

Prevalence, Treatment Approaches and Role of Medicinal Plants Towards Epilepsy in Chitral, Pakistan

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Abstract

Epilepsy is a non-communicable neurological disorder and mainly denoted by seizure. More than fifty million people in the world suffer with epileptic conditions. Following a prevalence rate of 9.99/1000 around 2 million people in Pakistan are with epilepsy. It's on rise. Epileptic bulging is ever increasing burden on socio-economic and development spheres of the country. Current study conducted across a population of 447,362 in Chitral revealed that around 521.9 (1.166 %) people have epilepsy. Almost 12 people (11.9/1000) out of each thousand suffer from epilepsy. Among epileptic patients, male (62.5 %) shows almost double than female (37.5 %). Age bracket 10 - 20 (40.6 %) is the most suffered segment of society followed by 21 – 30 (25 %). There is no significant correlation among gender, house type, and number of rooms in the house, toilet type, occupation, income sources and income. Epilepsy occurrence in Chitral is relatively higher than overall country ratio and slightly lower than the rural ratios (14.8/1000). People believe in different

healing approaches. Around 87.5 % patients visit doctor. Rest of patients (12.5 %) either ignore or go to other healers. Out of total patients, 34.37 % visit Khalifa, a religious scholar; 21.87 % go to Molvi (religious mosque incharge) and 28.12 % Nankhaw (one having potential to communicate with fairies). Myoclonic epileptic type is most frequent (37.5 %) type followed by generalized seizure (31.25 %), atonic (18.75 %) and tonic clonic (12.5 %). Research culminated with two important questions, answer to which can change lives of millions and millions across the globe. Among these, first one is: what climatic and dietary factors responsible for doubling epileptic ratio in rural settings than urban, secondly, which chemical or set of chemicals are responsible for activation of certain epileptic specific genes in the rural area?

Keywords:

Seizure, Neurological disorder, jerk, chronic diseases, non-communicable diseases

1. INTRODUCTION

“Epilepsy is a chronic disorder, the hallmark of which is recurrent, senseless seizures” (EF. 2017; Bowman et al., 2001). Among epileptic patients’ seizure are caused when uncontrolled, disordered and rapid powerful electric currents pass through cerebral cortical neurons (Elger and Schmidt, 2008; *Ornstein and Thompson 1991*) which change behaviour suddenly for few seconds to 3 minutes (BS, 2017; Wolfe. 2010; Tsai and Zager, 2005). Pre-seizure, patients feel strange warning signs i.e. bad smell, bad taste and vision alteration before seizure occur. Such sensations collectively known as aura (BS, 2017). Therefore, epilepsy is considered as a family of disorders not a disease (Rosenbaume et al., 2007). In some cases, two unusual seizures occur in more than 24 hours apart (Foldvary et al., 2012). Seizure classified into partial (no loss of consciousness) and generalised and consciousness loses (Seizure smart, 2017; Kobayashi et al., 2001; Engel, 1984). During childhood it exhibits huge range of clinical symptoms making diagnostic perplexing (Panayiotopoulos, 2007).

Around 50 million people across the world suffer from epilepsy. Among them 75% belong to poor countries with less or no access to medical treatment. In UK, almost 96,000 (6/1000) have epilepsy (Magrath, 2010). In Karachi, there is a high ratio of epilepsy in children (23.14/1000) (Rose et al. 1973). In general, in Pakistan, it’s prevalence is 9.99/1000, therefore, around 2 million people suffer with epilepsy. However, in rural settings it is rural 14.8/1000. In Pakistan, only one neurologist available for 1.4 million compared to 1:26 thousand in US (Siddiqui et al. 2015). It frequency seems higher in children as compared to elders (Senanayake & Román, 1993).

A missense mutation (replacement of serine 248 by phenylalanine) causes seizures via a diminution of the activity of the $\alpha 4\beta 2$ neuronal nicotinic acetylcholine receptor (Weiland et al., 1996). There is controversy whether genetic factors contribute into epilepsy. Several other causes including traumatic brain injuries, brain infections, cerebrovascular disease, brain tumours, neurodegenerative diseases, developmental disabilities, perinatal insults, and familial factors contribute into epileptic conditions (Annegers, Rocca & Hauser, 1996, June; Ettinger, 1994; Cobb, 1932). Whereas, progressive myoclonus epilepsy associated with storage material in the brain (Berkovic et al., 1996). Cerebrovascular diseases are considered major cause of acquired epilepsy (Annegers, Rocca & Hauser, 1996, June). For some researchers’ immunological disorders cause seizure (Forsgren, L., Bucht, G., Eriksson, S., & Bergmark, 1996). In several communities it is believed that epilepsy was caused by witchcraft (Moshi, Kagashe & Mbwambo, 2005).

Different methods and approaches are used to treat epileptic conditions. These include traditional healing practices served by any religious or a Shaman (fairies driven), Chinese and Ayurvedic herbal medication, behaviour therapy, operative, Vagus-nerve stimulation and other allopathic medication (Winkler et al. 2010; Baskind & Birbeck, 2005; Wang, Li, Devinsky, Schachter & Pacia, 2005; Ben-Menachem, 2002; Morrell, Whisler & Bleck, 1989; Gardner, 1967). In the most developing countries, people with epilepsy have limited access to health care facilities. In sub-Saharan Africa 90% (12 million) do not receive adequate medical treatment. Various leguminosae, Rutaceae, Lamiaceae and Acanthaceae Cucurbitaceae have been used for treating epilepsy in different countries and communities

(Moshi, Kagashe & Mbwambo, 2005; Hedberg et al. 1982; Moshi, Kagashe & Mbwambo, 2005). There are no reports available on the subject from Chitral district. Current study was aimed at mapping of prevalence of epilepsy in the Chitral district of Pakistan and identification of different treatment approaches among the rural communities.

2. MATERIALS AND METHODS

2.1. Research area

Chitral is a series of remote valleys in the northern western Pakistan stretches over an area of 14,000 km². It shares administrative borders with Kunar, Badakshan and Nuristan provinces of Afghanistan in the West, Gilgit-Baltistan in the North East and Khyber Pakhtunkhwa in the South. It falls within 36.1113° N and 72.1416° E. More than 95 % of population lives in rural settings. There are around 450,000 (urban 9.61 %, rural 90.39 %) souls (male 50.86 %, female 49.14 %). Most of the area falls above 1500 meters (above sea level), prevalent average temperature remains below 7°C and a mean 81 % humidity. Medical facilities are still basic and poor in nature. Life is rapidly changing in Chitral. There are twenty-four union councils and two tehsils: Chitral and Mastuj. Study was conducted during spring 2016.

2.2. Sample frame and Size

Tehsil Mastuj was selected for the study. Tehsil Mastuj make more than 50% geography and population in district Chitral. A total of 331 households were surveyed in 24 villages. Stratified random sampling technique was employed. For data collection structured interviews were conducted from household head. Among all, only

6 were female heads and rest 325 were male. Sample size was extracted statistically at 95% confidence level and 5% margin of error. Questionnaire constructed was tested for corrections before actual survey was launched. Interviews were conducted in the local vernacular using framing and reframing questioning technique.

2.3. Major sections and parameters

Questionnaire was divided into three sections i.e. respondents detailed profile including socioeconomic conditions, epilepsy focused and treatment approaches.

2.4. Data processing and analysis

Data gathered through the structured instrument was processed using the MS Excel (version 16). XLStat and Statistical Package for Social Sciences (SPSS) were used for data processing and analysis. Descriptive statistics including means, ranges, standard error, Standard Deviations and frequencies were calculated. However, for the correlation and significance of means, inferential statistics including t-test, ANOVA and correlational analysis were applied.

3. RESULTS AND DISCUSSION

Study revealed that 1.166 % (11.9/1000) population in Chitral have epilepsy. Majority epilepsy patients are male (62.5 %). Which is almost double than female (37.5 %). Age bracket 10 - 20 (40.6 %) is the most suffered segment of society followed by 21 – 30 (25 %). There is no significant correlation ($p < 0.05$) among gender, house type, and number of rooms in the house, toilet type, occupation, income sources and income.

People believe in different causes and treatment approaches including evil spirit attacks and neuro-physical.

Table 1: SPSS Descriptive Statistics

House Structure	Frequency	Percent	Seizure Patient	Frequency	Percent
Cement	156	47.1	No	299	90.3
Traditional (Daisi)	175	52.9	Yes	32	9.7
Total	331	100.0	Patient Gender	Frequency	Percent
Wash Type	Frequency	Percent	Female	12	3.6
Traditional (Daisi)	1	.3	Male	20	6.0
Toilet	330	99.7	Income Source	Frequency	Percent
Total	331	100.0	Agri	55	16.6
			Business	76	23.0
			Employment	200	60.4

Around 87.5 % patients visit doctor but follow other approaches at the same time. Rest of patients (12.5 %) either ignore or go to only traditional healers. Out of total patients, 34.37 % visit Khalifa (a religious scholar); 21.87 % go to Molvi (religious mosque incharge) and 28.12 % Nankhaw (one having some natural potential to communicate with fairies). Myoclonic epileptic type is most frequent (37.5 %) type followed by generalized seizure (31.25 %), atonic (18.75 %) and tonic clonic (12.5 %). A smaller section (9.37 %) of patients use three medicinal plants (Cumin, Mint, Long pepper) as green tea for treatment of epilepsy in the area. Epilepsy occurrence in Chitral is relatively higher than overall country

ratio (9.99/1000) and slightly lower (11.9/1000) than the rural ratios (14.8/1000). (In certain cases, reported from Karachi, there are some alarmingly high ratios in children (23.14/1000) (Rose et al. 1973)). Current study does not support results of Khatri et al. (2003) who concluded that the prevalence was slightly more in ages of 40 to 59.

Detailed surveys are critical to investigate correlation among environmental and genetic factors contributing into epilepsy. Such a finding can change lives of millions and millions across the globe.

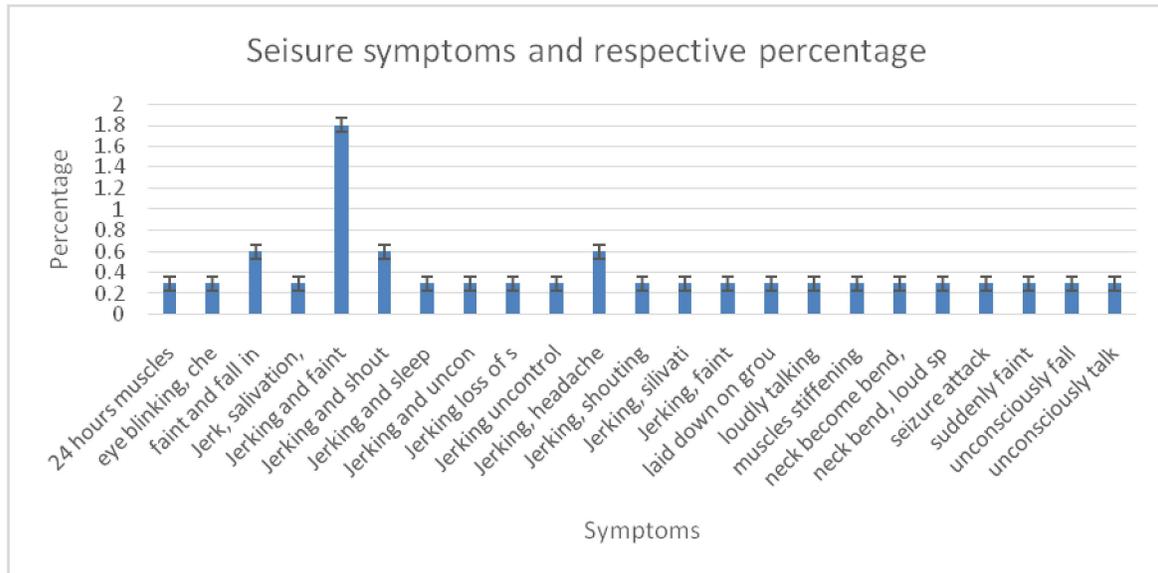


Fig. 1: Seisure Symptoms and respective percentage

4. CONCLUSION

In very narrow context of the study, one can ask why epilepsy has almost double in male than female in Chitral? Is it because of any gene related to masculinity? In general, why there is a relatively lower ratio in urban areas than rural? This is because of the divergence of urban rural ratios which is more prevalent in Turkey with 7/1000 (8.8/1000 rural, 4.5/1000 urban) (Aziz et al. 1997). Moreover, it relates to any specific food habit or mean climatic factors. Therefore it is concluded that some corelations of the disease are also needed for further extensive research to explore the basic consequences of the onset of disease epilepsy.

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