

Association Between Characteristics Epilepsy And Cerebral Palsy And Socioeconomic Status (SES) In Children Patients Attending Hospitals In Makah At Saudi Arabia 2023

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Abstract:

Background

*Epilepsy is common in children with cerebral palsy (CP) and has been used as a marker of severity in this disorder. It is estimated to affect between 15 and 60% of children with CP. Epilepsy is associated with greater impairment of cognitive function, with lower probability of walking, with more severe behavioral problems, a poorer quality of life in compromising autonomy and inevitably a greater burden of care. Epilepsy is said to be intractable when two or more trials of anticonvulsants fail to control the seizures. Literature suggests that intractable epilepsy carries a higher morbidity than controlled epilepsy in children and their caregivers. Seizures are one of the common causes for hospital admissions in children with significant mortality and morbidity. Cerebral palsy is a disorder of movement and posture due to disruption of the immature motoric cells in central nervous systems. It is characterized by various neurological abnormalities, one of them is epilepsy. Epilepsy is difficult to control, as it is able to aggravate motor disorders and disrupt cognitive function, ultimately worsening the long-term outcome. Epilepsy has a significant impact on the everyday life of affected individuals. **Aim of the study:** To describe the association between Characteristics Epilepsy and Cerebral Palsy and socioeconomic status (SES) in children patients attending Hospitals in Makah at Saudi Arabia 2023. **Method:** A web-based, cross-sectional study will be conducted using snowball sampling strategy. A self-administered questionnaire was designed and will be sending to the study participants through social media platforms and email. Study participants will be recruited across in the outpatient*

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neurology clinics in Hospitals in Makah at Saudi Arabia. Our total participants were (150).

Results: In our study showed that the only 48(32.00%) of the participated were(3-6)years, the child gender the majority of the participated male were (64.0%), a approximately more than half of mothers of the child participant school education (55.0%). Regarding the social challenges faced by parents of children with neurologic disorders. **Conclusion:** Children with epilepsy in Cerebral Palsy a significant burden in outpatient neurology clinics and inpatient department of developing countries with Cerebral Palsy being more common and having various etiologies. Proper study on clinic profile of seizures can help in proper understanding of the disease burden and to take appropriate measures for its control.

Keywords: Epilepsy, Cerebral Palsy, socioeconomic status (SES),children in Makah at Saudi Arabia.

Introduction

Cerebral palsy (CP) is a group of neurological disorders that are caused by damage to the developing brain in fetuses or infants, which leads to permanent impairment of cerebral motor functions and impairment of abilities to maintain balance and posture [1]. Besides impaired cognitive function development, patients with CP often have many other co-occurring cerebral neurological disorders, such as epilepsy which has an incidence of 35–62% with an average of 43% in patients with CP [2]. The onset of concurrent epilepsy (CPE) disease is usually in infancy or early childhood, with more than half of CPE first appearing before 1 year old and more than 92% of CPE first occurring before 4 years old [3, 4, 5, 6]. The incidence of epilepsy in patients with CP is five times that of normal children without CP [7]. The main risk factors for epilepsy in children with CP include neonatal convulsions, low birth weight, intracranial hemorrhage, gray and white matter lesions caused by brain damage, and brain structure malformations [8, 9] Epilepsy and cerebral palsy (CP), basic neurological issues in kids, place a stamped burden on children with such conditions, their families, and society. CP represents a gathering of permanent, non-reformist issues that influence the improvement of movement and posture, in this manner restricting the action of individuals with CP. Since CP is a non-progressive pathology in immature brains [10] and it is related with scarring, some type of brain abnormality, seizures, or epilepsy issues. Plus, CP in children is much of the time comorbid with epilepsy and has been broadly examined[11] . We recently announced that CP is the second most common comorbidity in pediatric epilepsy and has a higher odds ratio (OR) of 91.4 (95% certainty stretch [CI] 65.8–127.0) than everyone.[12]. Epilepsy has been utilized as a marker of seriousness and frequently deteriorates the personal satisfaction of patients with CP[11], furthermore, perhaps more disabling than the original motor disorder. Contrasted and children experiencing epilepsy alone, epilepsy in children with CP is portrayed by a previous time of beginning, a higher frequency of partial seizure, a higher extent of brain imaging with strange pathology, a more noteworthy requirement for polytherapy, and second-line hostile to epileptic medications, and with lower probability of remaining seizure [13,14,15,11]

Albeit the two moms and fathers of children with epilepsy experience decreased Quality of Life when contrasted with parents of healthy children, moms have been appeared to score lower than fathers [16]

Better comprehension of the interrelationships between actual danger factors and psychological wellness in people with epilepsy in cerebral paralysis is particularly significant during development, on the grounds that the extent of the worldwide illness weight of emotional well-being messes is most elevated among children, adolescents, and young adults.[17]

The meaning of epilepsy in patients with CP is discussed controversially in the literature. There are considers showing that epilepsy varies from 12 to 90% in children with CP [18]

A few authors contend that in particular sorts of CP happen higher pace of epilepsy [19] and has been seen that around third of the patients with CP display seizures and this figure is relative to the level of motor and cognitive disabilities [20].

Epilepsy is viewed as quite possibly the most prevalent reasons for morbidity in kids. Epilepsy, characterized as repetitive ridiculous seizures starting from unusual electrical signs in the brain, is a typical chronic neurological sickness in childhood [21]. In particular, people with epilepsy in cerebral paralysis have low degrees of actual physical activity little heed to the degree of motor impairment.[18]

Children with epilepsy in cerebral paralysis additionally have a more issues with sleep disturbances than typically developing children, which is related with conduct issues and nature of life.[22,23] Individuals with epilepsy in cerebral paralysis reliably report higher torment pervasiveness, going from 33% to 75%, contrasted with the general population.[24] Further, pain is related with mental health messes in children,[19] yet not adults,[24] with epilepsy in cerebral paralysis.

Epilepsy is a highly pervasive issue all throughout the world with a reported recurrence of four to eight cases for every 1000 children [25]. Epilepsy in cerebral paralysis is the most widely recognized actual handicap of childhood[26] and represents a heterogeneous group of movement disorders with a range of motor impairments. People with epilepsy in cerebral paralysis are at an uplifted danger for mental health issues as a result of an assortment of social and actual danger factors. In everyone, actual danger factors, for example, low degrees of physical activity, [27] rest disorders,[28] and pain,[29] increment the danger of creating mental health disorders . These physical danger factors for mental health disorders are regularly comorbid and are commonly reported symptoms in those with epilepsy in cerebral palsy . [18]

Literature review:

Information of mental health disorder issue profiles and hazard factors in children and teenagers with epilepsy in cerebral paralysis would profit the improvement of early rehabilitation and treatment systems to lessen the weight of adverse mental health through the lifespan. [30] The commonness of epilepsy fluctuates by country [31], with a reach stretching out from 0.9 to 58 for every 1000 individuals [25,32]. Assessments for kids range from 5.1 to 7 cases for each 1000 [33] Prevalence will in general be higher in low to center pay nations when contrasted with big league salary nations [34]

There has been restricted investigation of its prevalence in Middle Eastern nations. Notwithstanding, one study recognized a predominance of 6.5/1000 for Saudi Arabia [32]. The information on pediatric epilepsy are significantly more restricted, with one study from 1998 assessing commonness at 2.5/1000 [35]

In Arab populations, patients with epilepsy experience raised degrees of gloom and tension, intellectual weakness, conduct issues, sexual brokenness, and underemployment [36]. Quality of life appears to be similarly impaired in both European and Middle Eastern samples [34] . Feelings of anxiety are often high in caregivers of patients with chronic

sicknesses like epilepsy, which can prompt lower parent–kid relationship quality, a higher danger of sadness in moms, and problems with family working [16]

Nonetheless, later investigation is warranted. Lamentably, hardly any investigations have been completed respect into describe epilepsy in Cerebral Palsy Children and relationship with socioeconomic (SES) in KSA. Coming up next is synopsis of as of late done studies in this regard .

A populace based study including 139 children for Iceland showed a higher decline in the extent of kids with CP and epilepsy more than time, from 38% for kids brought into the born in 1990e1996 to 15% for those brought into the born in 1997e2003.²² The recurrence of epilepsy in kids with CP announced here is consistent with studies performed in other. [37,38,39]

Before the finish of 2003 investigation was done to dispersion of different kinds of epilepsy in Cerebral Palsy Children those by others from India.[40] The rate of epilepsy in cerebral paralysis has been variably reported from 33 to 41.2%.^[38] In this investigation, around 33% of youngsters with cerebral paralysis had epilepsy. This is for the most part the experience of others.^[38] The frequency and type of epilepsy shift as per the kind of cerebral paralysis. We discovered epilepsy to be most common in hemiplegia (65.9%) and in quadriplegia (42.6%), which perhaps related with the cortical association and seriousness of mind harm in these cases. Epilepsy was least regular in diplopia (15.8%), possibly because the brain damage in these cases is mostly periventricular. Another study reported epilepsy in almost half of their patients with quadriplegia and hemiplegia.^[24] Others have reported figures of 54% in quadriplegia, 34 to 60% in hemiplegia, 27% in diplegia, and 23 to 26% in dystonic cerebral palsy.^[45]

Kulak et al.³⁷ showed that low birth weight was related with expanded danger of epilepsy while gestational age had no effect. On the other hand, Zelnik et al.³⁹ detailed that kids brought into the born at term were at expanded danger. The relationship between gestational age or birth weight and epilepsy in kids with CP is conflicting between studies.³⁹

This is probably going to be identified with the transcendence of white matter lesions in preterm children,^[42] as these are less inclined to lead to epilepsy than sores of the grey matter, all the more generally found in term kids with CP.^[43]

Rationale:

Up to knowledge of researcher, there was no researcher about Traits of Epilepsy in Cerebral Palsy Children in Jeddah city. Epilepsy in Cerebral Palsy Children is the most common physical disability of childhood .

Individuals with epilepsy in cerebral palsy are at a heightened risk for mental health disorders because of a variety of social and physical risk factors. In the general population, Epilepsy in Cerebral Palsy Children are often comorbid and are commonly reported in those, the topic of the research is an area of interest to the researcher.

Aim of the Study

To describe the association between Characteristics Epilepsy and Cerebral Palsy and socioeconomic status (SES) in children patients attending Hospitals in Makah at Saudi Arabia 2023 .

Objectives:

- To describe the association between Characteristics Epilepsy and Cerebral Palsy and socioeconomic status (SES) in children patients attending Hospitals in Makah at Saudi Arabia 2023.

Methodology:

Study design: Cross-sectional study.

Study setting / study area

we recruited a total of 150 of children with physician-diagnosed epilepsy at Hospital in Saudi Arabia to be included in the study, children has been between 4 and 18 years old, have had a seizure epilepsy in Cerebral Palsy in the past 8 months, diagnosed with Epilepsy by a pediatric neurologist, and the mothers has been taking care of the child for the past 6 months at a minimum. We did not include fathers of children with epilepsy as mothers are more often the primary caregiver.

Study population:

The researcher select children with physician-diagnosed epilepsy at Hospital in Saudi Arabia children has been between 4 and 14 years old, has be a seizure epilepsy in Cerebral Palsy in the past 8 months, diagnosed with Epilepsy by a pediatric neurologist, and the mothers has been taking care of the child for the past 8 months at a minimum.

Inclusion Criteria:

- All children with diagnosed with Epilepsy by a pediatric neurologist at Hospital in Makah .
- Had to be between 4 and 14 years old
- Have had seizure epilepsy in Cerebral Palsy in the past 8 months
- Mothers are more often the primary caregiver but the mothers must have been taking care of the child for the past 8 months at a minimum

Exclusion Criteria :

- All the children with missing information for epilepsy in Cerebral Palsy were excluded.

Sample size:

The researcher select children with physician-diagnosed epilepsy at Hospital in Saudi Arabia Then, has been final calculated sample size through the epi program was recruited a total of 150 of children with 95% confidence level.

Sampling technique:

The researcher has been use simple random technique. The researcher get approval from the Saudi pediatric program administrator, After that, The researcher get Permission from the regional Research and Ethical Committee to be given to hospital. The researcher has been meeting a head of department to collect the total number of select children from hospitals which are participating voluntarily in our study.

Study field :

Study has been conducted over two month period starting from the first February to the end of march 2023.

Characteristics of the children

Epilepsy was defined as a history of two unprovoked seizures after the neonatal period, (i.e. after 28th day of birth), but before CP registration. Febrile seizures were excluded. Epilepsy was considered active if the child was on medication at time of registration. The way the information on diagnosis of epilepsy was obtained depended on the ascertainment method of the register. Indeed, SCPE is a network of registers with different ascertainment methods. In several registers, data are abstracted from medical records (in which the word epilepsy and/or seizures and/or names of anti-epileptic treatment are present), in other registries, it is the pediatrician in charge of the child who confirms the diagnosis of epilepsy and provides information directly to the register, using a data collection preforms.

Data collection tools:

We used the “Impact of Pediatric Epilepsy Scale” (IPES), an epilepsy-specific self-administered questionnaire. The researcher has been used a questionnaire covering socio-demographic data and Patient Health the IPES is an 11-item scale that assesses the impact of epilepsy on health, relationship with siblings and partners, participation in social and family activities, child’s academic achievement and self-esteem, and caregiver's hopes for their child's future. Each item is rated on severity between 0 (not at all) to 3 (a lot), with higher scores indicating a higher impact of that item. The highest possible score was 33. We categorized IPES score below the median as “low impact”; and equal or above median and “high impact”. We conducted a forward-backward translation of the questionnaire and pre-test to develop an Arabic version of IPES. While we did not seek to validate the Arabic version of the IPES, the IPES has been validated and is used extensively to measure the impact of epilepsy on family life. Finally, we collected data on child’s age, gender, nationality and cognitive ability, mother’s education, family monthly income, the frequency of seizure and cause of the seizure. The time required for administration is 15 to 20 minutes.

Data management and statistical analysis :

Collected data has been processed using SPSS v.20 software. Descriptive statistics has been performed. Percentages have been given for qualitative variables and Mean (SD) has been given for quantitative variables. The primary study outcome for analyzing trend in prevalence was $p < 0.005$ for overall prevalence. The threshold for other analyses was $p < 0.05$. Statistical analyses were performed using Statistical software. Will be presented as percentage and 95% CI .

Ethical consideration :

- Get approval from Saudi pediatric program .
- Permission from the regional Research and Ethical Committee to be given the hospitals to conduct our study .
- All the subjects have been participating voluntarily in the study.
- Privacy of physician information and confidentiality has been maintained .

- Signed informed consent was obtained from all subjects who participated in this study.

	N	%
Child Age.		
<3years	27	18.00
3-6.	48	32.00
6-10.	45	30.00
>10	30	20.00
Child Gender		
Male	96	64.00
Female	54	36.00
Child Nationality		
Saudi	97.5	65.00
Non-Saudi	52.5	35.00
Mother Education		
Illiterate	22.5	15.00
School	82.5	55.00
University	45	30.00
Family monthly income		
< 5000 SAR	105	70.00
5000 to 10000 SAR	36	24.00
10000 SAR	9	6.00

Budget: Self- funded

Table 1 Descriptive characteristics of study participants are in children with Cerebral Palsy at Hospitals .(Age, Gender, Nationality, Mother Education, Family monthly income)

Results

A total of (150) child with Epilepsy in Cerebral Palsy participated in the study out of invited 150 (response rate: 100%) The researcher selected children and mother at Hospital in Saudi Arabia.

In our study showed that the only 48(32.00%)of the participated were(3-6)years while 45(30.00%)were(6-10)years, while <3years 27(18.00%).regarding the child gender the majority of the participated male were (64.0%)while females were (36.00%). the majority of the children were Saudi (65.00%) while non-Saudi were(35.00%) . Approximately more than half of mothers of the child participant school education (55.0%) and (30.0%) was university. The majority of the participated the family monthly income < 5000 SAR were (70.0%), followed by 5000 to 10000 SAR were(24.00%).

	N	%
Frequency of Epilepsy		
Daily	15	10.00
Weekly	90	60.00
Monthly	21	14.00
More than monthly	24	16.00
Frequency of Epilepsy		
Daily or Weekly	126	84.00
Monthly and More	24	16.00
Type of epilepsy in Cerebral Palsy Type		
Partial	114	76.00
Generalized	21	14.00
Unclassified	15	10.00
Cause of Epilepsy		
Cerebral palsy	120	80.00
Hypoxic encephalopathy ischemic	24	16.00
Unknown	6	4.00
Seizure etiology		
Head trauma/brain injury	78	52.00
Stroke/brain tumor	36	24.00
Other causes	33	22.00
Unknown	3	2.00
Number of antiepileptic drugs (AEDs) currently taking		
None	12	8.00
One AED	33	22.00
Two AEDs	45	30.00
More than two AEDs	60	40.00
Cognitive disability		
Yes	135	90.00
No	15	10.00
School status		
Not yet in school	60	40.00
Daycare	21	14.00
School age	69	46.00
Class type, if in school		
Regular class	102	68.00
Regular + resource	15	10.00
Regular + teacher's aide full time	12	8.00
Special education	21	14.00
Behavior severity (as judged by physician)		
Normal	78	52.00
Mild	39	26.00
Moderate	21	14.00
Severe	12	8.00

Neurological abnormality		
Normal	102	68.00
Mild	30	20.00
Moderate	15	10.00
Severe	3	2.00
Social functioning (total)		
Ability to join activities with others	63	42.00
Friendships	54	36.00
Engagement in school life	33	22.00

Table 2 Descriptive characteristics traits of Epilepsy in Cerebral Palsy Children

In our study showed that 60.0% (n=90) suffered from weekly epilepsy and 10.0% (n=15) reported daily epilepsy. While frequency of epilepsy the majority of the participants daily or weekly were 84.0% (n=126). The type of epilepsy in Cerebral Palsy the majority partial type were 76.0% (n=114) while generalized were 14.0% (n=21). In 80.0% (n= 120) of the child with epilepsy, cerebral palsy was the cause of seizure, and in 16.0% (n=24) hypoxic-ischemic encephalopathy, was the cause. Regarding Seizure etiology approximately more than half of etiology head trauma/brain injury 52.0% (n=78) while unknown etiology were 2.0% (n=3), regarding the number of antiepileptic drugs (AEDs) the majority currently taking more than two AEDs were 40.0% (n=60), regarding the school status the majority of children participant in school age were 46.0% (n=69) while not yet in school were 40.00% (n=60) regarding the Class type, if in school approximately more than half of children participant in regular class were 68.0% (n=102) while Special education were 14.00% (n=21), regarding the behavior severity (as judged by physician) approximately more than half of children participant in normal were 52.0% (n=78) while severe were 8.00% (n=12), but regarding the neurological abnormality the majority of children participant in normal were 68.0% (n=102) while severe were 2.0% (n=3). Regarding the social functioning (total) the majority of children participant in ability to join activities with others were 42.0% (n=63) while the engagement in school life were 22.0% (n=33).

Table 3 Distribution of the social challenges faced by parents of children with neurologic disorders (social issue, CP subtype, walking ability)

	N	%
Social challenges faced by parents of children with neurologic disorders.		
Social issue		
Can you travel for days leaving the child at home?	96	64
Does the condition of the child allow you to engage in social activities?	87	58
Have your friends or relatives avoided you due to this problem?	30	20
your friends play the child when they visit you?	48	32
Epilepsy on cerebral palsy type and associated impairments		
CP subtype		
Bilateral spastic	65	43
Unilateral spastic	66	44
Dyskinetic	18	12

Ataxic	39	26
Walking ability		
Alone	99	66
With aids	36	24
Unable even with aids	15	10
Severe intellectual impairment	21	14
Severe visual impairment	12	8
Severe hearing impairment	3	2

Regarding the social challenges faced by parents of children with neurologic disorders. The most of the parents could travel for days and leave the child at home were 64% (n=96). Approximately more than half of parents answered that they could participate in social activities 58.0% (n=87), 20% (n=30) of the parents they were avoiding friends and relatives because of this problem, friends of parents used to play with the child when they visited you were 32% (n=48)

Regarding the epilepsy on cerebral palsy type and associated impairments. The presence of epilepsy was associated with CP subtype, occurring more frequently in children with Unilateral spastic were (44.0%) followed by Bilateral spastic form (43.0%) while a dyskinetic (12.0%). In addition, the inability to walk were associated with epilepsy. More than half of the children with epilepsy (66.0%) were able to walk alone while walk unable even with aids were (10%). Also in addition, severe intellectual impairment were (14%), visual impairments were 98%) and Severe hearing impairment were (2%) associated with epilepsy.

Discussion

In this study, we estimated the traits of Epilepsy in Cerebral Palsy Children. Epilepsy in Cerebral Palsy is distressing > 50 million persons worldwide (85% of them in developing countries). Many previous kinds of research have argued epilepsy in school-age kids. The worldwide incidence of childhood epilepsy is estimated to be 4-8/1000 inhabitants [44]. We also investigated their characteristics traits of Epilepsy in Cerebral Palsy Children. Patients with CP had a significantly higher risk of epilepsy than their non-CP counterparts.

Population-based studies worldwide have estimated the prevalence of CP to range from 1.5 to more than 4 per 1000 live births or in children of a defined age range [45,46]. In developed countries, the overall estimated prevalence rate of CP is 2– 2.5 cases per 1000 live births [47], including a multicountries CP collaboration registries data in Europe, the Surveillance of CP in Europe [48]

The prevalence of CP in KSA, as reported in our study, is similar to that reported in other developed countries. Interestingly, our result was very similar to the report of Japan [49]

The study estimated CP prevalence per 1000 population aged 5 to 9 years lay in the higher range than other age subgroup, and this gradually declined with age. The prevalence is significantly lower for patients aged 15–19. It was possible due to lower life expectancy of CP population, especially in CP with multiple impairments or with severe impaired mobility [50].

We found that that the only 48(32.00%) of the participated were(3-6)years while 45(30.00%)were(6-10)years, while <3years (%18.00)27of children with Epilepsy in Cerebral Palsy , the child gender the majority of the participated male were (64.0%). the

children were Saudi (65.00%) more than half of mothers of the child participant school education (55.0%) (See table 1)

Another study in Turkey, a study found that 22 children among 1,625 school students were diagnosed as epileptic. The prevalence rate of active epilepsy was 4.9/1000 in males and 12.4/1000 in females with a total of 8.6/1000 [51]. study in KSA discussed above reported 6.5/1000 as the prevalence of epilepsy as the highest in Arab countries [52]

also another study show the prevalence of children with CP and epilepsy increased between 1976 and 1983 and decreased afterwards. This pattern mirrored that of the prevalence of CP during this time period. The proportion of children with epilepsy among children with CP tended to decrease over the two decades, although not significantly, despite progress in neonatal care.[53]

In South Korea's study [54], between 2004 and 2008, the overall prevalence of CP showed an annual increase from 2.2 in 2004 to 3.2 in 2008 per 1000 children, respectively.

In our study showed that 60.0% (n=90) suffered from weekly epilepsy and 10.0% (n=15). The type of epilepsy in Cerebral Palsy the majority partial type were 76.0% (n=114) while generalized were 14.0% (n=21). Regarding Seizure etiology approximately more than half of etiology head trauma/brain injury 52.0% (n=78), regarding the number of antiepileptic drugs (AEDs) the majority currently taking more than two AEDs were 40.0% (n=60), regarding the behavior severity (as judged by physician) approximately more than half of children participant in normal were 52.0% (n=78) . Regarding the social functioning (total) the majority of children participant in ability to join activities with others were 42.0% (n=63)(see table 2and 3).

On the other hand, Krocicka et al. [55] reported that physical/partial epilepsy which is a result of brain illnesses that lead to retarded developmental, neural diseases, and atypical EEG communal in children attending the hospitals with convulsions [55] New research in Saudi Arabia found a high prevalence of brain CT abnormalities (42.7%) in children who had their first obvious seizure [56]. Another research revealed irregular EEG results in the majority of patients in the structural/metabolic community compared with the other groups which can be explained by the fact that the etiology of brain insult in the structural/metabolic group tends to be more pertinent and, therefore, likely to show abnormal EEG findings [57]

The distribution of various types of cerebral palsy is similar to our studies, and others study from India.6 the incidence of epilepsy in cerebral palsy has been variably reported from 33 to 41.2%. Similar In our study,[15,38] about one third of children with cerebral palsy had epilepsy. This is generally the experience of others.[38] The incidence and type of epilepsy vary according to the type of cerebral palsy. We found epilepsy to be most common in hemiplegia (65.9%) and in quadriplegia (42.6%), Others have reported figures of 54% in quadriplegia, 34 to 60% in hemiplegia, 27% in diplegia, and 23 to 26% in dystonic cerebral palsy.[15,9] The incidence of seizures in children with hypotonic cerebral palsy was lower in our study compared with others, who have reported an incidence of 87.5%.13 The small number of hypotonic patients in our study may have accounted for this difference.

The study also reported different causes of epilepsy with adjustable rates as intracranial infection cerebral malformation, degenerative brain disease, and perinatal brain damage. In a study discussed in the perinatal insults like hypoxic-ischemic encephalopathy were the most frequent causes of structural/metabolic epilepsy, followed by metabolic disorders, infections, and trauma [57]. Strokes were reported to be the cause of epilepsy in 49% of patients included in a study in England [58] and 46% in Sweden [58]. High consanguinity

rates between parents in Saudi Arabia were also identified as a risk factor as mentioned above with a percentage of 59% [56]

The percentage of children on antiepileptic medication (AEDs) in our study taking Two AEDs and more than two AEDs(70.0%) was similar to the proportion seen in other studies, who have reported percentages ranging between 75 and 95%.9,10 Epilepsy is related to brain lesions and is consequently enduring. It also plays an important part in compromising the autonomy of adolescents and young adults.[46,47] Appropriate management and treatment of epilepsy are crucial to the care for children with CP.

On the other hand we found a higher prevalence of all Cognitive disability disorders and multi morbidity in children with CP . Although the odds of attention deficit disorder/ADHD were no longer significantly increased (i.e. attenuated) after accounting for socio demographic variables, the elevated odds of other mental health disorders and multi morbidity in children with CP persisted. Mental health disorders lead to increased overall disease burden.[59] physical risk factors in children with CP Low physical activity. Our findings of lower levels of physical activity and a higher prevalence of pain in children with CP compared to controls is consistent with previous studies. Neuromuscular dysfunction, weak muscles,[60]

Conclusion :

High incidence rates of childhood epilepsy in Cerebral Palsy were observed in Saudi Arabia. Epilepsy among children with CP is common and the prevalence rate for children born mirrored that of the prevalence of CP. Family History and consanguinity between parents are well-identified risk factors in KSA. We also recommend the health system to encourage well-planned health awareness campaigns and conferences to increase the public awareness about causes and risk factors of the disease and to increase the knowledge of parents about immediate seizure management in their children. There is increasing interest in the QoL of children with epilepsy in Cerebral Palsy. The spectrum of physical, cognitive, and communication impairments for these children is so broad that our results can be generalized to much epilepsy in Cerebral Palsy children. However, it requires longitudinal studies of children with CP and epilepsy to further improve our understanding of the relationship between epilepsy and CP and of the impact of having both on those so affected

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