SHORT REPORT

Challenging behaviour and epilepsy in patients with intellectual disability: frequency and mutual association

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Abstract

Comorbid epilepsy and challenging behaviours is quiet common in patients with ID (intellectual disability). This study aims to determine the frequency and mutual association between epilepsy and challenging behaviours. In this cross-sectional analytical study, 252 patients were enrolled through convenient sampling technique. Comorbid epilepsy and CB (challenging behaviour) were seen in 111 (44.6%) and 116 (46.6%) patients, respectively. Epilepsy and severity of intellectual disability (ID) are statistically and significantly associated with challenging behaviour. This study concluded that comorbid epilepsy is more common among people with ID as compared to the general population. The clinical variables, i.e. comorbid epilepsy and severity of ID have statistically significant association with the CB.

Keywords: Epilepsy, Challenging behaviour, Intellectual disability.

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Introduction

Intellectual or learning disability is a neurodevelopmental disorder characterised by IQ score of 70 or below with diverse aetiology.[1] It is characterised by uniformly low performance on all types of cognitive tasks, e.g. reasoning, problem solving, abstract thinking, judgment, short-term memory, and learning, etc. These impairments lead to problems with adaptive functioning, such that the individual fails to meet the standards of personal independence and social responsibility in different aspects of daily life.[2]

Sensory impairments, motor disabilities, and epilepsy are the most common and important comorbidities and positively associated neurological illnesses in such patients. The frequency of comorbid epilepsy in such cases is up to 20% as compared to general population where it is merely 5%.[3] Moreover the prevalence of epilepsy increases as the severity of ID increases.[4]

Patients with ID usually present with challenging behaviours (CB), which not only impair physical safety of such patients but also pose a danger to others. These behaviours further stigmatise and marginalise such patients within the society. Reported prevalence of such behaviours varies from 4% to 22%. In specific settings and sub-groups it is up to 50% to 80%.[5] The rate of CB is quiet high among those with comorbid epilepsy.[6] According to another meta-analysis, there may be a positive association between epilepsy and certain types of CB in some patients.[7] Moreover, the increased severity of ID also leads to frequent CB.[8]

In Pakistan, the prevalence of ID is about 2.5%, out of which 20% are suffering from comorbid epilepsy.[9] According to another study, the prevalence of ID varies from 19.1/1,000 to 65/1,000 population. And challenging behaviours are most common among people in whom ID is severe to profound.[10]

No such study has been conducted regarding this problem in the past in this geographical region, i.e. Hazara Division, Khyber Pakhtunkhwa, Pakistan. Therefore, our study will provide important statistics regarding this problem.

Methods and Results

In this cross-sectional study, 252 patients were enrolled through non- probability convenient sampling technique from the OPD of District Headquarter Hospital, Haripur, and the standing medical board for Hazara Division. All patients diagnosed as cases of intellectual disability as per DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, 5th edition) criteria2 from March 2021 to April 2022 were included. However, those cases with uncertainty or incomplete information about the presence or absence of comorbid epilepsy or challenging behaviour were excluded. Data was collected through self-prepared questionnaire by the consultant psychiatrist after taking informed consent and approval from the head of the institution and the ethical review board. The sample size was calculated while considering the prevalence of comorbid epilepsy in patients with ID as 20% (CI 95%).3 CB was divided into three groups: 1) Harm-to-self; 2) Harm-to-others; and 3) Other behaviour, e.g.

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crying, shouting, etc. that makes participation in the community difficult. Frequency and percentage for categorical variables while mean and standard deviation for continuous variables were calculated. Odd ratio (OR) with 95% confidence interval (CI) was calculated using the Chi-squared test and binary logistic regression analysis using SPSS version 24.

There were 149 (59.1%) males and 102 (40.9%) females. Majority of the participants i.e. 211 (84.8%) were uneducated, while 38 (15.2%) were educated in special schools at least up to the primary level. The number of unmarried participants was 246 (98%). The mean age was 19.3 ±12.21 years. The severities of ID were: 78 (31.2%) mild, 80 (32%) moderate, and 36.8 (36.8%) severe to profound. Almost 111 (44.6%) were suffering from comorbid epilepsy, while 116 (46.6%) presented with CB. Among those with CB, 21.6% were in the harm-to-self group, 25.2% in harm-to-others group, while 27.6% belonged to other behaviour group that makes participation in the community difficult. The association of demographic variables and clinical variable with CB is given in Table 01. Moreover, the association of demographic and clinical variables with comorbid epilepsy in patients with ID is given in Table 02.

Table-1: Association of demographic and clinical variables with CB in patients with ID.

N=252	CB		OR with	Sig.
	Yes	No	95% C.I	
Epilepsy				
Yes	63	48	2.13 (1.28–3.5)	0.005
No	53	86		
Gender				
Male	71	78	1.13(0.68–1.88)	0.69
Female	45	56		
Marital status				
Single	113	132	0.34(0.054–2.26)	0.27
Married	3	2		
Education				
Uneducated	105	105	1.61(0.72– 3.58)	0.24
Educated	11	27		
Age	116	134	1.00(0.98–1.02)	0.822
Severity of ID				
Severe to profound (Reference category)	57	35		0.01
Moderate	37	43	1.83(0.98–3.39)	0.055
Mild	22	56	3.81(1.92–7.56)	0.000

CB= challenging behaviour ID= intellectual disability

Table-2: Association of clinical and demographic variables with epilepsy in patients with ID.

N=252	Epilepsy		OR with	Sig.
	Yes	No	95% C.I	
Gender				
Male	73	76	1.61 (0.93–2.79)	0.087
Female	39	63		
Marital status				
Single	110	136	0.96(0.14–6.35)	0.97
Married	2	3		
Education				
Uneducated	101	110	1.48(0.66–3.32)	0.336
Educated	11	27		
Age	112	139	1.03(1.00–1.05)	0.007
Severity of ID				
Severe to profound (Reference Category)	55	37		0.001
Moderate	34	46	2.08(1.10–3.92)	0.024
Mild	22	56	3.69(1.82–7.48)	0.000

CB= challenging behaviour ID= intellectual disability

Conclusion

Patients with ID are usually suffering from comorbid epilepsy and CB. The demographic variables have no significant association with CB. The odds of having challenging behaviour increases by 2.13 times (95% CI=1.28–3.5) while having comorbid epilepsy and 3.81 times (95% CI=1.92–7.56) while having severe to profound intellectual disability. Moreover, epilepsy is significantly associated with the mean age and severity of ID but not with other demographic variables. For every additional year of age, the odds of having comorbid epilepsy decreases by 3% (p=0.007) (95% CI=1.00–1.05). Those with severe to profound intellectual disability have 3.69 times the odd of having comorbid epilepsy compared to those where the severity is mild (95% CI=182–7.48).

In this study, no proper psychometric test was applied to assess the severity of ID and instead the severity was assessed merely on clinical ground. Moreover, no laboratory investigation was done to confirm or exclude the claim of comorbid epilepsy. Therefore, diagnostic bias may be there. Therefore, further studies are needed to collect data from the community and also to apply proper psychometric and laboratory tests to minimise the chances of diagnostic bias.

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Conflict of Interest: None to declare.

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Authors' Contributions

MS: Study and questionnaire design, concept, diagnosis, data analysis and interpretation, drafting, critical revision, final approval.

A: Data collection, entry.