3(15.3)
Baramulla	2 (66.7%)	(33.3)	---	---	3(15.8)
Kupwara	3 (75%)	---	---	1 (25%)	4 (21.0)
Total	15 (78.9%)	2 (10.5)	1(5.3)	1(5.3)	19

Social taboos and illiteracy had impact on the seizure disorder. Lowest prevalence of 3.35/1000 was observed in the average middle class.

DISCUSSION

Epilepsy is second commonest neurological disorder after head ache. The school children are ideal for epidemiological studies, such studies help in policy making and social and economic burden of the society. Overall crude prevalence of epilepsy was 3.3/1000.

Kaul et al,^[3] in study of prevalence of epilepsy was 2.47/1000 which is similar to our study .

Sidnavll R et al,^[4] in a Scandinavian study reported prevalence rate of epilepsy among school going children in range of 2.6-11.6/1000 children.

Higher prevalence in Govt Schools 3.81/1000 compared to private schools 2.77/1000.

As most Govt Schools are situated in rural areas so the prevalence of epilepsy is higher in rural as compared to urban schools.

Aziz H et al,^[5] found higher prevalence of epilepsy in rural areas. A higher prevalence of epilepsy was found in males compared to females reason not known.

Some studies have reported epilepsy more common in first birth order while others have reported epilepsy in higher birth order.

Based on Kuppusswamy classification.^[6] Higher Prevalence of epilepsy was found in average middle class.

Freeman et al,^[7] found that in children between age group Of (7-12 years) prevalence was 3.18/1000populatiomn.

Cowan L.D reported prevalence of Epilepsy in age group of less than 10 years 5-5.3/1000 population,^[8] 10-14 years 406./1000 population.

Similar were the findings of Koul et al: with prevalence higher in age group of less than 14 years i.e: 3.18/1000 population.

This is comparable to our study which indicates that prevalence is higher in lower age groups and higher in elderly children.

Classification of Epilepsy was done according to the guidelines of ILAE (international League against Epilepsy). 78.9 % were having GTC in our study Guvenes at al,^[9] found higher prevalence rates of epilepsy in rural as compared to urban areas.

ILAE means that almost no epidemiological studies from the developing countries can truly report seizure type. Hence there is a chance that so called generalized seizures is infact secondary generalized. The finding of National General Practice of Epilepsy from the united kingdom and the study of Walter PE et al,^[10] Norway support this argument.

The present study revealed 52.6% had EEG records available out of which 25 % had normal EEG. Most common Anti Epileptic Drug used was Dyphenyl/hydanton.

An economic study from India estimated that public financing for both first and second line therapy and other medical costs elevates the financial burden from epilepsy and is cost effective.^[15]

One study in LMC found that people with epilepsy were lower socio economic status then people with Non stigmatized medical condition although this association was unclear.^[16]

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