How to Cite:
Al-Aameri, K. kadhim J., & AL-Mayahi, N. Y. S. (2022). Effects of postpartum problem on occurrence of epilepsy in children. *International Journal of Health Sciences*, *6*(S2), 8843–8850. https://doi.org/10.53730/ijhs.v6nS2.7308

Effects of postpartum problem on occurrence of epilepsy in children

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***Abstract*---**Introduction: Epilepsy is a widespread issue that may have devastating effects on children's health and development, as well as their social interactions and learning achievements, besides the social stigma it carries. As a result, in order to provide the best nursing care for children with epilepsy, it is important to know what could cause them to have epilepsy. Methods: In order to meet the stated objectives, a descriptive study was conducted. The research was carried out across Iraq's five Middle Euphrates Governorates, between the 1st of October 2021 and the 1st of May 2022. For the purpose of determining risk factors for epilepsy in children and to identify the relationship between the risk factors and parents socio-demographic data, clinical data and daily habits. The data was collected through the use of the questionnaire and data analysis by SPSS version 22. Results: The study showed that children with epilepsy who attended health institutions were less than two years old, 47 were affected, while the age group of three to five years was eighty-five children. The largest percentage was for the age between six to eight of the children with epilepsy. Conclusions:This study concluded that the majority of proportion children with epilepsy were males, whose ages ranged between 6 to 8 years. The vast majority was urban and did not enjoy specific hobbies and the most important factors affecting the occurrence of epilepsy in children(asphyxia, trauma during delivery, jaundice, febrile, encephalitis, meningitis, brain tumor, ADHD, and head trauma).

***Keywords*---**effects, postpartum problem, epilepsy**.**

Introduction

Epilepsy is a grouping of electrical system disorders in the brain that have a predisposition for triggering recurrent seizures. Seizures, which can last anywhere from a few seconds to a few minutes, cause changes in movement, behavior, feeling, or awareness, as well as loss of consciousness or convulsions, in most people. Both toddlers and adults can experience seizures.(Tan, 2014).Epilepsy is one of the most important diseases that spread to seventy million people in our world, and it is a disease that affects the brain, so it affects behavior, knowledge, cognition and other problems that lead to dysfunction in humans.(Yanagisawa, 2019).It transforms the normally functioning brain into a brain capable of producing excessive electrical charges.(Engel, 2019; Socała et al., 2021) The defect in the electrical system of the brain for the processes of activation and excitation between neurons and the incorrect reception of frequency signals inside the brain leads to a functional disorder in the chemical process, which leads to the occurrence of epilepsy if it is not controlled (Kobow *et al.*, 2012; Walker *et al.*, 2016; Engel, 2019; Socała *et al.*, 2021) The loss of cells control over the processes of receiving and delivering electrical signals leads to clear results on the human being and thus a change in movements and functions (Glozman, 2013; Terrone et al., 2019). People are routinely diagnosed as just having epilepsy, despite the fact that the diagnosis should be as precise as possible. Seizures, epilepsy, and syndrome are the three degrees of classification. in each phase, the cause and comorbidities should be established because they may have major therapeutic implications. The six categories include Related to genetic , structural issues, immune system disorders , viral infections and undefined. Seizures can be categorized as focal, generalized, or unknown in origin. When it comes to focal seizures, the level of awareness differs between individuals who have kept awareness and those who have impaired awareness. The first and most noticeable motor or non-motor manifestations of focal seizures are further classified (Mishra et al., 2017; Falco-Walter, Scheffer and Fisher, 2018; Dhinakaran and Mishra, 2019).Epilepsy is uncommon on its own, and comorbidities are common: more than half of patients with epilepsy have one or more other medical disorders. Epilepsy has long been linked to psychiatric disorders (such as Extreme stress, extreme sadness, hyperactivity, and attention deficit), but more recently, epilepsy has been linked to somatic disorders (such as Disorders of the pancreas and its secretion of insulin, problems with tendons and joints, diseases that affect the stomach and chronic diseases related to the lung) (Yuen, Keezer and Sander, 2018).

Methods

A descriptive Case-Control study design was used. Between the 1st of October 2020 and the 1st of May 2022.A study was accompanied in five “Middle Euphrates” Governorates (Njaf Al-Ashraf, Karbala, Babylon, Al-Qādisiyyah and Al-Muthana Governorates) (The Middle Euphrates Neurosciences Center, Imam Hussain Medical City, Imam Sadiq General Hospital and Al-Hilla General Teaching Hospital, Al-Diwaniyah Teaching Hospital/Neuroscience Center, and Al-Hussein Teaching Hospital) . Aconvenience sample of 672 children, divided equally in to case group (children with epilepsy) and control group (healthy children) from five cities of Middle Euphrates Governorates .Data was collected

from five Middle Euphrates Governorates Al-Njaf Al-Ashraf City, Holly City of Karbala, Babylon city, Al-Diwaniyah City and Al- Samawah City.The questionnaire was created and amended based on earlier reviews of related literature and studies, and it was separated into seven major elements., (one contained child related risk information, second, third and fourth parts were for pre, post and during delivery problems, fifth part was for daily habits, sixth and seventh parts were for fathers and mothers related risks).The data was collected through the use of the questionnaire and data analysis by SPSS version 22.

Results

Table (1): statistical distribution of the studied groups according to Child related-Demographic data

Child related-Demographic data		Epilepsy Cases		Control	
		Freq.	%	Freq.	%
Age of the child	<= 2	47	13.99	88	26.19
	3 - 5	85	25.30	68	20.24
	6 - 8	117	34.82	103	30.65
	9 - 11	46	13.69	41	12.20
	12 and more	41	12.20	36	10.71
Gender	male	192	57.14	106	31.55
	female	144	42.86	230	68.45
living location	rural	144	42.86	99	29.46
	urban	192	57.14	237	70.54
Educational level	illiterate	188	55.95	181	53.87
	continuous in elementary school	111	33.04	148	44.05
	interrupted elementary school	37	11.01	7	2.08
Child's hobbies	computer and mobile games	106	31.55	82	24.40
	TV	12	3.57	11	3.27
	play football	15	4.46	14	4.17
	no hobbies	203	60.42	229	68.15
Total		336	100%	336	100%

Table (2): statistical distribution of the studied groups according to Child related-Delivery problem risk data

Child related-Delivery problem risk data			Epilepsy Cases		Control		Chi-squre (df)	p-value (Sig)	Odd Ratio
			Freq.	%	Freq.	%			
	jaundice	Yes	110	32.74	33	9.82	52.66 (1)	<0.0001 (HS)	4.46
		No	226	67.26	303	90.18			
	seizure	Yes	1	.30	0	.00	1.001 (1)	0.317 (NS)	2.00
		No	335	99.70	336	100.00			
post-delivery problem (1-12)	fever	Yes	81	24.11	14	4.17	55.03 (1)	<0.0001 (HS)	7.30
		No	255	75.89	322	95.83			
	cp	Yes	5	1.49	2	.60	1.29 (1)	0.254 (NS)	2.52
		No	331	98.51	334	99.40			

	hydrocephalus	Yes	0	.00	0	.00	N/A	N/A	N/A
		No	336	100.00	336	100.00			
	encephalitis	Yes	9	2.68	2	.60	4.529 (1)	0.033 (S)	4.59
		No	327	97.32	334	99.40			
	meningitis	Yes	16	4.76	6	1.79	4.699 (1)	0.030 (S)	2.75
		No	320	95.24	330	98.21			
	brain tumor	Yes	4	1.19	0	.00	4.024 (1)	0.04 (S)	2.01
		No	332	98.81	336	100.00			
	ADHD	Yes	5	1.49	17	5.06	6.767 (1)	0.009 (HS)	0.28
		No	331	98.51	319	94.94			
	psychomotor retardation	Yes	7	2.08	4	1.19	0.832 (1)	0.362 (NS)	1.76
		No	329	97.92	332	98.81			
	mental retardation	Yes	5	1.49	2	.60	1.299 (1)	0.254 (NS)	2.52
		No	331	98.51	334	99.40			
	DM	Yes	0	.00	1	.30	1.001 (1)	0.317 (NS)	2.00
		No	336	100.00	335	99.70			
	blood disease	Yes	4	1.19	2	.60	0.673 (1)	0.412 (NS)	2.01
		No	332	98.81	334	99.40			
	head trauma	Yes	35	10.42	11	3.27	13.442 (1)	<0.0001 (HS)	3.43
		No	301	89.58	325	96.73			
	hormonal disorder	Yes	0	.00	0	.00	N/A	N/A	N/A
		No	336	100.00	336	100.00			
	intake toxic substance	Yes	0	.00	0	.00	N/A	N/A	N/A
		No	336	100.00	336	100.00			
	exposure to domestic violence	Yes	4	1.19	3	.89	0.144 (1)	0.704 (NS)	1.33
		No	332	98.81	333	99.11			
	exposure to car accident	Yes	4	1.19	2	.60	0.673 (1)	0.412 (NS)	2.01
		No	332	98.81	334	99.40			
	electric shock	Yes	3	.89	2	.60	0.201(1)	0.654 (NS)	1.50
		No	333	99.11	334	99.40			
	autism	Yes	5	1.49	2	.60	1.299 (1)	0.254 (NS)	2.52
		No	331	98.51	334	99.40			
Total			336	100%	336	100%			

Discussion

Table 1 : The study showed that children with epilepsy who attended health institutions were less than two years old, 47 were affected, while the age group of three to five years was eighty-five children. The largest percentage was for the age between six to eight of the children with epilepsy. While the frequency of the age group between nine to eleven years was forty-six children, and the age group of twelve and above was forty-one. Case-study were three hundred and thirty-six

cases of patients in the institutions of the Iraqi Ministry of Health specializing in epilepsy, from specialized centers and hospitals in the Middle Euphrates. Control - group of unaffected children was three hundred and thirty-six children. included eighty-eight cases for ages less than two years, sixty-eight cases for those aged three to five years, and one hundred and two cases for ages between six to eight years.Forty-one cases for children between nine and eleven, While the cases for ages twelve and over were only thirty-six.shows that most of the age groups were from 6-8 in both study and control groups (34.82% and 30.65%) respectively. The study also showed that the number of children affected by epilepsy for males is one hundred and ninety-two, and for the number of non-affected children is one hundred and six cases.While the frequency of infected cases for females was one hundred and forty-four cases, and the number of uninfected cases was two hundred and thirty cases.The males had the highest percentage in the study group (57.14%), while females were higher in the control group (68.45%).The study showed that the number of children with epilepsy who live in rural areas is one hundred and forty-four cases, and the number of unaffected children from the same area is ninety-nine cases.While the number of infected people in urban areas was one hundred and ninety-two, and the number of uninfected people in the same area was two hundred and thirty-seven.Concerning residence, the highest percentage were urban in both groups study and control (57.14% and 70.54%) respectively.The study also showed that children with epilepsy were exposed to jaundice factor at a rate of 32.74 percent, while the percentage of non-affected children was 9.82 percent, with an odds ratio of 4.46.But the study showed that there is a relationship for children with epilepsy who were exposed to a rise in temperature for both groups, with an odds rate of 7.30.Also showed the relationship of the factors (encephalitis, meningitis, brain tumor, attention deficit and trauma) with an odds level, respectively (4.59, 2.75, 3.01, 0.28, and 3.43).We find that the majority of researchers have found that this factor is influential for the establishment of epilepsy, including:(Asadi-Pooya and Hojabri, 2005), (Walsh et al., 2017), Some of them were many years ago and others were recently, and it seems that jaundice is a high indicator of epilepsy in children.The factor that represented a quarter of the sample was the increase in temperature, The researchers Berg, Jallon, AND Preux agreed with me and explained Febrile seizures are the single most common type of seizure disorder and occur in 2–4% of children in developed countries. Estimates from developing countries and from Asia range as high as 14%, febrile seizures occur in the setting of a febrile illness. Typically the fever is 101 _F or 39 _C or greater; however, it is not always possible to document this precisely and seizures in the context of illnesses but with milder fevers may occur. Febrile seizures appear to represent a developmental susceptibility to seizures in the presence of either fever or factors related to the infection and inflammation causing the fever.(Berg, Jallon and Preux, 2013).Regarding encephalitis and meningitis factors, And who were influencing the incidence of epilepsy in this study, And this result agreed Nigerian researcher in 2016 Where the results were five or a little more than a few percent, they suffer from infections that lead to the occurrence of epilepsy (Nwani, Nwosu and Nwosu, 2016), While the percentage was greater in Brazil, where twenty-four percent of the sample suffered from these factors. (Rizvi et al., 2017).Also, researcher Thurman et al., in 2018 ,matched the results in this study with regard to these two factors, where the percentage was five percent, which is exactly the same in this matter, By The proportion of epilepsy caused by CNS illnesses (also known as

meningitis and encephalitis) was estimated to be around 5% in both children and people of all ages. (Thurman et al., 2018).While a third of children with meningitis were at risk of developing epilepsy in a study conducted in Brazil (Corrêa-Lima et al., 2015).Improved health-care infrastructure that allows for early diagnosis and treatment, environmental changes that decrease exposure, and vaccines are all possible prevention options. Special attention should be paid to immunization programs for vulnerable groups. Between 1990 and 2015, the global burden of meningitis and encephalitis decreased significantly, owing to increased vaccination against bacterial and viral infections.(Karikari et al., 2018).Another factor that was significant in this study was brain tumor This was similar in a study conducted in the United States in 2018 by reasrchers Goldstein & Feyissa , where the incidence of seizures is high in patients with slow growing tumors located in the frontotemporal regions. However, recent studies suggest that epileptogenesis may be more associated with tumor molecular genetic markers than tumor grade or location. (Goldstein and Feyissa, 2018).This study agreed with another study by the researcher Englot et al.,, which means that this factor has an effect on the occurrence of epilepsy. (Englot, Chang and Vecht, 2016).With regard to head trauma, epilepsy may affect children for long periods of time as a result of this cause. Therefore, it is important to choose the appropriate treatment, taking into account the pharmacological effects, as the correct choice of treatment leads to controlling the recurrence of seizures and thus will improve the life of the affected individual with regard to psychological and social matters and increases their quality of life.Therefore, the emergence of some treatments that were less effective than others to deal with this cause is evidence of the use of new and accurate plans for the appropriate selection of medication, as well as strategies that include emotional and psychological support for the patient and his family(Köhling, 2017).In our study, we found that there is a relationship between epilepsy and distraction , This is what was clarified by the two studies, one of which was conducted in 2018 and the second in the year 2020 , Where it was found that there is a relationship between epilepsy and attention problems, which is the study of this study. Epilepsy and attention-deficit/hyperactivity disorder (ADHD) are strongly associated; however, the underlying factors contributing to their co-occurrence remain unclear. A shared genetic liability has been proposed as one possible mechanism.(Wang et al., 2020).This study also clarified the relationship between head injuries and epilepsy, as there was a relationship between them and this is what was proven by previous studies. In a 2016 study, a relationship was found between this factor and epilepsy, The study's findings showed that patients with head trauma have a significant chance of recurrence.(Bergey, 2016).Children in LMICs had slightly higher median estimates of the proportion of epilepsy caused by TBI..(Thurman et al., 2018).There are many problems related to pregnancy and childbirth, and because of overcrowding in health institutions, this leads to a defect in the plan used to facilitate delivery procedures, in addition to the lack of awareness for some women and their defect to follow up on the fetus during pregnancy, and their exposure to social and economic problems, which effects on fetus growth.

Conclusions

This study concluded that the majority of proportion children with epilepsy were males, whose ages ranged between 6 to 8 years. The vast majority was urban and

did not enjoy specific hobbies and the most important factors affecting the occurrence of epilepsy in children(asphyxia, trauma during delivery, jaundice, febrile, encephalitis, meningitis, brain tumor, ADHD, and head trauma).

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