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Determination of Risk Factors of Epilepsy among Children in Middle Euphrates

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By:

Karrar kadhim Jawad Al-Aameri

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Supervised by:

Assist. Prof. Dr. Naji Yasser Saadoon AL-Mayyahi (Ph.D.)

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بِسْمِ اللهِ الرَّحْمَنِ الرَّحِيمِ

﴿ وَإِذْ قَالَ رَبُّكَ لِلْمَلَائِكَةِ إِنِّي جَاعِلٌ فِي الْأَرْضِ خَلِيفَةً ﴾

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Supervisor Certificate

This is to certify that the dissertation entitled: **Determination of Risk Factors of Epilepsy among Children in Middle Euphrates**, submitted by Karrar kadhim Jawad Al-Aameri to the University of Babylon, College of Nursing in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Nursing. The dissertation work was carried out by the student under our supervision and guidance.

Signature

Assist. Prof . Naji Yasser Saadoon (Ph.D.)

Date: / / 2022

Signature

Prof **. Salma Kadhim Jihad Al-Ibrahimi**. (Ph.D)

Head of Family and Community Health Nursing

College of Nursing / University of Babylon

Date: / / 2022

Committee Certification

We, the members of the Dissertation Discussion Committee, certify that we have reviewed the dissertation entitled **''Determination of Risk Factors of Epilepsy among Children in Middle Euphrates."** carried out by Karrar kadhim Jawad Al-Aameri and examined the student in its contents and what is related to it on / / 2022.

We decided that the dissertation is accepted in partial fulfillment of the requirements for the Degree of Doctorate of Philosophy in Nursing with an estimation of ( ).

Member
Prof. Wissam Jabbar Qassim(Ph.D.)
Date: / / 2022

Member
Assist.Prof. Nuhad Mohammed Aldoori(Ph.D.)
Date: / / 2022

Member
Prof. Yahya Abd-Al-Shaheid (Ph.D.)
Date: / / 2022

Member
Assist. Prof. Selman Hussain Faris (Ph.D.)
Date: / / 2022

Chairperson
Prof. Dr. Amean A. Yasir
Date: / / 2022

Approved by the Council of the College of Nursing

Prof.Dr. Amean A. Yasir
Dean of College of Nursing
Date: / / 2022

Dedication

TO

My father and mother with all love and respect.

Our gracious and beloved teacher, Dr. Hussein Jassim Mohammed Alibrahemi.

My wife and family with all love and respect.

My dear friends with my love and respect.

parents who accepted to participate in the study.

karrar

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Abstract

Globally, 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.

In order to meet the stated objectives, a descriptive, Case-Control study was conducted. The research was carried out across Iraq's five Middle Euphrates Governorates, between the 1st of October 2020 and the 26th of April 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 characteristics, clinical characteristics and daily habits.

A convenience sample of 672 children from five cities in the Middle Euphrates Governorates, divided equally into a case group (children with epilepsy) and a control group (children without epilepsy). The findings indicate that the most important factors influencing the occurrence of epilepsy in children are as follows: (asphyxia, trauma during delivery, jaundice, febrile, encephalitis, meningitis, brain tumor, ADHD, and head trauma). as well as the occurrence of epilepsy is influenced by considerable sleep disruption. In addition, children with epilepsy who were five years old or younger had the highest percentage of initial seizures.

In order to better understand the causes and risk factors of childhood epilepsy, the study concluded that further research should be carried out. We are also using larger samples to conduct more focused research on each risk factor individually.

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List of Abbreviations

Abbreviation	Meaning
AAN	American Academy of Neurology
AAP	American Academy of Pediatrics
ADHD	attention-deficit hyperactivity disorder
AED	antiepileptic drug
AEDs	anti-tubercular and anti-epileptic drugs
ASDs	autism spectrum disorders
BBB	The blood–brain barrier
BT	Brain tumor
BTRE	Brain tumor-related epilepsy
°C	Centigrade
CAE	Childhood absence epilepsy
CCI	Controlled cortical impact
CFS	complex febrile seizures
CMC	Communication and Media Commission
CNS	Central nerves system
COSIT	Central Organization for Statistics and Information Technology
CP	Cerebral palsy
CSO	Central Statistical Organization
CWE	Children with epilepsy
d	Level of Significance or Desired Precision
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, fifth edition
DTaP–IPV–Hib	diphtheria–tetanus toxoids– acellular pertussis–inactivated poliovirus–Haemophilus influenzae type b

	vaccine
EEG	Electroencephalography
ED	Emergency department
e.g.	exempli gratia (Latin Words that Means for example)
EMR	Electronic medical records
°F	Fahrenheit
FETBS	focal evolving to bilateral convulsive seizure
FHE	Family history of epilepsy
FIRES	Febrile infection-related epilepsy syndrome
FS	Febrile seizures
FP	Fluid-percussion
FWIC	focal with impairment of consciousness
FWOIC	focal without impairment of consciousness
GEFS+	generalized/genetic epilepsy with febrile seizures plus
HC	Hydrocephalus
HIE	Hypoxic ischemic encephalopathy
HSE	Herpes simplex encephalitis
HSCT	Hematopoietic stem cell transplantation
HSV	Herpes virus
i.e.	Id est. "in other words"
ID	intellectual disability
ILAE	The International League Against Epilepsy
IMSS	Mexican Social Security Institute
IQ	Intelligence Quotient
LMIC	low- and middle-income countries
NORSE	New-onset refractory status epilepticus

P	Page
P.value	Probability Value
PFC	prefrontal cortex
PHC	Primary health care
PTE	post-traumatic epilepsy
QOL	quality of life
RDS	Respiratory distress syndrome
REs	Reflex epilepsies
RPCs	resource-poor countries
RT	Radiotherapy
SFS	Simple febrile seizures
SPSS	Statistical Package for Social Science
SUDEP	sudden unexpected death in epilepsy
TV	Television
TBI	traumatic brain injury
TBI	Total body irradiation
TBM	Tuberculosis meningitis
TRE	Tumor-related epilepsy
US	United state
VEGF	Vascular endothelial growth factor
WHO	World Health organization

Chapter One

Introduction

Chapter One
Introduction

1.1. Introduction:

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)

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)

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 related to genetic , structural issues, immune system disorders , viral infections and undefined.(Wang *et al*., 2019).

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).

A variety of possible associative mechanisms have been discovered. People who have several illnesses are more likely to be sent to other experts, resulting in a collection bias since persons who have a comorbid ailment remain recognized earlier than those who do not. The connections, on the other hand, do not fully explain the mechanisms. The most evident mechanism of linkage is a causal relationship (for example, a stroke producing epilepsy). Epilepsy and its treatment can cause a variety of problems (eg, effects ant seizure medications or the significances of seizure such as fracture). Shared risk factor is an original ingredient or circumstance that causes two or more conditions to arise. Environmental, genetic, neurochemical, physiological, or anatomical risk factors can all play a role.(Keezer, Sisodiya and Sander, 2016).

Risk factors differ depending on the age group. Epilepsy that starts before adulthood is more likely to have brain development abnormalities. Epilepsy caused by head trauma, infections, or tumors can strike at any age. In elderly persons, the most prevalent risk factor is cerebrovascular illness. Because parasitic diseases Such as diseases related to immune disorders are among the most common avoidable risky for epileptic disorder around the world, geographic location is crucial. (Tan, 2014)

Epilepsy is a disorder brain disease that distresses persons of all ages world-wide (Nimesh *et al.*, 2019)

Epilepsy is a syndrome characterized by spontaneous, recurring seizures, with at least two seizures or more required to be diagnosed as epileptic. It is a common neurological disorder that affects an estimated 50 million individuals worldwide and is defined by abnormal activity of electrical in the brain that causes changes in body movement or affects awareness, perception, or performance. The underlying etiology of epilepsy is unclear in around 80% of cases. trauma of Head and stroke are most common causes for epilepsy. According to estimates, 50-70 million individuals worldwide suffer with epilepsy, 4.6 million instances are reported each year., epilepsy entails significant hazards of disability, loneliness, economic loss, and early mortality.(Jebur, Jumaa and Hussain, 2021).

Active epilepsy affects four to twelve people out of every 1000 people, depending on where they live. (Zentner, 2012; Fiest et al., 2016; Socała et al., 2021).

The classifiers are elective and are reliant on the level of point given. Motorized and non- Motorized petit mal seizure are two types the generalized seizures. Unclassifiable seizures may have distinguishing characteristics. Somebody giving with fits without medical signs of focused

or generalized onset is common occurrence. These seizures are defined as tonic-clonic seizures with an unclear onset.(Tan, 2014; Mishra et al., 2017).

Epileptogenic networks are widely dispersed in generalised epilepsies, involving bilateral thalamocortical regions.(Fisher and Bonner, 2018; Powell *et al.*, 2018; Iacone *et al.*, 2021)

The majority of generalized epilepsies are assumed to be hereditary.(Afawi et al., 2016) Focal epilepsies, on the other hand, were thought to be chiefly categorized by structural brain abnormalities, particularly in resistant of drug in epilepsy.(Ryvlin, Cross and Rheims, 2014; Valentín *et al.*, 2015; Nomura *et al.*, 2016)

Generalised epilepsies, particularly idiopathic generalised epilepsies and developmental epileptic encephalopathies, were thought to be caused mostly by genetic defects in the past. Focal epilepsies, on the other hand, can have a hereditary attributed.(Goldberg and Coulter, 2013; Guo *et al.*, 2013).

The pathophysiological mechanisms that cause seizure activity as a result of structural flaws are unknown. Seizures are primarily triggered by activity of abnormal in neurons of cortical, but glial cell and axon in the white matter may also be complicated. An epileptform brain insult, proconvulsant drugs, stimulation of electrical, or traumatic of brain injury in animals provide a wealth of information.(Weckhuysen et al., 2016; Perucca, Scheffer, et al., 2017).(Löscher, 2011; Barker-Haliski, Sills and White, 2014)

These models have not been confirmed in humans.(Simonato et al., 2013).More than thirty elevated genes have been discovered in people with epilepsy, especially those from families who had epilepsy. The majority of cases of generalized epilepsies, such as Adolescent myoclonic, remain unexplained despite comprehensive examinations.(Black and Waxman,

2013; Helbig and Lowenstein, 2013; Koepp *et al.*, 2014; Thomas and Berkovic, 2014; Tinuper *et al.*, 2016; Allen *et al.*, 2017; Koeleman, 2018)

Epilepsy is not a mental illness or a form of mental retardation. Most people identify epilepsy with convulsions, however epileptic seizures can manifest themselves in a variety of ways; partial and generalized seizures are two different types of seizures. Convulsions throughout the body, looking into space, and barely discernible muscular twitching are all possible signs. Each type of seizure has its unique set of signs and symptoms.(Fisher et al., 2017)

According to the Epilepsy Foundation, the cause of epilepsy is unknown in around half of all epileptic patients. However, epilepsy can be caused by a variety of illnesses (Suleiman et al., 2013).

Some children with epilepsy may be able to outgrow it in a few years. Many youngsters, on the other hand, can avoid seizures by taking medication on a regular basis. Approximately 70% to 80% of children can totally control their disease with medication. (Weinstein, 2016)

However, some syndromes exist. It increases the chances of dying prematurely by 30%. Dravet syndrome, for example, is a particularly severe form of epilepsy (Dravet and Oguni, 2013; Engel, 2019)

Dravet syndrome is a seizure disorder that affects children before they reach the age of 15 months. It causes convulsions in only one half of the body, which may switch to the other half during future bouts. These seizures are sometimes triggered by rapid temperature fluctuations.(Wu et al., 2015).

Something that makes a person more prone to develop seizures and epilepsy is referred to as a risk factor. A risk factor can cause brain scarring or hinder some regions of the brain from properly developing or functioning.(Liu, Yu and Lü, 2016)

Despite the fact that diseases and injuries can assist explain many episodes of epilepsy, the majority of persons with epilepsy do not have any of these. We often have no idea how or why epilepsy develops.(Steven C. Schachter, MDPatty Obsorne Shafer RN, 2020).

Because correlation does not show causation, risk variables or determinants are correlational rather than causal. Being a child, for example, cannot be claimed to cause measles, but children have a higher measles risk because they are less likely to have established immunity during a prior epidemic.(Prisacari V., 2015)

Statistical approaches are widely used to evaluate the strength of a relationship and to give causal evidence (for example, in the case of After a traumatic brain injury (TBI), the severity of the injury is a well-known risk factor for the development of post-traumatic epilepsy (PTE). However, it is yet to be determined if the location of the lesion affects the susceptibility to seizures and the development of PTE over time.)(Tubi et al., 2019).

Risk factors can be proven to be causal using statistical analysis and biological sciences. Some prefer the word risk factor to refer to the causal causes of increasing disease rates, while unconfirmed relationships are referred to as possible risks, associations, and so on. Identification of risk variables can be a technique for medical screening when done wisely and based on research. (Zhu *et al*., 2021).

Risk factors are conditions that, when present, are linked to a higher occurrence of the ailment in question. From an epidemiologic approach, there are a variety of characteristics that show a causal relationship between a certain event (such as a traumatic brain injury) and a result (such as the development of epilepsy). These include things like chronological order (the epilepsy must have occurred before the head injury), biologic plausibility (we believe the insult can produce a credible pathologic and neurophysiologic cause for the epilepsy), and observational consistency

(epilepsy follows brain trauma in many different settings).(Wagner et al., 2014).

To corroborate causation suspicions, epidemiologists look for other characteristics such as the strength of the connection and evidence of a dose effect, for example. Epilepsy risk, rises with the severity of a head injury. The identification of risk factors from an epidemiological approach should enable for the development of therapies that could eventually prevent the development of epilepsy by eliminating the events in question.(Ngugi *et al.*, 2013)

Epilepsy must be a top priority for worldwide health, particularly now that cost effective medicines exist that can significantly reduce morbidity, disability, and mortality.(Tan, 2014; Saxena and Li, 2017; Megiddo, Klein and Laxminarayan, 2018; Singh *et al.*, 2020)

1.2.Importance of Study:

Iraq has been exposed to many wars and conflicts and is still suffering from the complications of those wars. Despite this, Iraqi children have suffered from health problems for many years, even before the outbreak of the war in 2003, especially for children under five years of age. As a result, studies have found that the highest death rate in the Middle East For children under the age of five, they were from Iraq. (Al-Obaidi et al., 2010)

In Iraq, around (10%) of children with epilepsy suffer from febrile seizures (Al-obaidi, Budosan and Je, 2010; Pugh *et al.*, 2016).

Children with epilepsy have been demonstrated to have significant challenges in daily living, hobbies, social engagement, and finding an apprenticeship. Furthermore, children with epilepsy have lower social skills than children without epilepsy. Children with epilepsy have a chronic illness, yet they are a diverse and complex population. Epilepsy comes in a variety of forms, with severity ranging from mild to severe. Associated neurological, intellectual, behavioral, or psychiatric issues are widespread

and frequently have a greater impact than the seizures themselves. (Camfield and Camfield, 2014)

Epilepsy is a common neurological illness that affects people of all ages, and Iraq is one of the countries where it is prominent, especially among children. It's a humiliating and unpredictably fatal disease. Because of the physical and psychosocial issues that epilepsy patients face, it was discovered that the majority of patients felt threatened with death and were subjected to social stigma, and that more than half of the patients didn't know why they were having an attack adding that despite taking medicine, half of them were unable to control their sickness. (Zhang et al., 2013)

In resource-poor countries, epilepsy is the most frequent neurological condition (RPCs). Because of its significant psychosocial morbidity and the potential for control with low-cost medicines, epilepsy has been designated as a health priority for children.

In adult the provinces of the Middle Euphrates find brain tumors, , Post traumatic cases and. Inflammatory or infectious lesions, degenerative disorders and metabolic derangement were found, but the tumor as an etiology of epilepsy had a peak value, while the post traumatic cases, the large .Seizures classification showed generalized tonicclonic seizure in 47(46%) of cases, focal without impairment of consciousness (FWOIC) in 7(6.9%), focal with impairment of consciousness (FWIC) in 13(12.7%) and focal evolving to bilateral convulsive seizure (FETBS) in 35(34.3%)(Al-Tameemi, 2011).

Primary health care (PHC) is an excellent venue for addressing lifestyle risk factors because it is broadly accessible and provides ongoing and comprehensive care. good behavior, food, and physical activity have all been demonstrated to be helpful when administered in a PHC setting (Chan *et al.*, 2012).

To aid in early diagnosis and quick management of epilepsy in children, should be assess and explain the risk factors and neurological disabilities associated with epilepsy in children. Epilepsy patients have a two to three times greater death rate than the overall population. Excess mortality is common in the first few years after diagnosis, which is generally linked to the epilepsy's underlying cause (for example, Tumors of the brain or cerebral vessels). rates of suicide in the general population are far higher, and seizures-related epilepticus status, accidents, and aspiration pneumonia all play a role.

Another common cause of mortality is SUDEP (sudden unexpected death in epilepsy). It is characterized as the death of people with epilepsy who die suddenly, unexpectedly, non-traumatically, and without drowning, and which often occurs in apparently healthy people. The bulk of these deaths are thought to be caused by seizures (often unwitnessed). A substantial suppression of digital EEG activity preceded apnoea in the majority of instances recorded in EEG-videotelemetry devices, It is believed that the most common cause of death in patients with epilepsy is the lack of oxygen, and therefore the rates ranged from one to nine per thousand people, and this depends on the severity of the seizure and the type of epilepsy. (Camfield and Camfield, 2015).

1.3. Statement of the Problem:

Many of the difficulties that children face, especially in the stages of birth and before delivery ,as well as in the stage of growth and development, children may be exposed to many problems related their health and regarding to the environment ,or genetic factors may be acquired from their parents such as diseases ,habits or attitudes, which may be cause of diseases for their children .

Epilepsy ,is one of the problems that lead to disorder in the brain ,which lead to disturbance in behavior and development which may affect

children for life ,so determine these factors will help as much to reduce and prevent disease, thus ,it prevents the burden from happening to their families.

1.4. Objectives of the Study:

- To determine of risk factors of epilepsy among children.
- To find out the relationship between the risk factors and parents socio-demographic characteristics.
- To find out the relationship between risk factors and clinical characteristics of children.

1.5. Definition of Terms:

1.5.1. Determination:

a. Theoretical Definition:

"The measurement or estimation of any quantity or quality in scientific or laboratory investigation"(medical-dictionary, 2012)

b. Operational Definition:

Knowing the frequency of factors that lead to the occurrence of epilepsy in children through the questionnaire.

1.5.2. risk factors:

a. Theoretical Definition:

"A risk factor is something that makes a person more likely to develop a certain disease or condition.(ShaferPatty, 2014)

b. Operational Definition:

Those factors that can cause the emergence of epilepsy, and this may be due to the fact that some people tend to be affected more than others by environmental and genetic factors that can lead to seizures, and these risk factors will be identified by study questionnaire.

Chapter Two

Review of Literature

Chapter Two

Review of Literature

2.1. Overview of History:

Despite scientific progress over the previous century, epilepsy has remained a major social concern, with deeply embedded historical beliefs of a paranormal or holy state. Individual with the ailment is frequently classified as crazed, and the illness is related to sorcery, horror, unawareness, and stigmatization all played a role in the harsh legal and societal consequences. Epilepsy has been associated with sin and demonic possessions since ancient times, when it was supposed to be produced by malignant causes. Seizures were supposed to be a sign of impending doom. Epilepsy has been associated with sin and demonic possessions since ancient times, when it was supposed to be produced by malignant causes. Epileptic seizures were once considered a warning indication. (Magiorkinis et al., 2014).

Epilepsy may be found in antique books from various cultures, with the Hippocratic collection of ancient Greek medical texts being the most notable. However, it wasn't pending the and nineteen centuries that treatment advanced to the point that epilepsy research was no longer hampered by theological misunderstandings for example the assumption that epilepsy was a divine punish or possess. Around turn of the eighteen century, epilepsy was assumed to be an unknown disease arising from the brain and other internal organs. Many types of epilepsies have been accurately described in modern epileptology.(Magiorkinis, Sidiropoulou and Diamantis, 2010)

Throughout the 2nd part for nineteenth century, medication concentrated on the pathophysiology of epilepsy and the topographic localization of epileptic convulsions. Epileptogenesis, aetiology, and epilepsy taxonomy study is important.(Sidiropoulou, Diamantis and Magiorkinis, 2010).

In terms of describing epileptic mechanisms, physiologist Fritsch and psychiatrist Hitzig published Stimulation and signaling of the lower part of the brain a publication in which they used electric stimulation to cause seizures in dogs' cerebral cortex. Significant advances in our understanding of the mini anatomy of the head and anxious system were made at the start of the twentieth century. Seizures have relationships between many chemical processes that occur in the brain were two papers published in the 1920s that looked into the effects of fasting, food, and altered brain oxygen on seizures (Magiorkinis et al., 2014).

People are subjected to several sorts of stress in today's fast-paced society, and the majority of the world population suffers from many nerve illnesses. Epilepsy is one of the most shared diseases of neurological system of the cells of brain,. Many disorders and diseases, but the most important of which is epilepsy, It is linked to stigma and discrimination against patients and their families in the community, at work, at school, and at home, and it creates a large financial burden on health-care systems in developing countries.(Potnis *et al.*, 2020)

2.2 Epilepsy Epidemiology:

Occurrence of up to five for every one thousand child, epilepsy is one of the peak shared long-lasting diseases in children., children with epilepsy have more unanswered queries regarding this illness than children with other chronic diseases such as (Diabetes and respiratory diseases, the most famous of which is asthma). Furthermore, children with epilepsy have

been shown to struggle with daily activities, hobbies, social connection with other child, and discovery an internship., children with epilepsy have weaker community abilities. As a result, children with epilepsy appear to demand more attention.(Bernhard *et al.*, 2016)

The fact that almost half of all Arab countries lack public epidemiological data on epilepsy opens up possibilities for future research. The prevalence of epilepsy in this region is three times higher than previously believed, according to this comprehensive review of the literature. In other places of the world, such as North America, the median incidence is comparable. Google provided more relevant references as well as outstanding sources that were not included in PubMed's database.(Perucca, Covanis and Dua, 2014).

The Arab creation is distinctive in terms of diverse society, spiritual norms (related to nutrition and materials, wedding), and illness epidemiology (Bhalla *et al.*, 2016). Despite a recent assessment of epilepsy prevalence in this region of 2.3/1000, which is almost certainly an undervalue for a region as complex and diverse as the Arab domain, the recommended middle epilepsy occurrence for this Arab area was only two or more for ever one thousand. As a result, a more comprehensive review of the literature, tailored to regional specificities, is required to better understand epilepsy in this region.(El-Tallawy *et al.*, 2013).

Epilepsy is the 2nd record shared nervous illness, affecting up to 1% of the population.. The equilibrium among brain nervousness and reserve swings toward unrestrained excitability, resulting in recurrent unprovoked epileptic seizures. There is now strong evidence that the pathophysiology of immature and adult brains, as well as the effects of strokes, are markedly different. It's a group of epileptic seizures with a wide range in frequency, appearance, etiology, and therapeutic options. Seizures are defined by abnormal neuronal activity in the brain, which can be excessive or

coordinated, as well as signs and/or symptoms. Frequently of seizures cause a brief harm of awareness, putting the patient in danger of damage and interfering with schooling and job. Epilepsy is extra common in child under the age of five and in those over the age of 65. Though, it can happen at any period. Epilepsy, is a condition characterized by periodic abnormal activity of electrical in brain.(Sravanthi *et al.*, 2020)

Epidemiological research suggests that gender has an impact on epilepsy susceptibility and prognosis. In most studies, men in both developing and industrialized countries have a slightly higher overall incidence of epilepsy than women, but this difference is rarely statistically significant. According to a comprehensive review and multi study, the incidence of epilepsy was fifty for every hundred thousand for men and forty-six per hundred thousand for women. The rates of injuries and deaths from epilepsy are equal, and when we look into the causes that lie behind the cause of death for both sexes, we will find that they are almost similar.(Berg *et al.*, 2013)

2.3. Epilepsy:

Epilepsy is a neurological disorder that affects people of all ages. Epilepsy is brought on by a number of unknown circumstances. The name epilepsy does not specify the source or cruelty of a person's seizures; epilepsy can be caused by genetic causes, but it can also be caused by head injuries, tumors, infections, temperatures, or strokes. Heredity (genetics) has been discovered to play a key role in various causes of epilepsy in child, but they can also play a role in adulthood. Epilepsy does not develop in everyone who sustains major head shock (a known cause of epileptic episodes). intermittent ,Reading, and triggering lights, emotional stress, sleep thermal stress deprivation, alcohol, and fever disease are all examples of epileptic syndromes that produce unique demands or provoke seizures. The impact of numerous triggering elements on epilepsy syndrome varies

greatly. Hypoxic-ischemic encephalopathy, central nervous system infections, shock, congenital anomalies of the nervous system, and metabolic diseases are the most common causes of epilepsy in children throughout the neonatal and early childhood periods.(Beghi, 2020)

An estimated eight percent to ten percent of the people may a seizure at some point in their lives. In the long run, only about 2% to 3% of people will acquire epilepsy. It is critical to identify the underlying etiology leading to an accurate diagnosis in order to provide proper therapy and that individuals with a low risk of recurrence are not treated unnecessarily. Acute symptomatic seizures induced by a brain injury or metabolic problems, as well as spontaneous seizures as the first signs of epilepsy, can all produce new-onset seizures. Although laboratory testing and brain imaging may imply an acute injury that is contributing to the symptoms, a patient's medical history and physical examination may reveal traits that are more consistent with an epileptic seizure.(Gavvala and Schuele, 2016)

A first seizure (FS) is a terrible experience for not only the person experiencing it, but also for everyone around him, including, colleagues, family, and friends. It has significant physiological, emotional, and societal consequences. Seizures and epilepsy in its early stages might cause disability and lower employment rates.(Pohlmann-Eden and Legg, 2013)

The etiology and syndrome of epilepsy can be narrowed down by the patient's age at first and a history of epilepsy. One of the common problems of epileptic seizures is sleep deprivation, and sometimes the cause is the abuse of some substances such as alcohol and some drugs. Therefore, it is important to follow up and review the medical prescriptions prescribed to the patient. Also, the cause of seizures can be other metabolic problems and may be the result of a defect in the organs or exposure to some toxins ,Through comprehensive medical examinations, It is found

that there are problems related to childbirth, the stage of development, nerve problems, and traumas that the child is exposed to during that period, especially problems that lead to loss of consciousness,The identification of these problems predicts the diagnosis of problems that may occur to the child in the future.(Ramgopal *et al.*, 2014)(Wyman *et al.*, 2017)

The cause of cryptogenic epilepsies has yet to be discovered. Idiopathic epilepsies, on the other hand, are largely genetic and manifest themselves in childhood. According to current developments in genetic analysis, most forms of epilepsy are caused by a combination of hereditary and acquired factors, with purely genetic epilepsies accounting for a small fraction of all seizure disorders.(Osorio *et al.*, 2012)

As a result, understanding the impact of genetic variables on risk factors and symptoms is becoming increasingly important in order to give proper diagnosis and treatment to these patients. The first step in diagnosing idiopathic epilepsy is to complete a questionnaire to determine the patients' family history of epilepsy (FHE). Seizures in first-degree relatives are frequently a good predictor of inherited epilepsies.(Ottman *et al.*, 2011)

FHE levels in epileptic patients have a significant impact on epilepsy categorization and etiology. In our group, consanguineous marriages are more widespread, which could explain the genetic epilepsy types we detect. FHE testing in newly diagnosed epilepsy cases is a critical step in identifying and pinpointing the cause of epilepsy.(Babtain, 2013)

2.4. Epilepsy Classification:

Epilepsy should be considered a brain disorder described by any of the following circumstances, according to the (ILAE) task force categorization for epilepsy definition: Within 24 hours of each other, at least two spontaneous (or reflex) seizures occur. One unprovoked (or

reflex) seizure, with a recurrence risk comparable to the general return risk after 2 unprovoked seizures (at least sixty percent in the afterward 10 years); or epileptic syndrome diagnosis.(Krumholz et al., 2015).

Epilepsy is a broad term that refers to a number of different disorders. From time to time, you may hear someone refer to 'the epilepsies.' This is because epilepsy manifests itself in a variety of ways. Epilepsy can hit anyone at any time in his life. Epileptic seizures and epilepsy syndromes should be classified based on the kind of seizure, the epilepsy syndrome, and the aetiology, because different types of epilepsy induce diverse signs and symptoms. The seizure type(s), epilepsy syndrome, aetiology, and comorbidities should be properly recognized because failing to diagnose the epileptic syndrome accurately may result in incorrect therapy and the continuation of seizures.(Appleton, Freeman and Cross, 2012)

ILAE, a global association of professionals to epilepsy, has developed a list of dissimilar seizure types. It's known as the ILAE seizure categorization. The International League Against Epilepsy (ILAE) examines seizure categories on a regular basis, therefore the terminology may change over time. Seizures are described in many different ways by different people. It is crucial, however, that medics appropriately name seizures. Because some medications and treatments can help with some types of seizures but not others. (Brabcová and Kohout, 2015).

The two most common types of epileptic seizures are generalized and partial seizures, often known as local or focal seizures. Generalized seizures include grand mal and tonic-clonic seizures, which impact the entire brain and can cause unconsciousness, convulsions, and muscle stiffness. Generalized seizures are seizures that affect both cerebral hemispheres as well as sub-cortical connections and structures. At the same time, both hemispheres suffer aberrant electrical activity. A complex

seizure occurs when a seizure is accompanied by a loss of consciousness.(Barza, 2014)

CAE (Child Atypical Epilepsy) is common and called pediatric epilepsy disorder that affects ten to seventeen percent of epilepsy patients. Seizures the ages of four and ten, peaking around the age of six to seven years in a previously healthy and developing youngster. CAE is more common in female than in male child. Seizures are brief periods of intense staring, sometimes accompanied by rhythmic eye blinking or motor automatisms, that last only a few seconds before returning to a normal level of consciousness and action. On Digital EEG Examination, seizures are identified by a pattern of generalized three Hz spike and wave releases.(Small.F.L and Kuugongelwa.s, 2016). (For an example, see Fig. 1.)

Fig. 1 Figure 1 shows an electroencephalogram of a absence seizure (Kessler and McGinnis, 2019)

Seizures can take many different forms. They can happen at any point in time and in some portion of the brain. Generalized seizures are seizures that distress both sides of the brain. Others are localized, affecting

a minor area of the brain. The brain is in charge of all of our cognitive , physical functions. The location of the seizure in a person's brain determines what happens during the seizure. (Thurman *et al.,* 2018).

Seizures that are just partial in nature (focal) In partial seizures, epileptic begins in a single location of the brain. may or may not be aware of what is going on around patient during a concentrated seizure. Different areas of the brain control our motions, bodily processes, moods, and reactions (lobes). As a result, focal seizures can manifest themselves in a variety of ways. Any of these lobes can have seizures. What happens during a seizure depends on which lobe and which part of the lobe it begins in. During a concentrated seizure, Each person will have his own set of symptoms and experiences.(Burns *et al.*, 2014)

The areas of the brain that deal with time are known as the temporal lobes. Hearing, speech, memory, emotions, and learning are just a few of the processes that the temporal lobes are in charge of. People who suffer from temporal lobe seizures may only be partially aware of their condition. There's also a chance they'll pass out. During a seizure, they frequently lose track of what has happened to them. Seizures in the temporal lobe normally last 30 seconds to two minutes. Some of the indications and symptoms of temporal lobe seizures are listed below.: I'm terrified and don't know what to do. Having a deja-vu sensation, which is the sensation that something has happened before, having an unusual flavor or odor that isn't there, feeling a rising sensation in the stomach, staring, and so on. Looking, lip smacking, repetitive eating, chewing, or more complex actions like dressing and undressing are all examples of automatic behaviors.(Zhao *et al.*, 2014)(Yang *et al.*, 2018)

Decision-making, problem-solving, behavior, consciousness, and emotions are all controlled by the frontal lobes. Seizures in frontal lobe, you may experience strange symptoms that are misdiagnosed as a mental

health problem or a sleep problem. Seizures of the frontal lobe normally last less than thirty seconds and occur often through sleep. (J. M. Kang *et al.*, 2015)

Moving the eye to one side or the head sometimes abnormal body movements, as if the person appears to have a phenomenon similar to the movement of the fencer. This is evidence that the defect is in the frontal lobe. In addition, the patient sometimes curses, screams, laughs, or difficulty speaking and not knowing what surrounds them.(Vaessen *et al.*, 2014)(Dinkelacker *et al.*, 2016)

Parietal lobes are involved with Processing information from the different senses in the body (seeing, hearing, touching, tasting and smelling), processing language, Writing and maths skills. Parietal lobe seizures last between a few seconds and a few minutes. They affect about one in 20 people with epilepsy.(Alexopoulos and So, 2012) (Senelick, 2014)

The parietal lobes process data from the body's various senses, as well as language, writing, and math abilities. The parietal lobe seizures might last anywhere from a little seconds to many minutes. Around one in every 20 epileptics suffers from them. With regard to problems related to the parietal lobe, it has strange sensory symptoms in the patient and the family. The patient feels sexual sensations or that he is missing one of his body parts or that the body parts are in an abnormal position, as well as a strange movement that starts from the face and moves to the arm and then to the foot, and this is what is known as Jackson. This movement is made without the patient’s will. This lobe is responsible for seeing things that do not exist in reality, or seeing things that are closer than they appear, and it is also responsible for the difficulty in understanding what others are saying.(Bisley and Angeles, 2020)(Salanova, 2018) (Spriggs, 2014).

Problems of the posterior lobe of the brain, the first thing we will address is the problems related to vision. The patient suffers from seeing images that are repeated a lot, or he has fast or slow movements of the eyes, where these movements cannot be controlled. (Appel *et al.*, 2015)

A generalized seizure can occur when epileptic activity that causes a focal seizure spreads throughout the brain. The focal seizure is often referred to as an aura when this happens since it serves as a warning of a generalized seizure. Auras are usually ephemeral, permanent a little seconds or less, but in rare circumstances, they can last one minute , multi hour, or more than day. When epileptic extends to both fragments of brain, a generalized seizure, also known as a tonic clonic of seizure, occurs. The use of warnings can be quite beneficial. They may give you enough time to get to a secure location or alert someone else to your seizure. Epileptic activity can spread fast to both halves of brain, giving the appearance of a generalized seizure. epileptic activity in both hemispheres (halves) of brain during these seizures. During these types of seizures, people frequently lose consciousness, albeit it is generally so brief that no one notices. body muscles may tense and/or jerk. It’s possible that will lose of balance.(Cross, 2015)

With regard to the difference between generalized seizures that they come suddenly and the patient may fall suddenly and severely and the muscles of the body begin to spasm, including the jaw muscles, which may lead to biting the tongue, as well as the extension of the limbs and contraction of the breathing muscles, which in turn leads to crying in the patient or sometimes breathing stops and this spasm causes A defect in the joints or fractures or dislocation of the wedge may occur and this process may last for twenty seconds, after that the patient begins to secrete saliva and often the breathing is heavy and accompanied by a rise in pressure and

pulse, sometimes the patient loses control of urine and this stage continues for two minutes or more.(Barza, 2014; Splittgerber *et al.*, 2020)..

Children suffer from epilepsy disorder in the morning, and this indicates that the defect is caused by the brain stem or may be the result of the spinal cord. It is usually due to lack of oxygen or genetic factors. This condition is characterized by moderate and muscular movement and may sometimes occur during sleep.(Holmes, 2017) (Senelick, 2014).

Also, children suffer greatly from absent epilepsy, and this condition is characterized by losing consciousness for a few seconds, where the surroundings may not notice, but a child with this seizure and it looks like a dream during waking. It's possible that you'll blink or make slight jerking gestures with your torso or limbs. During extended absences, you might experience certain brief, recurring actions. Child will be unable to see or hear what is going on around, and will be unable to escape. Hundreds of absences a day are not uncommon for some people. They frequently have them in bunches, and they're usually at their worst while they're waking up or sleeping. (Appleton, Freeman and Cross, 2012)

Atypical absences are comparable to traditional absences, yet they are not the same. They are more long-lasting. muscle tone may change, and there will be less loss of consciousness. Although will be able to move about, will be clumsy and will require assistance. might be able to respond to someone during an atypical absence seizure. Those who have unexpected absences are more likely to develop learning disabilities, other seizure types, or other brain disorders.(Tan, 2014).

Seizures of secondary generalization Secondarily generalized seizures can be difficult to distinguish from tonic clonic seizures, which are generalized from the beginning, as in genetic generalized epilepsies, especially if the progression from a partial seizure is quick. This kind of distinction could be really beneficial. Seizures that happen through

sleeping and have no warning signs are more difficult to diagnose. If the toniceclonic seizure spreads slowly, symptoms connected to the start site may serve as a warning or aura (in practice, a simple partial seizure) before the toniceclonic seizure begins. Toniceclonic seizures in adults over the age of 25 are more likely to have a focused beginning since inherited generalized epilepsies typically appear in childhood or adolescence.(Hart, 2012).

Todd's paresis (also known as Todd's paralysis) is a weakness or paralysis of the hand, arm, or leg that occurs suddenly. Following a localized or widespread seizure, some people are impacted. Todd's paresis is a condition that affects the part of the body where the seizure took place. The weakness could be slight or severe, paralyzing or limiting eyesight in the affected portion of the body. In most situations, Todd's paresis affects only one side of the body. Before dispersing, it could last anywhere from a few minutes to several hours.(Krumholz *et al.*, 2015)

One of the most important things to talk about is mortality, as it is the most common statistical occurrence three times for the population, especially at the beginning of the diagnosis of the case. Usually, this is related to the cause that led to the occurrence of epilepsy, in addition to a high suicide rate in the majority of the affected population, even epilepsy. Pneumonia is another cause of death. Other than that, drowning is one of the factors that lead to death, or it may be irregular heartbeats, which leads to cardiac arrest and death of the person, so what is necessary must be taken to prevent death. (Halász, János and Sándor, 2013)(Appleton, Freeman and Cross, 2012)

An epileptic seizure is a fleeting occurrence of signs or symptoms caused by abnormal electrical activity in the brain, resulting in a disruption of consciousness, behavior, emotion, motor function, or sensory

perception. Epilepsy, rather than being a single diagnosis, is a symptom with many underlying causes.(Nunes *et al.*, 2012)

2.5. Pre and Post-Delivery Issue:

Although there are various causes of epilepsy in children, at least half of all children with epilepsy have unknown cause. In the past, attempts were attempted to divide causes into four categories: idiopathic, symptomatic, cryptogenic, and unknown; however, these classifications were difficult to justify. Idiopathic does not mean (unidentified causes) in the context of epilepsy, as it does in all other domains of medicine. Idiopathic epilepsy refers to a collection of epilepsy conditions in which the patient appears to be in a good condition, the interracial EEG displays a standard background with a characteristic part or widespread spike discharge pattern, brain MRI is normal, and no additional cause has been establish. A genetic mutation was assumed to be the cause of idiopathic epilepsies. The evidence for a genetic aetiology in idiopathic epilepsies is quite compelling, especially in twin studies. There isn't much proof that focused idiopathic epilepsies are caused by a genetic mutation.(Camfield P and Camfield C., 2015)

Prior to the onset of the epilepsy, it was thought that symptomatic epilepsies had a known, pre-existing, or underlying cause. In cryptogenic situations, there was no identified reason, only a (mistrust) that one might exist! It's uncertain whether a child's epilepsy is symptomatic or cryptogenic if he or she has a pre-existing intellectual disability. The number of instances in the cryptogenic group is clearly linked to the complexity of brain imaging and genetic research. It's also clear that the same cause can produce several types of epilepsy. For example, a child who has congenital hemiplegia as a result of a prenatal stroke may have West syndrome, which includes infantile spasms, focal motor seizures, or both. Because of the inadequacy of this classification, making general

statements about the etiology of epilepsy in children has been particularly difficult. There are three types of reasons, according to old theory: unknown, genetic, and structural/metabolic.(Berg *et al.*, 2010)

Factors That Increase Chances Of Getting Epilepsy And Seizures:

- Infants individuals are born with brain areas that are abnormal (Shah et al., 2014).
- Bleeding into the brain is a serious complication.
- Brain blood vessels that are abnormal
- Severe brain damage or brain oxygen deficiency (Lucke-Wold et al., 2015)
- Tumors of the brain (Webster et al., 2017)
- Brain infections such as abscesses, meningitis, and encephalitis (Vezzani *et al.*, 2016; Zelano and Westman, 2020)
- Stroke as a result of artery obstruction
- Cerebral palsy(Tosun *et al.*, 2017; Gulati and Sondhi, 2018)
- Illnesses characterized by intelligent and developing impairments
- Seizures that happen within days after a brain injury
- Epilepsy or a rise temperature -connected seizures in the family
- Autism (Berg, Plioplys and Tuchman, 2011; Viscidi *et al.*, 2014)
- Seizures caused by a fever that last an unusually long time (febrile)
- Seizures that last for a long time or are repeated are referred to as status epilepticus.
- Cocaine and other illegal substances use
- Head traumas, such as a concussion with only a short-lived loss of consciousness, do not produce epilepsy. long-term consequences a minor head injury with epilepsy remain unidentified.(Balestrini *et al.*, 2021).

According to a population-based study to test classification of cause in juvenile epilepsy with regard to the causes, the majority was undetermined, and the other was related to heredity and was equal to twenty-eight percent. As for the rest, it was matters related to structures (Wirrell *et al.*, 2011).

In prosperous countries, the vast majority of incidents are currently preventable. Traumatic, prenatal, and viral causes are all preventable. Because of lower immunization rates, fewer attempts to prevent head traumas, and a lack of access to competent medical treatment, it's likely that these numerous specific causes in each of these categories are more common in developing nations.(P Camfield and Camfield, 2015).

According to the World Health Organization, epilepsy is not contagious. Although several recognized causes of epilepsy have been identified, the most prevalent type of epilepsy, which affects six out of ten people, has yet to be identified. This type of epilepsy is known as idiopathic epilepsy (WHO, 2015). Secondary epilepsy, also known as symptomatic epilepsy, is a type of epilepsy with a recognized cause; most instances are idiopathic; seizures induced by underlying brain disorders are more likely to start suddenly Vascular disease within the brain trauma is more serious when there is fully attack for more than thirty minutes, loss of memory for more than thirty minutes, focal neurological findings or neuro-imaging findings suggesting a structural brain injury, after brain surgery, CNS infections, such as Parasitic and viral infections that affect the functioning of the brain, such as seizures.(Krumholz *et al.*, 2015).

Cerebral palsy (CP) is a term that refers to a group of nonprogressive movement, posture, and muscle tone abnormalities that are caused by injury or disturbances in the developing fetus or baby brain. CP was originally used about 170 years ago. Epilepsy, a neurologic illness, is characterized by recurrent, spontaneous seizures. After excluding febrile

seizures, the annual incidence of new-onset epilepsy is estimated to be 4 to 5 per 10,000 people, with childhood having the highest frequency. CP is commonly linked with additional neurologic abnormalities and diseases, such as epilepsy. Estimates of the frequency of epilepsy co-occurrence in people with CP range from 15% to 62 percent, depending on the kind and severity of CP and the study population. In children with spastic quadriplegia, epilepsy is more common than in children with other kinds of CP; however, this is not always the case.(Van Naarden Braun *et al.*, 2016) (Sadowska, Sarecka-Hujar and Kopyta, 2020)

Seizures in children with cerebral palsy usually begin in the first year of life, but they can begin as early as the neonatal period. Seizures in children with co-occurring CP are more difficult to treat, needing multiple drugs in many cases, and some seizures are refractory to treatment. As a result, children with cerebral palsy and epilepsy often have poor outcomes, demanding continuing, complex medical care and rehabilitation assistance.(Pessoa *et al.*, 2018)

A common cause of drug-resistant epilepsy is epilepsy triggered by a stroke. Remaining hemiplegia is common in patients with early childhood or congenital middle cerebral artery infarctions, and imaging may reveal porencephalic cysts.(Halász, János and Sándor, 2013).

Acquired seizures are epilepsies induced by outside or environmental factors (e.g., brain injury) as well as internal disease processes (e.g., autoimmune illnesses) with no obvious hereditary component. High temperature, disorders of multiple parts of the brain, seizures, tumors of all kinds, exposure to blows, especially during childbirth, as well as suffocation during childbirth and other problems related to the structure of the body, exposure to viral infections, vascular diseases, and disorders of the central nervous system.(Perucca, Camfield and Camfield, 2014)

Intrauterine and perinatal problems, can have a deleterious impact on the growing brain at this time. Premature birth has been related to a higher chance of cerebral palsy, intellectual impairment, and epilepsy in adults. Despite the fact that epilepsy is one of the most common neurological disorders associated with preterm birth, there are few studies on the incidence and risk factors for epilepsy among various gestational age (GA) groups that may be linked to the underlying epileptogenic mechanisms of childhood epilepsy.(Hirvonen, Ojala and Korhonen, 2017).

Tuberculosis meningitis led to the incidence of epilepsy at a rate of seventy percent of patients with epilepsy, as this meningitis generates seizures that may be partial or generalized, and it turns out that this disease is one of the most important brain diseases that affect children, especially in low-income countries that enjoy poor environment and services(Arman *et al.*, 2011)

The relationship that doctors face with regard to epilepsy and meningitis needs special attention to determine the best treatment and to carefully select the specific treatment to eliminate the problems of both diseases at the same time. High intracranial pressure has a significant life-threatening risk for the individual. Epilepsy may occur during meningitis or occur afterwards.(Kumar and Kalita, 2018)

Children aged six months to five years who do not have obvious viral infection problems and who have a high temperature, have not had hypoglycemia or are using certain medications, are considered to have a seizure called a febrile seizure. However, studeis are becoming more familiar with seizures Febrile lately. (Natsume et al., 2017)

Seizures with fever are the most communal neurologic condition in children under the age of five, affecting five percent of children aged six months to five, with a peak frequency occurring between the ages of twelve and eighteen months. Febrile seizures affect children of all ethnic groups,

but they are more common in Asian children (5–10% of Indian children and 6–9% of Japanese children.(Paul et al., 2015)

It affects male children more than females, accounting for fourteen percent in Japan, but this percentage may differ in low-income countries. Feverish seizures are more likely in the winter and in the afternoons in general.(Canpolat *et al.*, 2018; Thadchanamoorthy and Dayasiri, 2020)(Mikkonen *et al.*, 2015; Sharafi, Hassanzadeh Rad and Aminzadeh, 2017).

Seizures with a fever can be caused by a number of things. Feverish seizures are hypothesized to be induced by a developing central nervous system's (CNS) sensitivity to the effects of fever, as well as a genetic susceptibility and environmental factors. 2014 (King and Queen) The young brain's response to fever is a fever seizure that is age-dependent. During maturation process, the youngster's brain excitability increases, predisposing him or her to febrile seizures. As a result, the majority of fever seizures occur in children under the age of three, when their seizure onset is still little.(King and King, 2014)(Sadeghzadeh, Khoshnevis Asl and Mahboubi, 2012).

In family and twin studies, genetic variables appear to have a major impact. About one-third of children who suffer fever seizures have a progressive family history. If a sibling is affected, a child has a 20% chance of suffering a febrile seizure, and a 33% probability if both parents are affected. The concordance percentage in monozygotic and dizygotic twins is roughly 35–69% and 14–20%, respectively. The record of the important danger factor for the growth of a 1st febrile seizure has been discovered to be the height of the temperature, rather than the rate with which it climbs. (Veisani, Delpisheh and Sayehmiri, 2013)(Peter Camfield and Camfield, 2015)(Zare-Shahabadi *et al.*, 2015)(Kim *et al.*, 2017).

Many of the infections that affect children during the growth period lead to a high temperature, as studies have shown that viruses lead to febrile seizures in eighty percent of children. Also, infections that affect the pharynx, stomach, intestines and middle ear are the most prevalent for epilepsy.(Patterson *et al.*, 2013)

Febrile seizures (FS) are more prevalence disorder of neurological in children, and they have been known since ancient times. Hippocrates kept track of children who experienced seizures as a result of high fevers, which were most typically connected with teething. The three types of febrile seizures are simple febrile seizures (SFS), simple febrile seizures plus, and complicated febrile seizures (CFS). Generalized tonic clonic seizures are defined as seizures that last fewer than 15 minutes. Simple febrile seizures + (SFS) are marked by a high number of attacks and the absence of neurological symptoms. CFS with a long duration (over 15 minutes), focal symptoms, or many seizures occurring at the same time, on the other hand, is a different story. Electrolyte abnormalities, as well as meningitis, encephalitis, or any other brain infection, should not be the cause of (FS). The temperature that predisposes to the occurrence of febrile seizures was measured by parents or caregivers right before or during a fit and found to be 38.9°C. (Choi, Min and Shin, 2011)(Gontko-Romanowska et al., 2017)

Studies have found that some vaccines led to seizures, some of which were discontinued in some countries, where it was found that a vaccine against tetanus, whooping cough, and even polio and others led to the occurrence of epilepsy, in addition to the mumps or measles vaccine and the German measles.(Bakken *et al.*, 2015)(Sawyer, Simon and Byington, 2016)(Francis *et al.*, 2016)

Febrile seizures are more common in premature neonates, and postnatal corticosteroid treatment increases the risk. There is a relationship between prenatal nicotine and/or alcohol usage and a slightly increased

incidence of febrile seizures. Stress during pregnancy or during childhood can instruct the growing brain to enhance neuronal excitability, lowering the seizure threshold. Housing exposure to circulation noise and air contamination are other factors risky.(Tu *et al.*, 2016; Gholipoor *et al.*, 2017; Thébault-Dagher *et al.*, 2017; Leung, Hon and Leung, 2018)

When try to link between heat and iron deficiency anemia, we will find a complex relationship between the importance of iron in regulating the work of the brain and the transmission of nerve impulses to cells as well as other elements, including magnesium, calcium and other elements that are responsible for regulating the complex work of nerve cells inside the brain, as the link between fever And its effect on the chemical processes of these elements leads to the occurrence of seizures.(Pellock and Syndi, 2014; Özkale *et al.*, 2015; Saghazadeh *et al.*, 2015; Shalmaii, Effect and Based, 2016; Aziz, Ahmed and Nagi, 2017)

Should be taken into account that the attacks that occur three days after the rise in temperature are more dangerous than those that occur during the rise in temperature, and they are classified as complex and simple according to their duration and frequency. (Patterson et al. 2013,)Simple febrile seizures, which account for 80–85 percent of all febrile seizures, are the most common. It's not uncommon for people to lose consciousness during a seizure. Foaming at the lips, trouble breathing, pallor, and cyanosis are all possible symptoms. (Patterson *et al.*, 2013)(Paul, Kirkham and Shirt, 2015).

Epileptic fits may lead to temporary hemiplegia when the seizures are related to complex temperatures. Mostly, simple seizures turn into complex seizures over time, so the necessary action and measures must be taken to prevent recurrence of seizures, As the febrile seizures range from several seconds to fifteen minutes, and most of the time extends to several minutes, resulting in poor growth, so caution is required. Should be know that there are febrile seizures of up to thirty minutes. What

distinguishes these seizures is that they continue without stopping during that period. The evidence is that the eyes are always open, and this is evidence of the continuity of their occurrence, and therefore most of them suffer from abnormalities in the hippocampus (Leung, Hon and Leung, 2018).

In order to find out the main cause of the high temperature, it is necessary to conduct tests for all parts of the body, such as tonsils, otitis media, or pharynx, which are usually common in children, in addition to the presence of many health problems that lead to high body temperature and thus lead to the occurrence of a seizure. However, consideration must be given to the level of awareness and muscle strength that It may be an indication of a defect in the nervous system, and this includes examining even the skin of the child (Leung, A. K., & Coenegrachts, K. 2011).

Professionals and specialized doctors must distinguish between shivering and delirium accompanied by fever, problems of the nervous system, and general epilepsy related to high temperatures, as well as problems of shortness of breath.(Hon, Leung and Torres, 2018)

Feeling cold for several minutes and trembling without losing consciousness or shortness of breath, which is characteristic of a vibrating tremor, as the muscles of the destination are not affected by that tremor, With regard to febrile delirium, it has a significant impact on breathing and occurs to children as a result of fear, anger, or pain. The child’s skin turns blue due to the lack of oxygen and is usually associated with involuntary muscle movements. This condition may last for a minute or more and may be accompanied by a loss of consciousness in a child and return The child returns to the normal position automatically, and the most important characteristic of it is the absence of temperature, but it has a common characteristic with the febrile seizure with eye rotation(Paul, Kirkham and Shirt, 2015).

Fever and seizures are common symptoms of CNS infections including meningitis and encephalitis in children. If present, weakened awareness, Some of the signs that indicate the presence of a particular disease all point to the diagnosis. Meningeal symptoms might be mild or absent in child than one year of age, making distinction difficult. Febrile myoclonus is a benign condition that primarily affects children aged 6 months to 6 years. During a fever, affected children experience myoclonic jerks, which mostly affect their upper limbs. Myoclonic jerks can happen once or numerous times every minute, and they can last anywhere from 15 minutes to several hours.(Leung, Hon and Leung, 2018) For parents, febrile seizures can be terrifying and emotionally distressing.(Kanemura *et al.*, 2013).

Parents believe that most epileptic seizures lead to brain damage or may provoke death during that seizure. Therefore, they suffer from intense fear and anxiety, which increases the burden on them and the lives of their children, and thus it may create bad ideas for parents about the quality of life of their children.According to what the studeis found, febrile epileptic seizures are divided into two types, one simple and the other complex. Complex seizures are characterized by an increase in their incidence in children to a greater degree than simple seizures, taking into account family history and diseases that affect children, and often the heat that affects the occurrence of the seizure is what increases the time of the hour and spreads in Children under one year and those over three years old, so the family must be made aware of the danger of a high temperature in their children, especially those who have a family history of epilepsy (Pellock and Syndi, 2014)(Review *et al.*, 2015)(Pavlidou and Panteliadis, 2013).

In most cases, the number of febrile seizures has no bearing on the likelihood of developing epilepsy later on. With febrile seizures, encephalopathy is a rare consequence. Disorder of transformations in the sodium channels genes have been linked to severe feverish seizures in infants.(Scott, 2014)(Saitoh *et al.*, 2015).

Febrile seizures, especially if frequent, severe, and prolonged, can cause long-term changes in the balance of excitatory and inhibitory responses in hippocampal neuronal circuits, Beside that temporal lobe disorders, which can lead to occur epilepsy.(Beker-Acay *et al.*, 2017)(Yu *et al.*, 2017) Long-term febrile convulsions can impair white matter maturation, resulting in neuroplasticity and microstructural remodeling.(Pujar *et al.*, 2017)

It is often assumed that children who have mild febrile seizures have no greater risk of developing a neurologic deficiency later in life, and that their IQ and cognitive function are unaffected.(Leaffer, Hinton and Hesdorffer, 2013) Based on research in Rotterdam found no link between fevered seizures and the incidence of behavior or decision-making functioning issues. Recurrent febrile seizures, as opposed to single febrile seizures, were found to be related with a higher risk of delayed language development.(Visser *et al.*, 2012)

Atopic disorders such as respiratory diseases are more common in children who suffer from febrile seizures..(Lin *et al.*, 2014)(Wen-Ya *et al.*, 2014), It is possible that problems in the lung exacerbate febrile seizures, and this was rare, and high blood sugar levels were observed for children with a fever attack, so it is important to study this topic more precisely and broadly with regard to the relationship of high blood sugar with high temperature in children.(Tasaka *et al.*, 2016)

Status epilepticus that is febrile seldom ceases on its own and frequently takes more than one antiepileptic medicine to treat. The first treatment is (clonazepam or Valium managed into veins. If the seizure continue after 5 minutes, recurrence the intravenous dose of clonazepam or valium . If the seizures last longer than fifteen minutes, fosphenytoin sodium or phenobarbital can be managed intravenously. If seizures persist, a second dosage of fosphenytoin sodium can be managed intravenous ten minutes after the first dose. The other choice is to administer intravenous phenobarbital, Depakene, or levetiracetam.(Wilfong, 2021)

It is very necessary during a seizure to control and follow up vital signs to preserve the child's life and to prevent complications and recurrence of seizures.Continuous pulse oximetry should be used to monitor children who are admitted to the hospital. To maintain SaO2 >92 percent, children have oxygen decreasing should be provided supplementary O2 through nasal cannulas, box of head, mask of face, or high-flow delivery device. Excessive clothing and blankets should be removed to assist reduce the fever. If the child's fever is high enough to cause discomfort, an antipyretic may be prescribed. To summarize, normalizing the body temperature may not prevent recurrent febrile seizures; nevertheless, using an antipyretic may help the youngster feel more at ease. Naturally, the source of the fever should be addressed as soon as feasible.(Wilmshurst *et al.*, 2015)

Children who have febrile seizures are at risk of having them again and developing epilepsy. Everyday management of Depakene (10–15 mg/kg/day in separated doses) or phenobarbital (5–8 mg/kg/day for child under 2 years of age and three to five mg/kg/day for children under 2 years of age in distributed doses) is active in the avoidance of febrile seizures, according to a Cochrane systematic review published in 2017. Adverse

events affect 30–40% of youngsters on long-term antiepileptic medication.(Offringa *et al.*, 2021)

Flu symptoms, headache, nervousness, sleeplessness, alopecia, renal toxicity, pancreatitis, gastrointestinal problems, thrombocytopenia, and lethal hepatotoxicity are among side effects of valproic acid. The complications that the child is exposed to while taking the treatment must be taken into account, as some medicines have side effects such as influenza, headache, nervousness, insomnia, alopecia, renal toxicity, pancreas disorder, abdominal problems, blood problem, and fatal hepatotoxicity.(Mittal, 2014).(Kimia *et al.*, 2015)

Many studeis suggest not to give some medications that have major complications in relation to a seizure with temperature, including memory problems, difficulty concentrating, poor attention, violence, sleepiness, sleep problems, imbalance and others problem, which made it within the American Academy plan for children to reconsider the use of medications that reduce the occurrence of seizure Therefore, they believe that the benign nature of febrile epileptic seizures needs care, follow-up and prevention more than the use of drugs directly to prevent their recurrence.(Offringa *et al.*, 2021)

Several studies have been conducted to prevent or reduce the occurrence of seizures in children, so some studeis conducted a study for a period of one year, where they used two types of treatment, the first of which was intermittent, that is, during the seizure only, and the other was continuous. Ongoing, though, that intermittent treatment has multiple symptoms, including bowel disorder, low blood pressure, heart rhythm disorder, depression, sleep problems, and others, the most important of which is the negative effect that leads to the masking of meningitis symptoms. Therefore, the studeis concluded, through the experiments they performed, that the health problems of children related to the seizure are more One of the benefits of getting rid of seizures when using this type of

treatment and some specialists may use it to remove anxiety and intense fear for parents whose children have epilepsy at the present time. It is not recommended to use intermittent medications except when necessary.(Salehiomran, Hoseini and Ghabeli Juibary, 2016)(Offringa *et al.*, 2021).(Hu *et al.*, 2014)

The use of traditional methods to reduce temperature for children with epilepsy related to high body temperature, such as the use of compresses, exposure to cold air, or changing clothes, was of little evidence and was not highly effective in preventing the occurrence of seizures.(Duffner *et al.*, 2011) (Natsume *et al.*, 2017)

Vaccines of childhood period can assist to minimize the sickness and death associated with a variety of infectious illnesses.(Li *et al.*, 2017)(Sheridan *et al.*, 2016) Fever and febrile seizures are possible symptoms of some of these disorders. As a result, widespread childhood immunization are critical and would be vigorously advocated in the years ahead to lower the incidence of febrile seizures. There was no clear relationship to reduction in the rate of feverish seizures has been shown when prophylactic antipyretics are used before immunizations. Antipyretic usage as a prophylaxis may also reduce the immunological response to certain vaccines.(Monfries and Goldman, 2017)

Simple febrile seizures are considered to have less impact on children, and the majority of children have a simple seizure, which is usually harmless at the stages of their development and growth, but complex fevers may lead to problems and disorders, Despite the length of time that children experience this type of seizure, most of them range between the ages of six months to six year. The studeis found that the majority of seizures that occur due to high temperatures begin to disappear by the age of six years old.(Leung, Hon and Leung, 2018)

Although the child is exposed to the risk of high temperature in childhood, there are other disorders that occur in the newborn, During the early newborn period, hemolysis is the most common cause of severe hyperbilirubinemia. Hyperbilirubinemia can lead to kernicterus if not treated properly, especially in premature babies. Alloimmunization (maternalefetal blood type incompatibility) and congenital abnormalities of red blood cells, including as hereditary spherocytosis and glucose phosphate dehydrogenase deficiency, are the most common causes of neonatal hemolytic jaundice.(Tomotaki *et al.*, 2016)

Jaundice is a common and frequently benign illness that affects up to 85% of newborns during the transition from intrauterine to extrauterine life. Jaundice usually clears up on its own within two weeks, but 4-8 percent of neonates have hyperbilirubinemia. Because free albuminunbounded bilirubin may freely permeate brain tissue, a high quantity of bilirubin is hazardous and can cause bilirubin encephalopathy. Hyperbilirubinemia is linked to a higher incidence of neonatal convulsions and cerebral palsy, as well as auditory abnormalities, developmental delays, autism, and attention deficit disorders. In babies with hyperbilirubinemia, phototherapy can help convert bilirubin molecules to watersoluble, nontoxic isomers, preventing immediate and long-term brain damage.(Maimburg, Olsen and Sun, 2016)

Hydrocephalus is one of the factors that lead to a seizure. It is a health problem caused by the blockage of some systems inside the brain or other factors that lead to this imbalance, which in turn leads to high pressure inside the head, fossa posterior abnormalities, channel stenosis, and cysts are the most common dysraphic syndromes found in congenital HC (Tully *et al.*, 2016). HC can also be caused by acquired conditions such cerebral haemorrhages, tumors, or infections. In children with HC, seizures are a common co-morbidity.(Schubert-Bast *et al.*, 2019)

Epilepsy and hydrocephalus are two frequent neurological issues in children. Epilepsy affects 5–10 children out of every 1000, and hydrocephalus affects 1–3 children out of every 1000 in the population. Both conditions have different etiologies, which makes the context of epilepsy and shunt operation more complicated. Since the introduction of shunting therapy for hydrocephalic patients, there have been debates on whether epileptic seizures are more likely to emerge as a result of the shunting and associated problems or as a result of the underlying brain abnormality. A higher likelihood of epileptic seizures has been observed by several authors after shunt implantation, however the exact processes are still unknown.(Mallucci and Sgouros, 2016).

Seizures are common in children with hydrocephalus, and it seems that surgical interventions have an effect that may lead to the occurrence or provocation of the generation of abnormal waves within the brain, which leads to the occurrence of epilepsy, the higher the risk occur of epilepsy in the second year after surgery. Patients with infection, cerebral bleeding, birth asphyxia, and prematurity have a higher incidence of epilepsy, while those with spina bifida and meningomyelocele had a lower incidence. (Schubert-Bast *et al.*, 2019)

In hydrocephalic patients, mental retardation increases the chance of experiencing or developing seizures. Shunt malfunction, particularly when combined with infection and the number of shunt revisions, can raise the likelihood of a seizure, but the underlying brain abnormalities is more essential in determining whether or not a patient will develop epilepsy. The occurrence of a seizure as the only presenting sign of shunt dysfunction is unusual. Multiple burr hole sites and the possibility of a frontal shunt implantation increase the risk of epilepsy. While broad or focal nonspecific EEG abnormalities are common in children with hydrocephalus, shunting can result in more specific and lateralizing epileptiform activity. An epileptic encephalopathy characterized by persistent spike and wave

activity through asleep. should be suspected in patients with congenital hydrocephalus who have seizures and language and behavioral impairments.(Mallucci and Sgouros, 2016)

Several other factors, such as mental retardation, infection as a consequence, and the number of shunt revisions following a malfunction, may accelerate or even facilitate the appearance of seizures, hence increasing the risk of epilepsy indirectly. Although ventricular shunts have been the primary treatment for hydrocephalus for decades, the long-term morbidity, which includes epileptic seizures after the procedure, must be considered. When suggested, the use of neuroendoscopic procedures may help to alleviate this problem significantly in the future.(Mallucci and Sgouros, 2016)

Encephalitis is a type of brain inflammation . Virus infection is the most common cause of inflammation. Protected system disorders and, less typically, germ or spores contaminations can also cause it. Inflammation can affect a single part of the head or multiple regions. Contamination and inflammation can be minor to severity depending on the severity of the infection.(Lancaster, 2016)

A viral infection is almost often the cause of encephalitis (infectious encephalitis). The most prevalent causes of encephalitis are the viruses listed below:

Herpes simplex virus (HSV) is a virus that causes herpes genitalis .

• Virus that causes measles

chickenpox virus (chickenpox)

• The virus that causes rubella (German measles)

• There are a number of uncommon viruses that can cause encephalitis, such as the mumps virus, Epstein-Barr virus (which causes glandular fever), echovirus, Coxsackie virus, and HIV.(Jain, Patel and Bhatt, 2014)

Encephalitis, especially in youngsters, has the potential to be lethal. The annual incidence ranges from 3.5 to 7.4 per 100,000 globally,

with a peak of 16 per 100,000 in children and adolescents. The present signs and symptoms can be vague and minor, or they can be rather striking. Others have severe encephalopathy, vomiting, seizures, and/or localized neurological problems, while others have only a slight fever, headache, or nausea. Even if a child's symptoms are minor, they may escalate unexpectedly, resulting in seizures and other serious neurological repercussions. Encephalitis can cause more morbidity and mortality in children than in adults.(Rismanchi et al., 2015)

Herpes simplex virus causes brain inflammation, Which leads to a defect in the part of the temporal brain, which is crucial for memory and speech (herpes simplex encephalitis; HSE). HSE has the potential to affect the frontal lobes, which are in charge of emotion management.(Mikaberidze, 2019)

The antiviral medication acyclovir (brand name Zovirax) is used to treat the herpes simplex virus. People with probable herpes simplex encephalitis are usually given it as soon as possible (HSE). This could happen before all of the tests and investigations have been done and the diagnosis has been established. The earlier Herpex dose is administered, the lesser risk of HSE-related lasting disability. Acyclovir is administered through a venous injection. Some persons may suffer long-term effects from encephalitis. Chronic health conditions, such as epilepsy, can have long-term consequences on a person's personality, including changes in their speech and memory.(Foundation, 2016)

Prevention is the way to protect children from diseases and adherence to the vaccination program is one of the most important methods of prevention. It has been shown in many studies that mosquitoes are one of the causes that lead to encephalitis. Usually, these mosquitoes are carriers of the virus that causes inflammation, so we advise people to stay away from places that are frequent Mosquitoes or avoid roaming at certain times when flies are usually common, but in addition to that, wearing

protective clothing helps reduce exposure to infection and remove stagnant water if it is found in places where people live (medicalnewstoday, 2017)

Despite the risks associated with encephalitis,But the tumor inside the brain is considered more cruel to the individual in all respects, The knowledge of the relationship between epilepsy and intracerebral tumour is still low, as the complexity of these two diseases is difficult to explain because it is a mixture related to the specializations of neurology and oncology. The treatments used to get rid of both conditions are considered one of the most difficult confrontations that doctors and specialists face to understand the mechanism that leads to epilepsy and the way in which the child can get rid of seizures. Therefore, many attempts are being made to understand this connection despite the difficulty of finding the underlying information to control epilepsy.(Politsky, 2017)(Maialetti *et al.*, 2020)

Attempts to control seizures for patients with brain tumors had no effect in reducing the burden on children or their families, and there was no improvement in quality of life. Despite the attempts being made to remove the tumor and the reluctance to make the decision to give antiepileptic, studeis still need a lot of knowledge about the relationship of the tumor in terms of location and type. (Politsky, 2017)

The health care system is the best option for the problems facing a child with a brain tumor., no criteria have been set for the care of affected children, but rather epilepsy resulting from a brain tumor, so the American Academy suggested not giving antiepileptics to children with tumor who did not have a seizure,The surgical option and the follow-up of the child with the tumor by using international health standards for their care is the best option for control to try to preserve the life of the individuals, it is better to cooperate between both specialists to control the child’s health and reach the best decision about saving the individual’s life. (Politsky, 2017)

Seizures occur at different rates depending on the type and severity of the tumor, as well as the patient's age and tumor location. Due to the period of diseaseCompared to high-grade tumors, low-grade tumors are marginally more epileptogenic., according to current studies. According to both historical and recent sources, low-grade glial tumors like astrocytomas and oligodendrogliomas have survival rates of 40–80 percent, compared to 30–50 percent for higher-grade tumors such anaplastic astrocytomas or glioblastoma multiforme. However, rates of high-grade No malignant tumors could be far higher than previously thought (Tsai *et al*., 2018)(Englot, Chang and Vecht, 2016).

Tumor-related seizures in glial-based malignancies can be explained by glutamate transporter systems, which are more likely candidates for this role. One of the first studies to show increased glutamate release in glial-based brain cancer models was done by Sontheimer and colleagues about two decades ago, These studeis theorized that high levels of glutamate, a neurotransmitter known to increase neuronal excitation and decrease inhibitory control in neurons, could trigger seizures. Autocrine glutamate signaling by tumor cells was later postulated by Sontheimer's team to be linked to tumor development and invasion. (Cuddapah *et al*., 2014).(Köhling, 2017)

Brain tumor-related epilepsy (BTRE) is a term used to describe symptomatic seizures that are caused by the presence of a brain tumor and manifest themselves as focal aware or impaired awareness, generalized tonic–clonic, or focal to bilateral tonic–clonic seizures, among other things. Those who suffer from slow-growing, low-grade tumors in the frontal and temporal lobes are at an elevated risk of developing seizures. Rather than the grade or location of the tumor, recent study reveals that epileptogenesis may be linked to molecular genetic markers rather than to these factors. Increased seizure burden and refractory seizures, despite the fact that glioma-related seizures improve overall survival, impair quality of life,

cause cognitive loss, and cause significant morbidity. There is currently no widely established standard of care for the treatment of BTRE at this time. Despite significant advancements in the field of neuro-oncology, there is still a long way to go(Huberfeld and Vecht, 2016)(Michelucci *et al.*, 2013)(Weller, Stupp and Wick, 2012).

In the world, cerebrovascular gliomas of all grades account for twenty eight percent of all brain tumors, with an annual incidence of three to six every 100 000 people. In the United States, around 80 000 new cases of primary CNS tumors are predicted to be detected in 2018. Approximately 40–70 percent of individuals with glioma are likely to develop BTRE; however, only 8–40 percent will develop pharmacoresistence. (Su *et al.*, 2015)(Ferlay *et al.*, 2015)

The discovery of epileptic seizure predictors in glioma patients is important since epilepsy is associated with a high rate of morbidity and mortality. Patients with primary brain tumors have a different lifetime risk of epileptic seizures depending on their age, tumor grade, location, and size. Preoperative seizures are less common in high-quality tumors of brain primary CNS lymphoma and such glioblastoma, but more common in some lower-grade tumors. The risk of developing epilepsy in primary lymphomas ranges from 10-100% in dysembryoblastic neuroepithelial tumors (DENTs) (Englot and Chang, 2014)(Vecht, Kerkhof and Duran-Pena, 2014).

Patients with low-grade gliomas have been documented to have epilepsy in up to 90% of cases. Seizures are considerably more common in patient with cancers in cortical areas than in subcortical parts, with a seizure occurrence of fifty six percent versus fifteen percent. (Liang *et al.*, 2016; Toledo *et al.*, 2017)

The table below shows an overview of seizure prevalence and outcome by tumor type.

Histology of a tumor	Frequencyof seizures
Dysembryoblastic,neuroepithelial tumor	100%
Glioma cases.	80–90%
Astrocytomas.	75%
Meningiomas.	29–60%
oligodendrogliomas.	53%
astrocytomas	43%
glioblastoma cases.	29–49%
ependymoma cases.	25%
Metastasis	20–35%
Leptomeningeal tumor	10–15%
CNS lymphomas	10%
Hemangioblastomas	0%
Medulloblastomas	0%
Schwannomas	0%

(Goldstein and Feyissa, 2018)

The appearance of seizures depends on the location of the tumor or its size. Tumors that affect the frontal lobe generate seizures before the operation to remove the tumor, and this depends on the levels of some substances inside the brain. Treatment to treat the disease plays a role in the occurrence of seizures,Recent studies indicate that the activity of genetic markers affects the epilepsy formation of some hydrogens in the brain more than the location or grade of the tumor. (Skardelly *et al.*, 2015)(Zhong *et al.*, 2015).

Seizures are linked to tumor activity, and seizures are caused by tumor development. Adjuvant chemoradiotherapy can help to reduce seizure load. Preoperative general seizure, operation within 1 year of performance, substantial tumor removal, and adequate preoperative seizure control with AEDs are all positive prognostic indicators for postoperative seizure regulator in low-grade gliomas. The precise molecular and clinical factors that predispose people with brain tumors to suffering postoperative seizures are still unknown.(Neal *et al.*, 2016)

Despite the fact that the pathophysiology of BTRE is still unknown, it appears to be complex. Epileptic seizures have been connected to a variety of factors, including local inflammation, hypoxic-ischemic damage, metabolic changes, and disruption of the blood–brain barrier (BBB). Modifications in synaptic and neuronal function and connection, excitotoxicity, and changes in the expression of certain genes and proteins related to intracellular communication at the cellular level are some of the suggested mechanisms that have lately attracted attention. (Armstrong *et al.*, 2016).

Preoperative seizures are thought to have a different mechanism than postoperative seizures (Pallud, Capelle and Huberfeld, 2013)(Fernández-Torre *et al.*, 2014). Surgical and chemoradiotherapy impacts are thought to play a role in epileptogenesis in the latter (Huberfeld and Vecht, 2016)

Found that seventy percent of patients with abnormal growth inside the brain (cancer) suffer from seizures, so it is necessary to control seizures to improve the lives of children, although the relationship between the two diseases is still unclear. Understand the mechanism of tumor toxicity and the problems caused by tumors such as cell disruption and damage.(Goldstein and Feyissa, 2018)

The World Health Organization classified the tumor on the basis of its composition and behavior, as it classified it into benign and malignant, and according to the statistics carried out by the organization, the prevalence of benign tumors is more than malignant tumors, reaching eighteen percent for every hundred thousand (Ostrom and Barnholtz-Sloan, 2011).

The pathophysiology of seizures in people with BTs is unknown, however they appear to be complex and linked to machines that bypass anti epilepsy drugs. Poor seizure control may be due to the fact that many AEDs function by changing membrane excitability via ion channels, but modifications in pH, amino proteins, acids, and other variables can also trigger occur of epilepsy in BTRE. In BTRE, seizures can be induced by tumor development (in which case the initial AED is typically insufficient) or a little absorption of Anti-epileptic in the serum or at the site of action, which can be caused by pharmacological interactions with cancer therapy. (Köhling, 2017)(Janeiro, 2018)

One of the most important interventions carried out by specialists related to the problems that the child is exposed to, such as emotional, cognitive and behavioral problems, it is enough to be affected by just hearing that the child has cancer,From a physical point of view, the increase in the size and location of the disease has many effects. The affected patient, even a tumor, finds it difficult to complete his life or carry out his normal daily activities. He will suffer from many psychological diseases, including depression and cognitive impairment, not to mention the presence of a physical disability.All of this points to the great burden produced by the link between these two diseases, which is why the utmost care and modern treatment plans must be used to try to preserve the lives of children so that they can continue, rather, live without troubles or stress as much as possible. (gammaknife, conventional RT, radiosurgery) (Rudà, Trevisan and Soffietti, 2010)(Köhling, 2017) (Maschio and Dinapoli, 2012)

As well as dealing with seizures, children with epilepsy (CWE) must also deal with a range of other cognitive, behavioral, and emotional challenges that must be overcome. Attention deficit hyperactivity disorder (ADHD), (ADHD), is a common illness that affects both children and adults. (ADHD)(Regier, Kuhl and Kupfer, 2013).

(ADHD) is described as a neurodevelopmental condition described by at least 6 symptoms of inattentiveness.The following are the signs and indicators of attention deficit hyperactivity disorder (ADHD): In order to be considered, the symptoms must have begun before the age of 12 years old and must have caused significant difficulty with functioning in at least two places (e.g., school and home) at the same time. A diagnosis may only be made after determining if the patient is mostly inattentive, predominantly hyperactive/impulsive, or a combination of the two qualities. Rendering to the National Center for Health Statistics, ADHD affects approximately 7 percent to 9 percent of children and 2.5 percent to 4 percent of adults, with the vast majority of cases occurring in children under the age of five(Polanczyk et al., 2014)

When it comes to be diagnosed with attention deficit hyperactivity disorder, boys outnumber females by a two-to-one ratio. ADHD is associated with an increased risk in first-degree relatives of someone who has been diagnosed with the disorder, in addition to having a significant hereditary component. Despite the fact that the environment and social variables can have an impact on the presentation and progression of ADHD symptoms, the contribution of these factors to the development of the disorder is significantly less significant than the contribution of heredity to the development of the condition. Epilepsy is included as a condition that may have an impact on the symptoms of attention deficit hyperactivity disorder in the DSM-5. (Williams et al., 2016)

Individuals have decreased volumes of the thalamus, corpus callosum, and cerebellum, as well as decreased volumes of the dorsolateral prefrontal cortex (PFC) and caudate. These findings, along with reduced volumes of the PFC and caudate, are all common findings in ADHD individuals. Treatment of individuals with ADHD with stimulant medicines has been shown to diminish or normalize neurological disparities between them and controls, in addition to the detection of neurological anomalies in these patients when compared to controls.(Friedman and Rapoport, 2015)(Russ, Larson and Halfon, 2012)(Williams et al., 2016) (Cohen et al., 2013)

According to neuropsychological investigations, CWE patients' ability to maintain sustained attention appears to be more frequently impaired than their ability to maintain divided or selective attention, and their ability to maintain complex attention appears to be less frequently impaired than their ability to maintain basic attention.(Yoong, 2015)

Several neuropsychological studies of attention deficits in epilepsy have found that children with complex partial seizures (CPSs), as well as children with benign childhood epilepsy with centrotemporal spikes, have prolonged attention impairments. These findings are based on a review of neuropsychological investigations of attention deficits in epilepsy. Neuropsychological testing revealed that children with CPS and ADHD performed significantly worse on sustained attention tasks as compared to children with ADHD who did not have epilepsy. (S. H. Kang *et al.*, 2015)(Triplett and Asato, 2015)(Reilly et al., 2015)(Berl et al., 2015).

Several ADHD drugs, particularly those used to treat attention deficit hyperactivity disorder (ADHD), have the potential to cause seizures in some people who use them. Among other things, according to the Physicians' Desk Reference, the medication has been shown to lower the seizure threshold, resulting in (1) increased seizure frequency among

patients with ADHD who already have seizures and (2) the occurrence of new-onset seizures among patients with ADHD who have never had seizures before as a result of taking the medication. Patients with attention deficit hyperactivity disorder (ADHD) are at a higher risk of getting seizures as compared to the general population. However, the data did not support the notion that taking ADHD medication increases the likelihood of experiencing seizures in patients with attention deficit hyperactivity disorder (ADHD) (also known as hyperactivity disorder).(Wiggs et al., 2018)

Attention deficit hyperactivity disorder (ADHD) is more common in children who have severe epilepsy, and some antiepileptic drugs may increase the symptoms of ADHD in children who have seizures. It appears unlikely that seizure illness and treatment are the main factors contributing to the greater incidence of ADHD symptoms in this cohort, as seen by the higher prevalence of ADHD symptoms in this cohort even before a seizure condition is diagnosed. It is recommended that more study be carried out in the future in order to acquire a more complete understanding of the nature of the comorbidity between these two conditions in the foreseeable future.(Williams et al., 2016)

Epileptiform abnormalities were detected in the electroencephalogram (EEG) recordings of children with (ADHD). These abnormalities remained throughout the night in the youngsters. Attention deficit hyperactivity disorder (ADHD) patients have a large increase in theta waves in the frontal lobes of their brains, which appears to be a particularly consistent EEG anomaly in this population of individuals. Further investigation revealed that this population exhibits abnormal alpha asymmetry as well as a higher theta-to-beta ratio than the general population. It is also important to emphasize the significance of these anomalies in terms of seizure occurrence or propagation in children with epilepsy at this stage, even though the exact significance of these anomalies

is still being contested. According to the American Academy of Pediatrics, attention deficit hyperactivity disorder (ADHD) and pediatric epilepsy are frequently seen simultaneously. (Salpekar and Mishra, 2014).

Attention deficit and hyperactivity disorder (ADHD) and autism spectrum disorders (ASDs) are the most common comorbid ailments associated with pediatric epilepsy, with attention deficit and hyperactivity disorder (ADHD) and autism spectrum disorders (ASDs) coming in second and third place, respectively, on the list of comorbid ailments associated with pediatric epilepsy (ADHD). For individuals who have both epilepsy and an autism phenotype or both epilepsy and attention deficit hyperactivity disorder (ADHD), the pathogenesis of the condition is complex and heterogeneous, and it is thought to be caused by changes in synaptic plasticity, neurotransmission, and functional connectivity in the developing brain during the early stages of development, among other things. Only a small number of clinically relevant chromosomal abnormalities, in combination with environmental factors, may increase the likelihood of ASDs/ADHD being comorbid with epilepsy in certain populations of people, particularly children..(Lo-Castro and Curatolo, 2014)

When it comes to the most common neurological disorders in children, epilepsy ranks first on the list of the top ten most common neurological disorders in children. Many neurodevelopmental illnesses have been linked to it, including intellectual disability, attention deficit hyperactivity disorder (ADHD), and autism spectrum disorders (ASDs) (ASDs). According to current estimations, patients with ASDs have a 7 to 46 percent prevalence of seizures on average, with the frequency being higher in subjects who also have an intellectual disability. A complicated and varied etiology is associated with the epilepsy/autism phenotype, as well as the epilepsy/adrenalin hyperactivity disorder (ADHD) phenotype. This etiology is caused by multiple aberrant neurobiological pathways that

are involved in early brain development and have an impact on synaptic plasticity, GABA transmission, and functional connectivity in the brain.(Bolton et al., 2011).

Recently published research has found that both autism spectrum disorders (ASD) and attention deficit hyperactivity disorder (ADHD) are common illnesses in children who have epilepsy, and that the co-occurrence of both conditions may have a major hereditary component. In order to identify whether or whether there is a bidirectional link between these disorders and other maladies such as schizophrenia and bipolar disorder, further research will be required. Research into the functional genomics of ASD/ADHD comorbidity associated with childhood epilepsy will help us better understand this condition in the future. It is hoped that these research will lead to new insights into the molecular mechanisms by which genetic variations predispose to the ASD/ADHD comorbidity associated with childhood epilepsy that have not previously been discovered. Also anticipated is that these investigations will provide insight into the creation of treatment solutions that are biologically suited to the individual.(Le Couteur et al., 2012).

Require a developmental framework in order to better understand the pathologic complexity of epilepsy and the comorbidities that often accompany the illness, it is not possible to distinguish between the numerous ways in which diverse combinations of genetic and environmental risk factors may influence the development of different areas of the brain and result in discrete neurobiological abnormalities and clinical endophenotypes in different areas of the brain. This is due to a scarcity of long-term longitudinal data, which has led to this situation.(Lo-Castro and Curatolo, 2014) (Legg, 2018)

The interaction between children and adults, in addition, should be taken into consideration. In order to be diagnosed with mental retardation, an individual must first demonstrate a mild to severe impairment in intellectual ability (with an IQ of 70 to 75 or lower), which is accompanied by significant limitations in social, practical, and conceptual skills (such as interpersonal communication, reasoning, or self-care) that are necessary for independent daily functioning and that began before the age of 18 and has continued since then. Furthermore, you must have a history of abuse or neglect to be considered. It is now preferred to use the term intellectual disability rather than mental retardation in a variety of contexts, including medical, educational, and regulatory settings.(Hennes and Chronicle, 2019)(Drive, 2019)

The presence of psychomotor impairment in children who have recently developed epilepsy is a reflection of the way their brains are operating. studeis discovered that children with psychiatric disorders connected with neo-epilepticus have baseline and expected changes throughout their lives, indicating that there is no significant difference between the two conditions. Psychosomatic illnesses, rather than being a symptom of epilepsy, are thought to be an early indicator of abnormal brain development that manifests itself before the onset of the condition and persists for at least two years after a patient has been diagnosed with the condition, contrary to popular belief.(Garcia-Ramos *et al.*, 2018)

Furthermore, hyperglycemia is related with a higher risk of developing epilepsy disease. Diabetes mellitus type 1 in children is one of the most common autoimmune illnesses in children, with the global incidence rate increasing by 3 percent each year since the 1980s in children, accounting for approximately 5% of all cases., particularly those younger than 5 years of age, particularly in the United States, and this has been especially true in developing countries. (Patterson *et al.*, 2014)(Atkinson, Eisenbarth and Michels, 2014).

When compared to the general population, diabetics have a larger risk of acquiring significant health problems and dying than those without diabetes do. It is a neurological ailment that affects children of all ages and can be quite severe in terms of its impact on the body. disorder that affects children of all agesfound that children with this disease, which is characterized by a tendency to epileptic seizures, had major implications for their social and behavioral development, particularly in the early years. (Moshé *et al.*, 2015) .

Although a variety of reasons are considered to be responsible for the genesis of epilepsy, the structural abnormalities of the brain, as well as metabolic diseases and hereditary factors, are the most prevalent. There are only 25–45 percent of epilepsy cases that can be traced back to one of these causes, with the remaining 75 percent of the population suffering from epilepsy that has no known cause, also known as idiopathic epilepsy, which does not appear to be caused by any known cause. In addition to that, In recent years, the development of epilepsy in children has been linked to the presence of type 1 diabetes; however, the exact mechanisms by which this occurs are still being investigated. If diabetes-related metabolic abnormalities, such as hyperglycemia and hypoglycemia, are not addressed promptly, it is possible that they will have a negative impact on the central nervous system, resulting in seizure. It has only been in the last few years that studeis have begun to understand that a subset of previously diagnosed idiopathic seizure disorders may have distinct autoimmune origins, which are frequently associated with autoantibodies., which is a slow process that occurs over time.(Chou *et al.*, 2016)

During seizures, it was discovered that certain brain regions had higher levels of metabolic activation than others, which was an unexpected discovery. An increase in the slow electrical potential of the brain, as well as a period of silence in electrical activity in the brain, can occur after the occurrence of intense seizures .Consequently, blood arteries in the brain

can become more or less elastic, resulting in either temporary hyperperfusion (physiological hemodynamic response) in healthy tissue or severe hypoperfusion (inverse hemodynamic response) in tissue that is at risk of progressive harm. Due to the reduction in energy supply, cellular damage and the breakdown of the blood-brain barrier(BBB) will both become more severe, both of which are damaging. Greater understanding of these systems may pave the way for the development of novel treatment options that are more illness modifying in nature than seizure.(van Vliet, Aronica and Gorter, 2015)

Since ancient times, head strokes have been one of the most important causes of epilepsy, as it was found that approximately fifteen percent of children who suffer from head truma have seizures in the future, and that the emergence of epilepsy may be months after the injury or after years, so it is necessary Focusing and understanding the mechanism that leads to the occurrence of seizures, and research and studies still suffer from a lack of accurate information and data to reach the main cause that leads to the occurrence of epilepsy.(Brod, 2014)

Considered one of the things that a person acquires and that leads to health problems in the future is exposure to injuries and accidents, where head injuries are the center of attention of health care centers and specialists to follow up on this defect, as well as the focus of attention all over the world who care about the subject of epilepsy. It is difficult, especially from a surgical point of view, and this leads to psychological and social problems and pressures for the affected individual as well as for the families, so the plans used to choose the correct treatment help to cure the patient or prevent it from appearing in the future.(Ding, Gupta and Diaz-Arrastia, 2016)

Post-traumatic seizures were divided into three types. This division relied on a lot of research and studies that there is a difference in some opinions. They are usually recurring, occur immediately during injury, or occur after a period of time from the trauma, so studeis suggested classifying seizures into those types. It is an immediate attack, which occurs in less than 24 hours, while seizures of the second type, which occur in less than the third week, and which occur after a week or more. (Brod, 2014)

Also to summarize what the studeis reached despite the definitions and classifications that their colleagues set. In consciousness, it is not less than 30 minutes and does not have a fracture, so the blow to you is considered light and simple, while someone who loses consciousness for more than 30 minutes with out fracture, those attacks were considered moderate. As for the last and third type, for those who had fractures or bleeding and loss of consciousness for more than 24 hours, these blows were classified as serious and severe blows.(Lowenstein, 2009)(Ding, Gupta and Diaz-Arrastia, 2016)

With the presence of these differences in classifications and opinions, studeis, scientists and specialists in this field must study this problem more precisely and broadly. studeis understand the mechanisms and problems that cells in the brain are exposed to that generate epileptic seizures, because there are tests done on animals and finding effective treatments to prevent seizures or recover from seizures, so it requires more and more depth to know the physiology that led to the occurrence of the disease. (Pitkänen and Immonen, 2014)

From physiological point of view, seizures occur for those who are exposed to injuries, especially when they are in the head. The concept that the studeis reached was that the defect that occurs in the transmission of ions and signals between cells, which represents the first stage of the

trauma, and the subsequent changes that occur to the cells that have been disturbed, which in turn try to recover. Or trying to restore the brain to its normal state, and that these mechanisms are intertwined with each other, and it is considered the second stage after injury. studeis have proven that the second stage occurs after hours or days after the first stage. The studeis found that this stage may be the cause of seizures, although many The studeis did not try to address the problems that occur in the second stage, and it may be the way to develop solutions to avoid seizures.(Xiong, Mahmood and Chopp, 2013)

The period related to what is before the onset of epilepsy, or what is called the period of (dormancy), is long-term, i.e. extends for a long period. It is related to the chemical mechanics that occur inside the brain and the neural connections and signals between cells, This is also related to infections that affect the brain, occurrence of epilepsy may have long periods after the inflammation, such as meningitis and encephalitis.(Vezzani, Friedman and Dingledine, 2013).

Through an experiment conducted by some studeis on rodents, they found that there are changes that occur inside the brain after a blow or after a specific inflammation. The internal physiology of the brain is trying to rebuild cells, getting rid of damaged cells, or trying to control bleeding inside the brain that this chemical mechanic must be a focus. The attention of studeis to reach the right decision to precisely identify the defect and find solutions to it, and this helps protect the persons from the development of epilepsy.(Pitkänen *et al.*, 2014)

In the year 2015, he conducted a multi-study of a group of individuals who were born with epilepsy after a brain injury, where it was found during that study to know the genes that lead to the occurrence of seizures. In neurotransmitters, this topic has been linked to ions and proteins, in addition to that, the chemical transport of calcium and its presence in those genes, and the defect in the channels that transport

calcium inside the brain. Other than that, potassium has an effect on the formation of epilepsy like sodium, so it is preferable to conduct studies related to these elements and to understand how it is done Transmission after the shock, which may explain the cause of this disorder, as access to this information is a solution to prevent the occurrence of epilepsy. (Rom *et al.*, 2015)

Rimonabant is administered, which, through experiments, may prevent seizures from children exposed to head injuries, knowing that the experiments did not give positive results if the administration period was twenty minutes after the injury.(Rosenberg, Patra and Whalley, 2017)

From the experiments carried out by many experts in the field of post-trauma lead to epilepsy, it is possible that science may be able to prevent the occurrence of epilepsy in children or adults who are traumas in the head, This experience mentioned above is only the beginning and a clear evidence of progress in this field. It has become remarkable for many studeis that they are able to control seizures after a head injury. (Pitkänen and Bolkvadze, 2012).

Despite the reasons and health issues linked with illness occurrence, family relationships were one of the elements that contributed to the emergence of various diseases. A reproductive connection between 2 people who have a common ancestor is known as consanguinity. In other words, consanguineous marriages are unions between people who are physically interrelated. These relationships are still common, especially in the Middle East, where customs and cultural norms encourage them.(Dahdouh-Guermouche et al., 2013).

This type of inbreeding has been linked to a higher occurrence of birth defects and neonatal mortality. Furthermore, the offspring of consanguineous marriages are at an increased risk of recessive illnesses due to the development of autosomal recessive genetic mutations acquired from a common ancestor. The more biologically related the parents are, the more

probable their children will inherit one or more copies of the same harmful recessive genes(Hamamy et al., 2011).

Several studies have found that Arabs are the most groups that have a high percentage of consanguineous marriages, and according to the standards of organizations to combat epilepsy, the kinship relationship has been classified, which is considered to be the most influential of the occurrence of epilepsy, where marriage is first-degree, second-degree, or third-degree. They do not have a history of the disease, as the first degree was classified as the parents or the apartment, the grandparents, grandchildren and uncles, as well as aunts and nieces of the second degree, while cousins were classified as the third degree(Chentouf *et al.*, 2015)

Seizures during the newborn period are considered the most important problems facing specialists, as it is difficult to control them, and specialists must treat the situation as soon as possible in order to prevent a defect in the development of the brain and its growth during this period, considering this period is a period of rapid growth and changes, and this period is subject to many problems such as metabolic problems, toxic disorders, or exposure of the newborn to many viruses or problems related to oxygen or sugar, treating them is one of the important steps to try to develop the child naturally. Among the signs that appear in the child, such as movement problems, strange changes in the face, or problems with sucking are evidence that the child may be exposed to a certain injury. Injuries in these The stage is multiple, such as clotting problems or nutritional problems, which are usually associated with chorioamnionitis, and this may lead to cerebral palsy or hypoxia. Hypoxia may also be caused by umbilical cord prolapse or uterine rupture and many other causes. (Wheless, 2013).

Asphyxia literally means absence pulse, implying a slowing of the heartbeat and a breakdown of the circulatory system. Respiratory dysfunction and reduced gas exchange are included in a broader definition

of asphyxia. Hypoxia, or a lack of oxygen, anoxia, or a complete loss of oxygen, and hypercarbia, or an inability to adequately eliminate carbon dioxide, are all symptoms of the illness. Hypoxia or anoxia, as well as hypercarbia, can occur during labor, delivery, or the newborn period due to insufficient perfusion or gas exchange through the maternal, placental, fetal, or neonatal circulations. The phrase before birth asphyxia is frequently used interchangeably with fetal discomfort, but new born asphyxia or (asphyxia neonatorum) refers to hypoxia or anoxia and hypercarbia in newborn infants. The most noticeable clinical hallmark of neonatal asphyxia is the delayed initiation of breathing at delivery, which is followed by difficulty making all of the physiologic transitions from intrauterine to extrauterine life. (Aljanabi, Shehab and Rasheed, 2011)

The studeis discovered the genes that lead to seizures, despite the complexity that occurs to those genes. Recent studies have discovered many genes that lead to seizures, but despite this, epilepsy has not been accurately identified as a complex disease that requires a deeper and more accurate study of communication and on Identifying the genes that cause seizures. (Peljto et al., 2014)

One of the reasons that lead to low oxygen in the fetus or newborn is problems related to the umbilical cord. The umbilical cord has a certain length and a certain rotation when there is a defect in its length or coils, that is, it is abnormally twisted, which may lead to many problems, such as a lack of oxygen or weight loss for the newborn. Caregivers and specialists may have to directly intervene to preserve the life of the child and prevent complications.(Jessop et al., 2014)

Epilepsy was eight times more common in preterm and small-for-gestational-age newborns than in the general population, and the risk rose as birthweight decreased. Perinatal conditions such as cerebral hemorrhage, birth hypoxia, and congenital brain malformations are linked to the development of subsequent epilepsy in preterm and newborns.

Interventions to promote perinatal health, such as proper follow-up, supervision, and prenatal care, may assist to prevent the occurrence of brain abnormalities throughout the perinatal and neonatal period.(Chou, Sung and Hong, 2020)

2.6. Daily Habits:

Several studies have found that children who suffer from sleep disturbances have epilepsy and usually develop generalized epilepsy. Many children were tested by depriving them of sleep. In that experiment, approximately 60% of children were diagnosed with electrical disturbances in the brain, and this indicates Sleep disturbances are one of the causes of a defect in the mechanics of neurotransmitters.(Article, 2013)

Parents do not have enough information and are unaware of the problems that their children have, and many of them do not realize the dangers of sleep disorder in their children, as sleep is necessary for the functioning of the brain, as well as the rest of the body's organs. Sleep disorder has been associated with many health problems such as behavioral problems or emotional problems. Sleep is necessary for children in general. They had certain diseases or did not suffer from any diseases and that the method used to know the sleep of children is through information obtained from parents.(Chaput *et al.*, 2017)(Mindell *et al.*, 2017)(Sivertsen *et al.*, 2015)(Miller *et al.*, 2018)(Honaker and Meltzer, 2016)

Many studies from parents have found misconceptions about children's sleep,We learned that these studies were limited, and it was found through those studies that the awareness of parents is almost weak(Lee, Persson and Mathews, 2015)

One of the bad habits that has entered our societies these days is an agency that has effects on children's health from the mental, physical as well as social point of view. studies have tried to study these habits individually, even if they are limited. Many studies have found sitting in front of the TV for long periods on the growth and development of the child and changing the behavior of He is influenced by what he sees on TV shows , The studies tried to organize the child's life within 24 hours, by following good habits, adequate sleep, and sermons used to develop the child's development for the better. The child, who is under twelve years old, should sleep for eleven hours, provided that sleep is continuous and regular, and exercise at least for a period of time. Sixty minutes, as well as watching TV for two hours or less during the day,When we talk specifically about children with epilepsy, they may need to be more safe with these conditions, especially since these children may basically have sleep disturbance due to illness or medications that the patient is taking.(Saunders *et al.*, 2016)(Pedišić, Dumuid and Olds, 2017) (Tremblay *et al.*, 2016) (Ronen and Janssen, 2019)

Parents should know a good and balanced diet, as it helps the brain to develop properly and their children will have a high level of health. Taking the correct diet has prevented the occurrence of seizures or reduces the risk of seizures, if any. Good nutrition helps to preserve the body's organs and the brain in particular to be prepared to face the risks that a person may be exposed to. Exercising every day on a daily basis is one of the ways that help keep the brain and body organs at a high level of energy. Balanced energy also increases focus, control, and the ability to overcome life's problems. The environment and surroundings in which the child lives, it is necessary to keep the child safe. Drinking plenty of fluids, eating fruits and vegetables, and meeting health needs is the way to protect the child from many diseases, including epilepsy. Although there is no specific

type of food that directly causes seizures, some types of foods have been discovered, and they are very few, especially those related to reflexive epilepsy. It was found that they have an effect on the occurrence of seizures. (van Golde, Gutter and de Weerd, 2011)

To be clear, reflexive epilepsy is usually children with this type of epilepsy who has seizures as soon as they are exposed to light directly, or they have a seizure as a result of exposure to some noise or when they read a certain book, and they will notice that when they eat a certain thing that leads to a seizure, they should avoid those foods And among those foods that usually contain certain dyes or preservatives, and are usually monosodium, or what is written in some cans that they are low-fat, so they should avoid them if they know that these foods led to their seizures. (Razaz et al., 2017)

The difference in opinions has been found in many studies. Most of the studies say that caffeine has an effect on the human nervous system. It can lead to seizures in individuals, and children with epilepsy should reduce drinking caffeine, which is usually found in coffee, cola, or tea, and sometimes in energy drinks, despite this result. There are those who say that caffeine is effective in controlling seizures, and this difference may need To a deeper, broader and experimental study to distinguish between those who are affected by caffeine and generate epileptic seizures and those who help control those seizures.(‘Diet and nutrition’, 2019)

Through an experiment conducted by study on some animals, they found that caffeine had an effect on signals between brain cells, where they found dilated pupils, insomnia and intermittent tremors when given 100 mg, and when they increased the given substance to one hundred and fifty mg, they found the appearance of abnormal waves occurring inside the brain It was classified as generalized epilepsy. They also noted that giving three hundred mg of caffeine may lead to death, and this is conclusive

evidence that drinking caffeine in high quantities leads to recurrent seizures.(Sander, 2017)

Another habit, especially among children, is watching and playing electronic games, and this issue has been observed since the eighties, where it was found that they have an effect on the brain through light change and sensitivity to those lights, and it was found that their incidence increased more in males than females. The change that occurs in lighting, colors, and the rate of illumination that appears in those programs or games that children play, such as switching from a dim color to a color with high brightness.(Piccioli et al., 2005).

The strange thing is that girls are more affected by photosensitivity, although the percentage of males watching and exercising is higher, but females have more seizures and they usually suffer from generalized type epilepsy, and this information is of great benefit in determining the appropriate treatment and controlling seizures as quickly as possible. These triggers can also be prevented. Other than that, 3D programs have effects on children, especially since most children have become oriented towards these programs and games(Mindell *et al.*, 2017)

Despite the rapid development of these programs, researchers need to conduct studies related to these problems, especially since many parents are asking about the extent of the impact of these programs, 3D movies are characterized by an increase in frames per second, which is twice the number of frames compared to regular screens with two dimensions, where it reaches 48 frames per second. It is important to realize that the environment surrounding the person who practices this hobby has an effect on the occurrence of disorders inside the brain due to sensitivity to light, such as the intensity of light and multicolor, as epilepsy patients suffer from sensitivity to the direction of light, so it is possible that the use of triple screens has a less impact than screens with two dimensions, although it There are statistics confirming the occurrence of epileptic seizures in

cinemas due to exposure to the light emitted from the screen inside those cinemas. Therefore, with the advancement of engineering capabilities and software methods, it is preferable that screens with multiple dimensions be tested, especially in the present time. (Prasad et al., 2012)

To be precise, flashes of up to five flashes per second may have a greater effect on the occurrence of seizures, and even when watching programs or playing multi-dimensional games, many parents have recorded that their children had epileptic seizures after watching movies or programs, knowing that they did not The seizure occurs before they watch these programs, so there should be empirical research on children who watch or play games with dimensions so that studies can give a final decision on the extent of the impact of these screens on brain chemistry

It is worth noting that the manufacturers of these types of screens or programs have put a warning stating that some of those who watch those programs or use those screens may suffer an epileptic fit or a stroke when exposed to this multiple flash that appears to the eye when watching those pictures or when practicing these Games, and this has become a source of inconvenience and anxiety for parents.(Pedišić, Dumuid and Olds, 2017)

With regard to screens inside homes, the technologies Plasma screens are safer for use inside homes, although they contain less brightness than those screens used previously, and therefore it is possible that plasma screens have less impact on the occurrence of seizures, because they contain filters that reduce photosensitivity.(Prasad et al., 2012)

The study was conducted for many years, through which it was discovered that the sudden light or sound is one of the pregnant women that lead to a seizure resulting from these stimuli, which have become more prevalent recently in our societies, as more than one type of epilepsy is affected by these factors is epilepsy Reflexology, as we mentioned previously, is usually of the generalized type of epilepsy, and it tends that the child with this type may have problems with reading or listening, as

well as problems with arithmetic operations, the way of problem solving and emotional responses.This is evidence and gives us indications that the level of awareness must be high to maintain the health of children in our societies. (Okudan and Özkara, 2018)

The classification is still not fixed, and this is because of the changes that occur in people with epilepsy, despite the old and modern classifications, which also classified epilepsy into generalized or partial. Anti-epileptic organizations suggested that the types should be divided on the basis of the type of seizure and depending on the causes. (Scheffer *et al.*, 2017)(Fisher, 2017).

With regard to reflex epilepsy and its effects on visual stimuli, it is 79 percent affected by music, eating, practical application, and reading. Surprises may have an effect on the occurrence of epileptic seizures, although the majority of epilepsy patients are classified as suffering from idiopathic epilepsy, but knowing this type of epilepsy helps in diagnosing easily. Determining treatment more easily.(Italiano *et al.*, 2016)

A family history of TV epilepsy affects about 10% of the patients. Seizures primarily afflict children aged 10–12 years, with girls experiencing them twice as frequently as boys. Patients who are photosensitive get seizures when they watch TV on a regular basis. Seizures can be induced by a flickering screen, a close monitor space (less than one meter), the strength of the image, and the area bright providing contrast or brightness on the screen. When they are watching TV too intently, 10% of patients report being Come close to the TV, involuntarily to the screen, shadowed by a widespread tonic-clonic seizure. This is referred to as "compulsive attraction. The studies found that the net flicker frequency is the most influential factor in the occurrence of seizures, as the traditional screens with low frequency are more responsive through the experience that he performed than the screens with high frequencies, since the first CD was recently used and maintaining the pixel level, this prevents

the occurrence of flicker at high levels. In addition to that, the three-dimensional screens did not record high rates of epileptic seizures compared with two-dimensional screens that have variable frequencies.(Prasad *et al.*, 2012)

About video game stats, the first to report it in 1981, when a 17-year-old kid had seizures while playing an arcade game featuring a 15 Hz flashing rainbow segment. Later, flash light sequences were spotted in a game called "Dark Warrior," which produced seizures., the incidence of first seizures caused by playing electronic screen games was estimated to be 1.5 per 100,000 in the United Kingdom. In Japan, statistics were recorded for hundreds of children who were referred to hospitals because they watched a cartoon called Pokémon in 1997. (Okudan and Özkara, 2018)

The occurrence of seizures due to problems in nutrition is a rare occurrence, and if any, it is related to certain practices in physiological problems. The digestive processes are complex and differ from one individual to another. The seizure may sometimes occur due to a specific smell of food or occur as a result of bloating in the stomach, or the individual may have eaten a rich meal With carbohydrates, in addition to the effect resulting from digestive processes and the roles played by taste and involuntary stimuli, it may have a specific food smell that sends messages to the brain that affect the work of the brain, resulting in strange activity within the brain and this is what has been observed in many experiments when the patient is examined by brain mapping.(Auvin *et al.*, 2010) (Okudan and Özkara, 2018).

In several experiments, the studies noticed that there were changes when performing a digital EEG, based on an experiment conducted by scientists on mice. The studies proved that neurotransmitters and signals inside the brain change over time, and through that experience, such as giving caffeine, feeding a type of food, or exposure to rapid flashes

of light, It has been observed that there are changes that occur inside the brain as a result of a certain nutrition or as a result of giving a certain substance, which means that researchers believe that foods, caffeine, watching television, using the phone and video games have an effect on the occurrence of an electrical imbalance in the brain.(Williams-Karnesky *et al.*, 2013)

2.7. Previous Studies:

This section of the chapter reviews prior studies on the issue of epilepsy, as well as the amount of benefit derived from these studies, in terms of local studies, surrounding nations, and global studies, as follows:

Justine Record *et al.*, in 2021 applied a study on Risk factors, This study was conducted on children. Information was obtained through inpatient visits and medical records in addition to parental reports. In that study, it was found that the percentage of females was close to that of males, and the average age ranged from seven years, and epilepsy was the most general in that category. It represented twenty-nine percent of the total sample size. Partial epilepsy was the largest, which is equivalent to sixty-three percent. As for 8%, it was for unspecified epilepsy, where there were problems related to that period, internal bleeding, neonatal seizures, and high temperatures, which amounted to 17%.

The percentage of brain abnormalities reached 13%, while the genetic factor played a major role, as it represented a quarter of the sample. It was also found that developmental problems represented 56%, headache 16%, attention deficit 23% and autism 7%, in addition to that with regard to psychological diseases, there was depression and anxiety It ranges between 5 to 6%, and the rate of infection was greater in the countryside than in the city.(Record *et al.*, 2021)

Aya Al Habbal et al.,in 2020 applied a study on Risk factors associated with epilepsy in children and adolescents Two groups were studied to identify the factors that lead to the occurrence of seizures, where the sample size was three hundred and thirty-four for two groups, one infected and the other healthy, where each individual group reached one hundred and sixty-seven equally. Seizures, while the study did not find relationships between head strokes and father demographic factors, as well as suffocation.(Alhabba *et al*., 2020)

Del Rosario Cruz et al., in 2019 applied a study on Mexico, This sample was selected within certain criteria, the most important of which is that the child had epilepsy for at least two years. Two groups were taken, each group was equal to one hundred and eighteen individuals. The total sample for the sample was two hundred and thirty-six children. The family history and prenatal and postnatal complications were studied and found. This study indicated that urinary tract infections in the mother and asphyxia of the newborn during childbirth are among the most important factors that lead to the occurrence of epilepsy. Therefore, paying attention and following up on urinary tract disorders in the mother and trying to prevent suffocation in the child helps prevent seizures in the future.(Cruz-Cruz et al., 2019).

Correspondingly, Stephanie Walsh et al., in 2017 This study included a broad methodology to understand epilepsy and its development. This study was based on data collection for systematic reviews. Previous data was collected for a period of twenty-three years. Many articles were selected that amounted to sixteen thousand articles or more. After investigation and research, seventy articles were selected. In the selected literature, genes have a significant role in the emergence of epilepsy, but studies found different evidence for hyperthermia, drinking alcohol, and head strokes, as well as premature birth and other infections. In addition,

studies found limited evidence for psychological problems such as anxiety, depression, and sleep disturbance.(Walsh et al., 2017)

Likewise, Kenneth Ayuurebobi et al., in 2015 study This study was looking at the prevalence of epilepsy and the factors that may lead to its occurrence, where the prevalence rate was ten per thousand for children under the age of eighteen years. It is significant for the occurrence of epileptic seizures. The majority of these children were not enrolled in schools, as their educational level was low.(Ae-Ngibise et al., 2015)

In another study by Vozikis et al., where was Two groups were identified, and the total number was seven hundred people, where many factors were studied, such as disorders surrounding childbirth, the relationship between parents, many diseases and problems such as nervous system disorders and accidents that the child is exposed to.It was found from that study that family history, gender, perinatal disorders and head strokes are the most influential factors for the occurrence of seizures.(Vozikis, Goulionis and Nikolakis, 2012)

In the same year, Nergiz Huseyinoglu et al., This study aimed to determine the extent of epilepsy prevalence and to indicate some of the important factors that lead to its occurrence. This study targeted ages from six to fourteen years. Twenty-two children were diagnosed with epilepsy out of one thousand six hundred and twenty-five, and the incidence rate among females was twice that of males. Temperature factor, family history, maternal diseases, and high bilirubin are among the most important factors that lead to epilepsy.(Huseyinoglu et al., 2012)

Thomas Varghese Attumalil and other in 2011 applied a study in Kerala To identify the most dangerous factors for children, where children between one to twelve years were chosen in this study, two groups were selected, the first group had epilepsy and the second was healthy, as the total sample amounted to two hundred and forty two, and the most affected

ages were six to seven years. This study includes many factors that are an indicator of the occurrence of epilepsy, such as the length of the childbirth period, the lack of crying immediately after birth, the continuous crying of the child for the first week, and infections related to the nervous system.The study found that there are factors that can be controlled, such as problems that occur during childbirth and head trauma, to prevent epilepsy in children.(Attumalil et al., 2011)

From what was shown above, there must be procedures and investigations that help to know the factors related to our country, as every city has variables, customs and traditions that differ from other cities. Some factors may be influential in one country while not in another. Also, knowing the causes that lead to the occurrence of epilepsy and identifying It helps us to take plans and measures to prevent and improve the quality of life in order for the children of our society to enjoy a life far from health problems.

Chapter Three

Methodology

Chapter Three

Methodology

This chapter will show the methodology of an existent study and all of the phases that it went through, starting with its permission and concluding the analysis of the data it obtained.

3.1. Design of study:

To achieve the stated objectives, a descriptive Case-Control study design was used. Between the 1st of October 2020 and the 26th of April 2022.

3.2. Arrangements of Administrative:

Administrative Arrangements and Ethical Endorsement were fundamental and decisive part of research work, which included:

1- Protocol of research approved by Family and Community Health nursing Branch, and official permission taken from University of Babylon, College of nursing to conduct the study.

2- The questionnaire was presented to the Ethics Committee formed within the College of Nursing, which reviewed the study tool (Official letter provided in 3rd March 2021 to conduct study).

3- Official approvals were attained from the Health Directorates of five Middle Euphrates provinces to (Development and Training Department).

4- In the last step of the administrative arrangements, official letters by the (Development and Training Department) in the Health Directorates Middle Euphrates provinces were directed to the governmental hospitals for facilitating cooperation with the study in completing his dissertation. (Appendix B).

3.3. Ethical Consideration:

Verbal consent of the parents of children were obtained to participate in the study, after explaining the objectives and usefulness of the study to them and assuring that all information provided will be confidential and for scientific and research purposes (autonomy and privacy).

3.4. Study Sitting:

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) .

3.5. The Sample of the Study:

A convenience sample of 672 children, divided equally into case group (children with epilepsy) and control group (children without epilepsy) from five Governorates of Middle Euphrates Governorates .

3.5.1. Study Sampling:

Data was collected from five Middle Euphrates Governorates

1- Al-Njaf Al-Ashraf Governorate.
2- Karbala Governorate.
3- Babylon Governorate.
4- Al-Diwaniyah Governorate.
5- Al- Samawah Governorate.

3.6. Study Instrument :

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).

3.7. Study Validity:

Validity refers to a questionnaire capacity to collect required data. For the purpose of determining the validity of the created questionnaire, 20 experts (with more than they have at least five years of experience) in order to examine the questionnaire for the current study, relevance, intelligibility, and clarity in achieving the chosen objectives.

Furthermore, the majority of specialists agreed that the questionnaire was well-designed and constructed for determining epilepsy risk factors. Furthermore, the expert recommendations were occupied into account. The final reproduction of the research instrument has been revised and ready for use in this study so far.

3.8. Study of Pilot:

The pilot study included 30 children from Al-Najaf City, 14 of whom were female and 16 of whom were male; also, the pilot research sample was omitted from the total study sample. As a result, this pilot study took place between August 25th and September 27th, 2020.

3.9. Reliability:

Cronbach's Alpha coefficient test was used to determine the study reliability of instrument, which was done separately for risk factors (Table 3.1). Based on “Cronbach's Alpha scores” of (0.81) for risk factors ,(0.83) and (0.78)for case-control study, the test had a satisfactory reliability. In addition, information was collected from the parents of (30) children.

Table 3.1. Reliability of the current study instrument:

Scale	Cronbach's Alpha value	Accepted value	Assessment
Case-study	0.83	0.70	pass
Control-study	0.78	0.70	pass
Risk factors	0.81	0.70	pass

3.10. Collection of Data:

By Expending an advanced and studied questionnaire, data on children with epilepsy was collected after obtaining the oral consent of their parents and through a questionnaire form to obtain information such as gender, age and problems that affected children. The form was filled out by the study. The collection of data period continued from **10th March 2021 to 13th November 2021.**

The collection plan was for five governorates of Iraq, which represent the middle Euphrates region, , as the study scheduled sampling as follows , The beginning was from Najaf Governorate, the Middle Euphrates Center for Neurosciences And for a period of two weeks from the first month After that, according to the plan developed by the study, the third week was the share of Al-Diwaniyah Governorate, Al-Diwaniyah Teaching Hospital, Neurosynthetics Center, After the fourth week, went to the Imam Al-Sadiq Teaching Hospital and Al-Hilla Teaching Hospital.

After that, the approval was obtained from the holy governorate of Karbala, the Imam Hussein Medical City, and it was according to the plan. went to Al-Muthanna Governorate to collect samples from Al-Hussein Teaching Hospital, consulting neurological wholesale. In this way, and in succession, it was decided every week to go to a specific governorate according to the sequence set above to collect the sample, The interview time for each person ranged from 20 to 30 minutes.

3.11. The Statistical Analysis:

The data of the current study about determination of risk factors for epilepsy were analyzed using popular analytical software for statistics, which is "SPSS (Statistical Package for Social Sciences)", specifically the 25th version of it, which was released in 2017, as well as the statistical analysis system for the application and Excel.

1. **Descriptive data analysis:** were involved the following:

A. Percentage (%)

B. Mean, standard deviation, and statistical cross tabulation.

2. Inferential Data Analysis:

This approach is performed through the following methods:

A. Chi-square. The chi-square analysis is used to examine the independency and the link between the study variable.

B- odds ratio A statistical method is used to find out the correlation between one value and another, and that value is effective to know the extent to which the factor is affected by a specific condition or disease, it is widely used in control studies.

C- Following the rejection of an omnibus null hypothesis, a type of statistical analysis known as post-hoc analysis is performed. Post hoc analysis can be used to test mean differences in a number of statistics, such as proportions and frequencies, but it is most usually employed to evaluate mean differences, When several independent or dependent statistical tests are run at the same time, a multiple-comparison post-hoc adjustment is applied.

3.12. Limitations of the Study:

1- Long duration for gathering data, due to long distance between Middle Euphrates governorates.

2- weak of awareness of some parents for health issues which caused difficulty in collecting information.

3- Parents' referral to a non-specialist doctor, which led to the difficulty in determining the location of the samples and the need for a longer time to reach the patient and his family.

Chapter Four

Results and Findings

Chapter Four

The Results

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

Child related-Demographic characteristics		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	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 1 : The study showed that children with epilepsy who attended health institutions were the largest percentage was for the age between 6-8 of the children with epilepsy.

The study shows that most of the age groups were from 6-8 in both study and control groups (34.82% and 30.65%) respectively.

The males had the highest percentage in the study group (57.14%), while females were higher in the control group (68.45%).

Concerning residence, the highest percentage were urban in both groups study and control (57.14% and 70.54%) respectively.

The table shows that children with epilepsy are mostly with illiterate education level.

The study proved that children with epilepsy had a hobby of using the phone and computer by 31.55%, and for children without epilepsy who enjoy the same hobby, it is 24.40%.

and those who do not have a hobby, their percentage was as follows: 60.42 percent for the affected children and 68.15 percent for children without epilepsy.

The table shows that children with epilepsy are mostly do not have specific hobbies.

Table (2): statistical distribution of the studied group according to Epileptic Child related-Clinical characteristics.

Child related-Clinical characteristics		Freq.	%
types of epilepsy	General	108	32.14
	Partial	23	6.85
	Syndrome	22	6.55
	unclassified	183	54.46
Number of attacks per month	<= ٢	181	53.87
	٣ - 6	154	45.83
	7 and more	1	0.30
	Mean±SD	1.6±0.5	
Beginning of the first attack	<= 2	145	43.15
	3 - 5	132	39.29
	6 - 8	47	13.99
	9 and more	12	3.57
	Mean±SD	3.1±2.3	
Total		336	100%

Table 2 : The study showed that 108 people with epilepsy were suffering from generalized epilepsy, which is equivalent to 32.14 percent.

Partial epilepsy was twenty-three cases and twenty-two cases of syndromes,

The largest percentage was for the unclassified, as their number reached 183 cases, equivalent to 54.46 percent. shows that most types of epilepsy were unclassified.

The study was also shown with regard to the number of seizures, and it was two or less for children who numbered 181, and that was the largest percentage of the sample, which is equivalent to 53.87 percent of the sample.

With regard to the age at the first seizure, it was equivalent to 43.15 % for those who are two years old or less. And 132 cases for those aged 3-5 years, which is equivalent to 39.29 %.

The table also indicated that the age at onset of first seizure was less than or equal to 2 by about 43.15%).

Table (3): statistical distribution of the studied groups according to Child related-Delivery problem risk characteristics.

Child related-Delivery problem risk characteristics			Epilepsy Cases		Control		Chi-squre (df)	p-value (Sig)	Odd Ratio
			Freq.	%	Freq.	%			
during delivery problem	asphyxia	Yes	24	7.14	4	1.19	14.9 (1)	<0.0001 (HS)	6.38
		No	312	92.86	332	98.81			
	trauma	Yes	10	2.98	3	.89	3.84 (1)	0.04 (S)	3.40
		No	326	97.02	333	99.11			
post-delivery problem (0-1)	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%			

Table 3 : The study showed that with regard to problems during childbirth for children with epilepsy, 7.17 % were exposed to the problem of asphyxia , while the proportion of children without epilepsy was 1.19 %, with a significant level of 0.0001 with an odds ratio of 6.38,

While the trauma during delivery was 2.98% for patients with epilepsy, and 0.89% for non-epileptic children, with an odds ratio of 3.40.

The study also showed that children with epilepsy were exposed to jaundice factor at a rate of 32.74 %, while the percentage of non-affected children was 9.82%, 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.

The study 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).

The study shows that Risk factors related to child during delivery problems were asphyxia and trauma and the results were statistically significant.

The table also indicated that the post delivery (0-1) risk factors were only jaundice, while the post delivery (1-12) problems were fever, encephalitis, meningitis, brain tumor, and head tumor, these results were statistically significant.

Table (4): statistical distribution of the studied groups according to Child related-Daily Habits risk characteristics.

Disorders		Epilepsy Cases		Control		Chi-squre (df)	p-value (Sig)	Odd Ratio
		Freq.	%	Freq.	%			
eating	Yes	299	88.99	293	87.20	0.511 (1)	0.475 (NS)	1.18
	No	37	11.01	43	12.80			
drinking milk	Yes	289	86.01	271	80.65	3.47 (1)	0.062 (NS)	1.47
	No	47	13.99	65	19.35			
donot drinking coffee	Yes	322	95.83	316	94.05	1.11 (1)	0.291 (NS)	1.45
	No	14	4.17	20	5.95			
sleep well	Yes	305	90.77	328	97.62	14.4(1)	<0.0001 (HS)	4.16
	No	31	9.23	8	2.38			
sensible balance between rest	Yes	327	97.32	318	94.64	3.126 (1)	0.077 (NS)	2.05
	No	9	2.68	18	5.36			
Total		336	100%	336	100%			

Table 4: The study showed that the daily habits of children with epilepsy who have sleep disorder were related between the two groups, where the level of significance reached 0.0001 and that of odds ratio was 4.16. It shows that risk factors related to Child related-Daily Habits risk characteristics only sleep disturbance.This result was statistically significant.

Table (5): statistical distribution of the studied groups according to Father related-Demographic risk characteristics.

Father related-Demographic risk characteristics		Epilepsy Cases		Control		Chi-squre (df)	p-value (Sig)	Odd Ratio
		Freq.	%	Freq.	%			
Age	Yes	178	52.98	167	49.70	0.721 (1)	0.369 (NS)	1.14
	No	158	47.02	169	50.30			
Consanguinity	Yes	121	36.01	47	13.99	43.46 (1)	<0.0001 (HS)	3.46
	No	215	63.99	289	86.01			
Total		336	100%	336	100%			

Table 5: The study showed that there is a relationship between the two groups in relatives, where it was a significant level 0.36 and an odds ratio of 1.14.

It shows that Risk factors related to Father related-Demographic risk characteristics was only Consanguinity. This result was statistically significant.

Table (6): statistical distribution of the studied groups according to

Father related-Clinical risk characteristics.

Father related-Clinical risk characteristics		Epilepsy Cases		Control		Chi-squre (df)	p-value (Sig)	Odd Ratio
		Freq.	%	Freq.	%			
History of epilepsy	Yes	51	15.18	2	.60	49.18 (1)	<0.0001 (HS)	2.88
	No	285	84.82	334	99.40			
Smoker	Yes	153	45.54	101	30.06	17.11 (1)	<0.0001 (HS)	1.94
	No	183	54.46	235	69.94			
Total		336	100%	336	100%			

Table 6: The study showed that the father with epilepsy had a significant value with a significant level < 0.001 between the two groups, as well as the father who smoked had a significant value with an odds level of 1.94.

Table (7): statistical distribution of the studied groups according to Mother related-Demographic risk characteristics.

Mother related-Demographic risk characteristics		Epilepsy Cases		Control		Chi-squre (df)	p-value (Sig)	Odd Ratio
		Freq.	%	Freq.	%			
Age of Mother	Yes	277	82.44	277	82.44	0.001 (1)	1.000 (NS)	1.00
	No	59	17.56	59	17.56			
Consanguinity	Yes	121	36.01	47	13.99	43.46 (1)	<0.0001 (HS)	3.46
	No	215	63.99	289	86.01			
Total		336	100%	336	100%			

Table 7: The study showed that with regard to the mother, kinship is one of the factors that influence the occurrence of epilepsy in her children, with an OR of 3.46.

It shows that Risk factors related to Mother related-Demographic risk characteristics was only Consongsiunty. This result was statistically significant.

Table (8): statistical distribution of the studied groups according to Mother related- Clinical (prenatal and perinatal) risk characteristics.

Mother related- Clinical (Pre and Per) risk characteristics		Epilepsy Cases		Control		Chi-squre (df)	p-value (Sig)	Odd Ratio
		Freq.	%	Freq.	%			
history of epilepsy	yes	23	6.85	4	1.19	13.93 (1)	<0.0001 (HS)	6.09
	no	313	93.15	332	98.81			
Prenatal perinatal	prenatal	11	47.83	4	100.00	3.75 (1)	0.05 (S)	0.733
	perinatal	12	52.17	0	.00			
medical history	covid19	4	1.19	1	.30	4.40 (5)	0.493 (NS)	N/A
	toxoplasmosis	4	1.19	1	.30			
	upset stomch	3	.89	2	.60			
	hormonal disorder	12	3.57	9	2.68			
	asthma	11	3.27	12	3.57			

	no	302	89.88	311	92.56			
Prenatal perinatal	prenatal	22	64.71	15	62.50	0.03 (1)	0.863 (NS)	1.10
	perinatal	12	35.29	9	37.50			
Total		336	100%	336	100%			

Table 8: The study showed that a mother with epilepsy would be at risk her newborn were at risk of developing epilepsy with an odds level of 6.09.

It shows that Risk factors related to Mother related- Clinical (Pre and Per) risk characteristics were only History of epilepsy and pre,per. These results were statistically significant.

Table (9): statistical distribution of the studied groups according to Mother related- Pregnancy & Delivery risk characteristics.

Mother related- Pregnancy & Delivery risk characteristics		Epilepsy Cases		Control		Chi-squre (df)	p-value (Sig)	Odd Ratio
		Freq.	%	Freq.	%			
Delivery	premature	12	3.57	8	2.38	0.825 (1)	0.364 (NS)	1.51
	mature	324	96.43	328	97.62			
type of delivery	C/S	28	8.33	21	6.25	1.07 (1)	0.299 (NS)	1.36
	forceps	0	.00	0	.00			
	normal	308	91.67	315	93.75			
	other	0	.00	0	.00			
Problems through gravidity	Pregnancy high pressure	18	5.36	15	4.46	1.44 (4)	0.836 (NS)	N/A
	vaginal hemorrhage	4	1.19	7	2.08			
	hyperemesis gravid arum	1	.30	2	.60			
	anemia	29	8.63	30	8.93			
	no complications	284	84.52	282	83.93			
congruence factor	yes	331	98.51	326	97.02	1.70 (1)	0.192 (NS)	2.03
	no	5	1.49	10	2.98			
place of birth	hospital	328	97.62	326	97.02	0.228	0.633	1.25

	home childbirth	**8**	**2.38**	**10**	**2.98**	**(1)**	**(NS)**	
umbilical cord prolapse	**yes**	**6**	**1.79**	**3**	**.89**	**1.01 (1)**	**0.314 (NS)**	**2.01**
	no	**330**	**98.21**	**333**	**99.11**			
length of pregnancy	**yes**	**7**	**2.08**	**5**	**1.49**	**0.339 (1)**	**0.56 (NS)**	**1.40**
	no	**329**	**97.92**	**331**	**98.51**			
occurrence of seizure	**yes**	**0**	**.00**	**0**	**.00**	**N/A**	**N/A**	**N/A**
	no	**336**	**100.00**	**336**	**100.00**			
Total		**336**	**100%**	**336**	**100%**			

Table 9: The study also showed that there is no relationships between the two groups for problems through gravidity for mothers whose child are infected and mothers whose sons are not affected by factors (high blood pressure, vaginal hemorrhage, hyperemesis gravid arum and anemia).

Also, the study did not prove that there is a relationship between the two groups with regard to the RH factor and situation of birth, and problems during childbirth, such as (prolapse of the umbilical cord, the length of period birth and the occurrence of attack) for the mothers whose child are infected.

It shows that most frequencies Risk factors related to Mother related- Pregnancy & Delivery risk characteristics were congruence factor and hospital residence delivery. However, these results were statistically not significant.

Table (10): Relationship between classification of epilepsy and Studied Risk factors by using *Chi*-square and *Post-hoc* analysis.

Studied Risk factors	classification of epilepsy						
	Chi-square			*Post-hoc* analysis			
	X^2	df	Sig.	general	partial	syndrome	unclassified
during delivery problem (asphyxia)	19.628	3	.001	0.001	NS	NS	NS
during delivery problem (trauma during delivery)	10.157	3	.038	0.02	0.03	NS	NS
post-delivery problem (0-1)(jaundice)	56.140	3	<.001	<0.001	NS	NS	NS
post delivery problem (1-12)(febrile)	63.354	3	<.001	<0.001	NS	NS	NS
encephalitis	6.040	3	.196	NS	NS	NS	NS
meningitis	10.653	3	.031	0.024	NS	0.022	NS
brain tumor	10.983	3	.027	0.024	NS	NS	0.012
ADHD	7.140	3	.129	NS	NS	NS	NS
head trauma	24.287	3	<.001	<0.001	NS	NS	NS
sleep well	5.532	3	.159	NS	NS	NS	NS
Consanguinity	1.838	3	.120*	NS	NS	NS	NS
history of epilepsy	54.103	3	<.001	<0.001	NS	<0.001	NS
smoker	1.229	3	.747	NS	NS	NS	NS
history of epilepsy	14.920	3	.005	0.004	NS	NS	NS

Table 10: The study showed that there is a relationship between the factors that lead to the occurrence of epilepsy and the type of epilepsy,

where there was a relationship between asphyxia and the type of generalized epilepsy by Post –hoc statistical analysis , with a significant level of 0.0001, while the other factor was trauma during labor, which was at a significant level of 0.038, and was common in generalized and partial epilepsy,

The study also showed a relationship with a significant level of <0.001 for the factor of jaundice, which was common in generalized epilepsy, as well as in the case of high temperature,

While the meningitis factor was a significant level of 0.031, which was common in generalized epilepsy and syndromes.

The study showed an important relationship of brain tumors with a significant level of 0.027, which was prevalent in generalized and unclassified epilepsy.

While the postpartum head trauma was significantly related to< 0.001, which was prevalent in generalized epilepsy,

The study also showed the relationship of the history of father and the mother with a significant level of< 0.001 and 0.005, which was more common in generalized epilepsy.

It also shows that there is a significant relationship between studied risk factors and most type of epilepsy.

Table (11): Relationship between Age at onset and Studied Risk factors by using *Chi*-square and *Post-hoc* analysis.

Studied Risk factors	Age at onset						
	Chi-square			*Post-hoc* analysis			
	X^2	df	Sig.	<= 2	3 - 5	6 - 8	9 and more
during delivery problem (asphyxia)	.918	3	.821	NS	NS	NS	NS
during delivery problem (trauma during delivery)	1.389	3	.708	NS	NS	NS	NS
post-delivery problem (0-1)(jaundice)	22.101	3	<.001	<0.001	NS	NS	NS
post delivery problem (1-12)(febrile)	12.843	3	.005	0.005	NS	NS	NS
encephalitis	12.181	3	.007	NS	0.007	NS	NS
meningitis	22.130	3	<.001	NS	<0.001	NS	NS
brain tumor	5.332	3	.146	NS	NS	NS	NS
ADHD	1.226	3	.747	NS	NS	NS	NS
head trauma	16.760	3	.001	NS	NS	<0.001	NS
sleep well	2.624	3	.453	NS	NS	NS	NS
Consanguinity	7.305	3	.075	NS	NS	NS	NS
history of epilepsy	3.065	3	.382	NS	NS	NS	NS
smoker	1.537	3	.674	NS	NS	NS	NS
history of epilepsy	1.612	3	.657	NS	NS	NS	NS

Table 11: The study showed that there is a relationship between the factors that were identified and the age at the first seizure, where the study found a relationship between the factor of jaundice and the ages of those whose ages ranged between two years or less,

While the temperature increase factor had a significant value at the level of 0.0005, which was more common at the age **<= 2**,

The study also showed a relationship between encephalitis and ages from 3-5 years, with a significant level of 0.007.

As for meningitis, which was common for the same age group mentioned above, with a significant level of <0.001.

While postpartum head trauma had a significant value of 0.001 level, which was more common in the age group of 6-8 years.

Chapter Five

Discussion of the Results

Chapter Five

Discussion

The percentage of children with epilepsy has reached ten million children all over the world, so distinguishing and identifying the causes that lie behind epilepsy will greatly help in diagnosing the disease easily, including the examinations used to determine the differences between each of these types of epilepsy that affects children, as many previous studies have found that infections of the central nervous system, the period related to childbirth, and trauma were the most common causes of epilepsy. Also, this imbalance is caused by disturbances of ions in the brain, and usually this type leads to a gradual imbalance in brain functions, It is important to know that the causes in children are not clear, and until now the mechanism that causes this disease has not been fully identified(Abdulla, 2014)(Moshé *et al.*, 2015).

Thus, this study seeks to determine the risk factors for epilepsy, which gives us a perception of most possible risk factors that may cause seizure, To know the requirements and procedures and to increase the community culture about the disease.

5.1. Discussion Characteristic of Children Demographic :

The present study involved a study group of 336 and a control group 336 Iraqi children with epileptic with mean of preschool and school age in both groups, and the most common of them were aged ranging from 6-8 in both study and control groups (34.82% and 30.65%) years. This finding is unreliable with the Brazilian research prepared in 2010 by Letícia et al.,which found that the mean age of children included in the study was 53.0% were 0-5 years of age, 32.6% were 6- 10 years of age.(Sampaio *et al.*, 2010).

The reason for the increase in visits to health institutions for the age group between six to eight years is likely due to the new changes in the

life of the affected children, such as their entry to school, which may lead to increased pressure on children or their exposure to violence, as it increases the frequency of the attack for the affected children.

Regarding the gender of participants, males were the dominant gender among children with epilepsy, The males had the highest percentage in the study group (57.14%), while females were higher in the control group (68.45%).

Concerning residence, the highest percentage was urban in both groups study and control (57.14% and 70.54%), respectively.

Where the study conducted by (Peter Camfield, Carol Camfield Dalhousie) did not agree with this study in 2015 about the prevalence rate which seems the highest in rural areas.(Camfield P and Camfield C., 2015)

The number of residents in the city is more than the number in the countryside, so the number of visitors to health institutions, which are inside the cities, will be more.

It is expected that people in the rural are depend on health centers that are near their homes, especially during the period when the Corona virus is spreading, which leads to confusion and change in the work of some institutions, some of which are completely transformed into the care of Covid-19 patients.

With respect to the level of education of included children the study showed that the educational level of the affected children was in varying proportions, as follows: the illiterate, 188 cases, and the uninfected 181.

As for those who are continuing in the study, 112 cases of infected and uninfected are one hundred and forty-eight.

As for the infected children who refuse the study, there are thirty-seven cases, and the uninfected children are only seven. Those children with epilepsy are mostly with illiterate education level.

Learning problems are one of the things that affect academic performance , learning Difficulty leads to activity and skill disturbances for children in their daily lives ,Which ,in turn, affects the educational performance at the arithmetic, reading and writing levels, which are at a normal level for healthy people, However, the difficulty in learning is still unclear and vague.

The general rate of learning disorders was between two to ten percent, and the most common problem was related to reading. One of the most common problems affecting youngsters is epilepsy., So it can lead to a disturbance in the development stage and thus weakens the level of cognition (Pavlou and Gkampeta, 2011).

Must bear in mind that improving the teaching performance of children and developing the environmental, family, social and psychological effects will greatly help in improving the imbalance resulting from epilepsy in children. And that does not affect the fact that epilepsy is one of the problems that lead to learning problems, and this is what many studies have found. So, we must continue to strengthen the conditions surrounding the child in order to be in a better condition.

This could be due to the fact that both current and Thai studies have been conducted in underdeveloped world countries where people's levels of education range from middle to low. (Glozman, 2013).

Besides, the results of the study proved that children with epilepsy had a hobby of using the phone and computer by 31.55%, and for non-affected children who enjoy the same hobby, it is 24.40%.

And those who do not have a hobby, their percentage was as follows: 60.42 percent for the children with epilepsy and 68.15 percent for the children without epilepsy. The study shows that children with epilepsy is mostly do not have specific hobbies.

It is likely that the reason is that the middle Euphrates governorates enjoy a limited economic and social level, and that Iraq is

classified as a developing country, so the intellectual and material capabilities and capabilities are not available to parents to develop and encourage their children to develop their hobbies, so the majority of children had no hobbies.

Approximately 5% of patients with epilepsy have photosensitive epilepsy (PSE). PSE is more common in younger individuals, more frequent in women, often time-limited, generally easy to treat and closely related to generalized epilepsies, especially Juvenile Myoclonic Epilepsy (JME).(Martins da Silva and Leal, 2017).

5.2.Discussion of Epileptic Child regarding Clinical characteristics:

The study showed that 108 people with epilepsy were suffering from generalized epilepsy, which is equivalent to 32.14 percent.

The largest percentage was for the unclassified, as their number reached one hundred and eighty-three cases, equivalent to 54.46 percent.

Seizures and epilepsies have been classified and organized in a variety of ways. In the light of recent scientific breakthroughs, In 2010, “International League Against Epilepsy's” There are many differences with regard to the nomenclature and the mechanism that leads to the occurrence of epilepsy, and that the distinction between the types was different from one place to another. The work carried out by the association included the community affected by the disease, and from these changes, many names were replaced, as in the focal one that was replaced by partial, which usually affects the disease Half of the brain because recent classifications have not emphasized that the seizure is complex or simple, so seizures must be monitored carefully to challenge whether the seizure is generalized or partial, this decision affects treatment with regard to medications and other options such as surgery. (Høie *et al.*, 2006)(Glozman, 2013).

So there are those who agreed with us and there are those who did not agree with us, where the study conducted by Anna et al.,2014 that the majority of cases (66%) cluster in various nonspecific categories and that many rare syndromes are absent. (Peljto *et al.*, 2014)

While the study conducted by Berg et al.,2013 differed with us where it was generalized seizure and epilepsy/syndrome types were more prevalent in children 0-6 years of age and partial/ localization-related to children 6-1 5 years of age (Berg, Jallon and Preux, 2013).

The study clarified that the largest percentage of patients with epilepsy is of the unclassified type, where children suffer from more than one type, and that is what the results of clinically .

The study was also shown with regard to the number of seizures, and it was two or less for children whose number was one hundred and eighty one. And that was the largest percentage of the sample, which is equivalent to 53.87 percent of the sample.

With regard to the age at the first seizure, it was as follows: one hundred and forty-five cases, equivalent to 43.15 percent for those who are two years old or less.

Perhaps some of the reasons are the increase in cases for these ages because the stages of growth and development in the child, as he is more vulnerable to physical injuries and microbial infections .

Seizures are common, with experts believing that at least 10% of the population may experience one. Because clinician must establish, evaluating a patient who has had his first unprovoked seizure takes careful examination. The neurologist must establish if there are any factors that predispose to seizure recurrence and stratify the likelihood of future episodes based on those factors. (Rizvi et al., 2017)

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A meta-analysis was reported of persons who had standard EEG after their They were monitored for at least 12 months after their first unprovoked seizure. for seizure recurrence. There were differences between adults and children, they claimed. After a first unprovoked seizure, an mature human with epileptiform abnormal waves on normal EEG has a seventy seven percent probability of having a 2nd seizure, while a kid with equivalent data has a 66 percent chance (Bouma et al., 2016). Another study looked at how well a 24-hour video-EEG might predict the likelihood of a seizure return following a spontaneous seizure. the epileptiform discharges abnormalities group, Chen and colleagues reported a 73.2 percent chance of recurrence. Epileptiform abnormalities have been linked to an increased risk of seizure recurrence in general(Chen et al., 2016).

Finally, Dash et al. (2012) studied the effectiveness of portable EEG in a group of adults ((Dash et al., 2012) “portable EEG” was used on people subset who had evident single unprovoked seizures. They were all discovered to have epileptiform activity. These people were put on medication. This study shows that using prolonged recording to detect epileptiform activity in patients who have had single unprovoked seizures can help prevent recurrence. (Dash et al., 2012).

5.3.Discussion of Child Related-Delivery Problem Risk characteristics Regarding Epilepsy:

With regard to children the study showed that problems during childbirth for children with epilepsy, 7.17 percent were exposed to the problem of asphyxia , while the proportion of children without epilepsy was 1.19 percent, with a significant level of 0.0001 with an odds ratio of 6.38,

While the trauma during delivery was 2.98 for patients with epilepsy, and 0.89 for non-epileptic children, with an odds ratio of 3.40.

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.

It 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).

These results were similar to the results of the study by Sampaio et al., regarding the problem of asphyxia during childbirth , Where they showed that one of the most common causes of epilepsy is hypoxia, and it was of significant value to the aforementioned. (Sampaio *et al.*, 2010).

While Sidenvall et al., did not find respiratory distress syndrome (RDS) or asphyxia to be risk factors for development of epilepsy, This does not prevent that suffocation during childbirth which is not one of the factors that lead to the occurrence of epilepsy, it may be the cause of the surrounding environment or the circumstances surrounding the newborn during delivery.

Regarding the other factor which was trauma through delivery, The results of the study were similar by Rizvi et al., in 2017, in which they also confirmed that headtruama lead to a difference in intensity between males and females gender. (Rizvi *et al.*, 2017).

And when talk about the third factor, which was jaundice, find that the majority of multistudy 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 study by Berg, Jallon, and Preux agreed with the resercher and explained Febrile seizures as the single most common type of seizure disorder and occurs 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 with the Nigerian 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, the study cnducted by 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 the 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 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 (ADHD) , This is what was clarified by the two studies, one of which was conducted in 2018 and second in 2020 , Where it was found that there is a relationship between epilepsy and attention problems,

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 findings showed that patients with head trauma have a significant chance of recurrence.(Bergey, 2016)

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.

5.4. Discussion of Child Related-Daily Habits Risk characteristics.

With regard to the daily habits of children with epilepsy who have sleep disorder was related between the two groups, where the level of significance reached 0.0001 and the of odds ratio was 4.16 ,

Similarly, by Pentagna found in 2014 that 20 percent of children with epilepsy suffer from sleep disturbances.(Pentagna, 2014)

The intimate relationship between sleep and epilepsy has long been recognized, understanding of the relationship is incomplete. Consider how sleep and epilepsy interact with one another. Seizure onset is significantly influenced by sleep state, especially in specific epilepsy types. Epilepsy can also impair sleep, either directly through seizures and epileptiform activity or indirectly through medication-related side effects.

The current state of knowledge is examined in order to unravel the influences of sleep stage, epilepsy syndrome, and pharmacological effects. Second, it can be difficult to make an appropriate diagnosis of sleep-related epilepsy.(Derry and Duncan, 2013)

Sleep is one of the essentials for restoring the brain to its normal activity, and epilepsy is one of the problems that affect its activity, resulting in a sleep disorder. There are types of epilepsy that occur only at bedtime.

5.5. Discussion of Father Related-Demographic Risk characteristics:

According to the present findings, there was a significant correlation between two groups regarding of Consanguinity. Which means that kinship has an effect on the occurrence of epilepsy.

Arab societies tend to marry relatives since ancient times and until now, Iraq is one of those countries that still adhere to traditions and customs.

Other studies, as such, can back up this conclusion. Rizvi and others in 2017 found the significant progress in family history participants to increase the risk of developing epilepsy. (Rizvi *et al.*, 2017).

5.6. Discussion of Father Related-Clinical Risk characteristics:

The findings of this investigation demonstrated that the clinical characteristic of the father had no bearing on the outcome. for case-study group and control group fathers about abuse alcohol and drugs to form epilepsy.But , the father with epilepsy had a significant value between the two groups, as well as the father who smoked, and who have history with epilepsy.

These results were similar to a research conducted in the Kingdom of Saudi Arabia in 2013, whose society is similar to our Iraqi

society with regard to some attitudes, Where the study by Fawzi found a great relationship between family history and the formation of epilepsy.(Babtain, 2013).

While the study by Omar Torriani et al., could not determine the risk factor of smoking when they reviewed many studies, which believes that the effect of smoking is not clear and incomprehensible and needs more accurate studies.(Torriani *et al.*, 2016)(Rong, Frontera and Benbadis, 2014)

The majority of the population of Iraq are Muslims, and countries of a Muslim nature prohibit the use of these substances, and if they exist, they will be undeclared.

5.7. Discussion of Mother and their Socio-Demographic Characteristic:

With regard to kinship which is one of the factors that influence the occurrence of epilepsy in her children, And this is what the study by Babtain found, where he found a relationship to the occurrence of epilepsy for those who have a consanguineous marriage.(Babtain, 2013).

The factors that lead to problems and disorders in the brain development of the child are the wrong procedures and plans used, so it is necessary to monitor the child for the period related to pregnancy and the postpartum period, as well as includes vaccination programs and education and awareness of the mother on how to deal with her newborn.

5.8. Discussion of Mother Related- Clinical Risk characteristics:

With regard to the mother, who had a history of epilepsy, it was of significant and influential value, which could lead to epilepsy in her newborn, While there was no relationship to the pathological history of the diseases that were found, The reason may be due to the fact that mothers

did not have a complete knowledge about some of the diseases that they were exposed to or the type of treatments that they take during or before pregnancy.

5.9. Discussion of Mother Related- Pregnancy & Childbirth Risk characteristics:

We also dealt with some topics related to childbirth and pregnancy, but we did not find a relationship between the type of childbirth and the class of birth.

The study also showed that no relationships are between the two groups for complications during childbirth by factors (high blood pressure, vaginal bleeding, hyperemesis gravid arum and anemia).

Also, the study did not prove that there is a relationship between the two groups with regard to the RH factor and place of birth, and problems during childbirth, such as (prolapse of the umbilical cord, the length of period birth and the occurrence of attack)

On the other hand, the study by Thurman et al., differed with us when they found a relationship between the factors related to the period of pregnancy and the factors related to childbirth, where they believe that the prevention of these factors may lead to the prevention of epilepsy(Thurman *et al.*, 2018).

While the study conducted by Farghaly et al., were identical to the results we found, as the study did not find the relationships between these factors (Farghaly *et al.*, 2018). This difference may be attributed to the difference between environments, the nature of society and the most prevalent diseases in those countries, as well as the difference in cultures, economic and health level.

5.10. Discussion Classification of Epilepsy and Studied Risk Factors:

With regard to the factors that were identified in the study and their relationship to the type of epilepsy that affects children, the results were:

Asphyxia is one of the factors that are common in generalized epilepsy, while the factor of head blows during childbirth was associated with generalized and partial epilepsy.

The study shows that jaundice and fever are the most common in generalized epilepsy.

While the previously identified factor, meningitis, was prevalent in generalized epilepsy and syndromes

Generalized and unclassified epilepsy for brain tumor were the most common, While the postpartum head trauma which was prevalent in generalized epilepsy, The study also showed the relationship of the pathological history of the father and the mother, which was more common in generalized epilepsy.

Where the study by Chowdhury found in the year 2014 that the factor that was studied and identified is of high temperature, which was similar to what we have as it was more common in generalized epilepsy.(Chowdhury, 2014).

The same is the case with regard to those with a family history. It was common in generalized epilepsy, according to the study by Abdulkareem in 2022. (Abdulkareem, 2022)

While the conducted by Sampaio et al., did not agree with us regarding suffocation during childbirth, who found in 2010 that the

majority of patients with epilepsy due to the suffocation factor are from the majority who develop partial epilepsy.(Sampaio et al., 2010).

In 2018 conducted study by Kumar and Kalita, found that meningitis can be partial or sometimes associated with generalized epilepsy or secondary generalized epilepsy. (Kumar and Kalita, 2018). The study also likened us, where he found that generalized epilepsy is the most prevalent in accidents related to head strikes (Steinmetz, Tipold and Löscher, 2013).

In a study conducted in Nigeria, in 2013, the largest percentage of people with epilepsy suffered from generalized epilepsy, and one of those reasons was the effect of the factor of high blood levels of bilirubin in children, and this was similar to the results we reached in our study.(Ogunrin, Adeyekun and Adudu, 2013).

Determining the type of epilepsy associated with a particular factor will greatly help in determining the treatment plan and facilitate the diagnosis process, which helps in choosing the direct medication accurately, which will therefore help to stop the recurrence of controlling it, which helps to preserve the existence of persons with epilepsy, improve the quality of life and reduce stigma.

5.11. Discussion of Relationship between Age at Onset and Studied Risk Factors:

The study found a relationship between the factors that were predetermined and the age at the first seizure, as the study showed a relationship between the factors that were identified and the age at the first seizure, where the study found a relationship between the factor of jaundice and the ages of those whose ages ranged between two years or less, While the temperature increase, which was more common at the age <= 2.

The study also showed a relationship between encephalitis and ages from three to five years, with a significant level of 0.007.

As for meningitis, which was common for the same age group mentioned above, with a significant level of >0.001, while postpartum head trauma had a significant value of 0.001 level, which was more common in the age group of six to eight years.

The study shows that there is a significant relationship between studied risk factors and only age of onset at <=2 and 3-5 age onset categories .

Where the study conducted by, Maimburg, Olsen and Sun, 2016, likened us to the effect of jaundice on the occurrence of epilepsy at an early age in children, while heat was responsible for generating epilepsy for older ages than their early ages, and these results found by the studies confirm that these two factors are of significant value for those ages.(Maimburg, Olsen and Sun, 2016).

However, in 2013 a study found that the increased risk of epilepsy between the ages of five or six years had the lowest effect, and this was not similar to the current study.(Berg, Jallon and Preux, 2013).

With regard to infections of the central nervous system, there are many studies conducted in many countries, where in some countries it was found that these factors increased in children at an early age, while other studies found that infections had increased in adolescents and this difference is due to many reasons, including vaccination and the environment where the individual lives.(Meyfroidt, Kurtz and Sonneville, 2020).

Many things that led to the occurrence of this seizure must be noted, especially matters related to taking vaccinations or taking some materials and a comprehensive examination of the environment

surrounding the child, which may be a reason for his exposure to a certain type of virus to prevent the occurrence and recurrence of seizures and take preventive measures against the spread of these causes.

It is important to know and distinguish the first epileptic seizure, as it may have occurred as a result of temporary external influences, and therefore giving treatment for the first seizure may be an incorrect decision. It is important to know the side effects of many treatments that are used to control the seizure, such as headache, loss of appetite, weight gain, or abdominal pain and problems In the skin, learning disorder, behavior disorder, and others, especially at this stage of life.

The determination by a country of its own risk factors for epilepsy will make an important contribution to the fight against epilepsy in that country and also in other countries.

Chapter Six

Conclusions and Recommendations

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This chapter will reveal the most important conclusions that have been reached during this study,

6.1. Conclusions:

1- 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).

2- A significant sleep disturbance affects the occurrence of epilepsy.

3- With regard to the marriage of relatives to parents , it was influential for the occurrence of epilepsy in their children.

4- Parents' family history is one of the factors that lead to epilepsy in their children.

5- The majority of factors studied were common to generalized epilepsy.

6- The highest percentage of age at first seizure for children with epilepsy was five years and under.

7- It was found that the rate of phone use for both groups amounted to approximately one-fourth of the total sample size.

6.2. Recommendations:

The following recommendations have been established based on the results of the present study:

6.2.1..

1. Increasing the cultural awareness of parents during pregnancy and postpartum.
2. Developing a plan by the Ministry of Health to reduce overcrowding in health institutions for maternity halls and take into account the population ratio compared to the numbers of new births.
3. Establishing a unit to follow up on children at the first seizure and determine whether it was epilepsy or was the result of the child being affected by an external cause that led to the occurrence of that seizure.
4. Developing or changing the quality of the plans used in schools or using successful and internationally used methods and plans that have achieved success, to be applied in the governorates of Iraq, if possible.
5. Families who have a history of epilepsy should be careful with their children of the factors that have been identified.
6. With regard to the marriage of relatives, it is preferable that they stay away from marriage with relatives, especially for those who have a history of epilepsy.
7. The cooperation between the Ministry of Health and Communications and Media Commission in order to reduce the risks that may lead to epilepsy through the social media or television or the issuance of formats or wall posters that would explain to people the problems that may lead to epilepsy.
8. Working to conducting studies related to some of the factors that have recently entered to us, such as the use of mobile phones, as well

as some health problems that were strange to the world such as the covid19 virus and the relationship of the vaccine given to the mother and its effect on the fetus.

9. The study of community health nursing included three ways to prevent diseases and problems related to society and the family, including epilepsy disorders.
10. Therefore, the primary preventive role must be a source of attention for those responsible for decision-making in institutions, researchers and care providers.

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Appendices

Appendix – A: Panel of experts.

Appendix – B: Administrative Arrangements.

Appendix – C: Questionnaire in English.

Appendix – D: Questionnaire in Arabic.

Appendix – E: Figures of study

خبراء تحكيم استمارة الاستبيان

ت	اسم الخبير	اللقب العلمي	مكان العمل	الاختصاص الدقيق	عدد سنوات الخبرة
١	د. امين عجيل ياسر	أستاذ	جامعة بابل/كلية التمريض	تمريض صحة المجتمع	٣٦
٢	د. عبد الكريم عبد الله محمود	أستاذ	جامعة الكوفة / كلية الطب	طب المجتمع	٣٣
٣	د. حسين جاسم محمد	أستاذ	جامعة بابل/كلية التمريض	تمريض صحة مجتمع	٢٩
٤	د. فاطمة وناس خضير	أستاذ	جامعة الكوفة/كلية التمريض	تمريض صحة المجتمع	٢٨
٥	د.عرفات حسين الدجيلي	استاذ	كلية الطب/جامعة الكوفة	الامراض النفسية والعصبية	١٧
٦	د. وسام جبار قاسم	أستاذ مساعد	جامعة بغداد / كلية التمريض	تمريض صحة المجتمع	٢٥
٧	د. محمد باقر حسن	أستاذ مساعد	جامعة الكوفة / كلية التمريض	تمريض اطفال	١٨
٨	منصور عبد الله فلاح	أستاذ مساعد	جامعة الكوفة / كلية التمريض	تمريض صحة المجتمع	١٥
٩	د. مرتضى غانم عداي	أستاذ مساعد	جامعة الكوفة / كلية التمريض	تمريض صحة المجتمع	١٤
١٠	د. محمد عبد الكريم مصطفى	أستاذ مساعد	جامعة الكوفة/كلية التمريض	تمريض اطفال	١٣
١٢	حسام مطشر	استاذ مساعد	جامعة الكوفة / كلية التمريض	تمريض صحة نفسية	١٠
١٣	د. جهاد جواد كاظم	أستاذ مساعد	جامعة الكوفة / كلية التمريض	تمريض بالغين	٨

Ministry of Health Babil Health Directorate Imam Sadiq General Hospital No. : Date : / 4 / 2021	جمهورية العراق	وزارة الصحة دائرة صحة بابل مستشفى الامام الصادق (ع) العدد : ٥٩٥٤ التاريخ : ٧ / ٤ / ٢٠٢١

إلى /دائرة صحة بابل /مكتب المدير العام / مركز التدريب والتنمية البشرية

م/ عدم ممانعة

اشارة الى كتابكم المرقم 332 بتاريخ 2021/4/1، لا مانع لدينا من تسهيل مهمة طالب الدراسات العليا - دكتوراه (كرار كاظم جواد كاظم) العائد الى كلية التمريض / جامعة بابل لغرض اكمال مشروع البحث كمتطلبات اطروحة الدكتوراه، على الا تتحمل مستشفانا اي تبعات مالية.

الدكتور الاختصاص

خالد فاهم نعمه الفتلاوي

مدير مستشفى الإمام الصادق (ع) التعليمي

رئيس مجلس الادارة

2021 / 4 /

دائرة صحة محافظة بابل
مستشفى الامام الصادق (ع)

نسخة منه الى

- مكتب مدير المستشفى
- وحدة التدريب والبحوث
- الأرشيف/الإدارية
- المعاون العلمي
- جامعة بابل / كلية التمريض

ARQAM SERVICES FOR STATISTICS
AND SCIENTIFIC RESEARCH

CERTIFICATION

We certify that the statistical analysis for the thesis entitled **"Determination of Risk Factors of Epilepsy Among Children in Middle Euphrates"** was done by us through the scientific standards, requirements and objectives of the study.

Signature

ARQAM SERVICES FOR STATISTICS AND SCIENTIFIC RESEARCH

IRAQ, Al-Najaf Al-Ashraf, Kufa street, Tel: (+964) 7801821063 - (+964) 7808683950

محافظة كربلاء المقدسة
دائرة صحة كربلاء المقدسة
مركز التدريب والتنمية البشرية
شعبة ادارة المعرفة
وحدة البحوث
العدد: ٥١٧
التاريخ ١١/٤/ ٢٠٢١

جمهورية العراق

Holy Karbala governorate
Karbala Health Department
Training and Human Development Center

إلى/ جامعة بابل / كلية التمريض

الموضوع/ تسهيل مهمة

تحيه طيبه....

كتابكم ذي العدد ٦٨٥ في ٢٠٢١/٣/٣

لا مانع لدينا من تسهيل مهمة طالب الدراسات (كرار كاظم جواد) لإنجاز بحثه الموسوم :-

(تحديد عوامل خطر الاصابة بالصرع لدى الاطفال في الفرات الاوسط)

في موسساتنا الصحية / مدينة الامام الحسين الطبية علما ان المشرف العلمي للبحث (د. حسين صالح عباس) على ان لا تتحمل دائرتنا اي نفقات مادية مع الاحترام .

الدكتورة
تقوى خضر عبد الكريم
مدير مركز التدريب والتنمية البشرية
١١/٤/ ٢٠٢١

نسخة منه الى:-
مدينة الامام الحسين الطبية كتابكم المرقم ٢٥٣٤ في ٢٠٢١/٤/١١
مركز التدريب والتنمية البشرية مع الاوليات

العنوان/كربلاء المقدسة- حي الحسين (ع) - قرب دائرة كتاب العدل - رقم الهاتف/ ٠٣٢٣٢٨٠٠٢
البريد الالكتروني / Email - train.centerKH@yahoo.com

Ministry of Higher Education and Scientific Research

وزارة التعليم العالي والبحث العلمي

University of Babylon
College of Nursing

جامعة بابل
كلية التمريض
لجنة الدراسات العليا

Ref. No.:
Date:

العدد: ٦٨٥
التاريخ: ٢ / ٣ / ٢٠٢١

الى / دائرة صحة النجف/مركز الفرات الاوسط للعلوم العصبية
الى / دائرة صحة الديوانية
الى / دائرة صحة بابل
الى / دائرة صحة كربلاء
الى / دائرة صحة المثنى

م/ تسهيل مهمة

تحية طيبة :

يطيب لنا حسن التواصل معكم ويرجى تفضلكم بتسهيل مهمة طالب الدكتوراه (كرار كاظم جواد كاظم) لغرض جمع عينة دراسة الدكتوراه والخاصة بالبحث الموسوم :

تحديد عوامل خطر الاصابة بالصرع لدى الاطفال في الفرات الاوسط .

Determination of risk factors of epilepsy among children in Middle Euphrates.

مع الاحترام ...

ا.م.د. حسام عباس داود
معاون العميد للشؤون العلمية والدراسات العليا
٢٠٢١ / ٣ / ٣

صورة عنه الى //
- مكتب السيد العميد للتفضل بالاطلاع مع الاحترام .
- لجنة الدراسات العليا
- الصادرة

E-mail:nursing@uobabylon.edu.iq

STARS

07711632208 وطني
009647711632208 الكتب

www.uobabylon.edu.iq

جمهورية العراق

محافظة المثنى
دائرة صحة المثنى
مركز التدريب والتنمية البشرية

العدد / ٤٤٠٧
التاريخ / ٤ / ٤ / ٢٠٢١

وزارة الصحة
دائرة صحة المثنى
قسم الامور الادارية
الصادرة

الى /جامعة بابل / كلية التمريض

م/ تسهيل مهمة

تحية طيبة :

اشارة الى كتاب جامعة بابل / كلية التمريض ذي العدد ٦٨٥ في ٢٠٢١/٣/٣ لا مانع لدينا من تسهيل مهمة طالب الدكتوراه (كرار كاظم جواد كاظم)لغرض جمع عينة دراسة الدكتوراه والخاصة لاكمال متطلبات بحثه الموسوم

(Determination of risk factors epilepsy among children in Middle Euphrates)

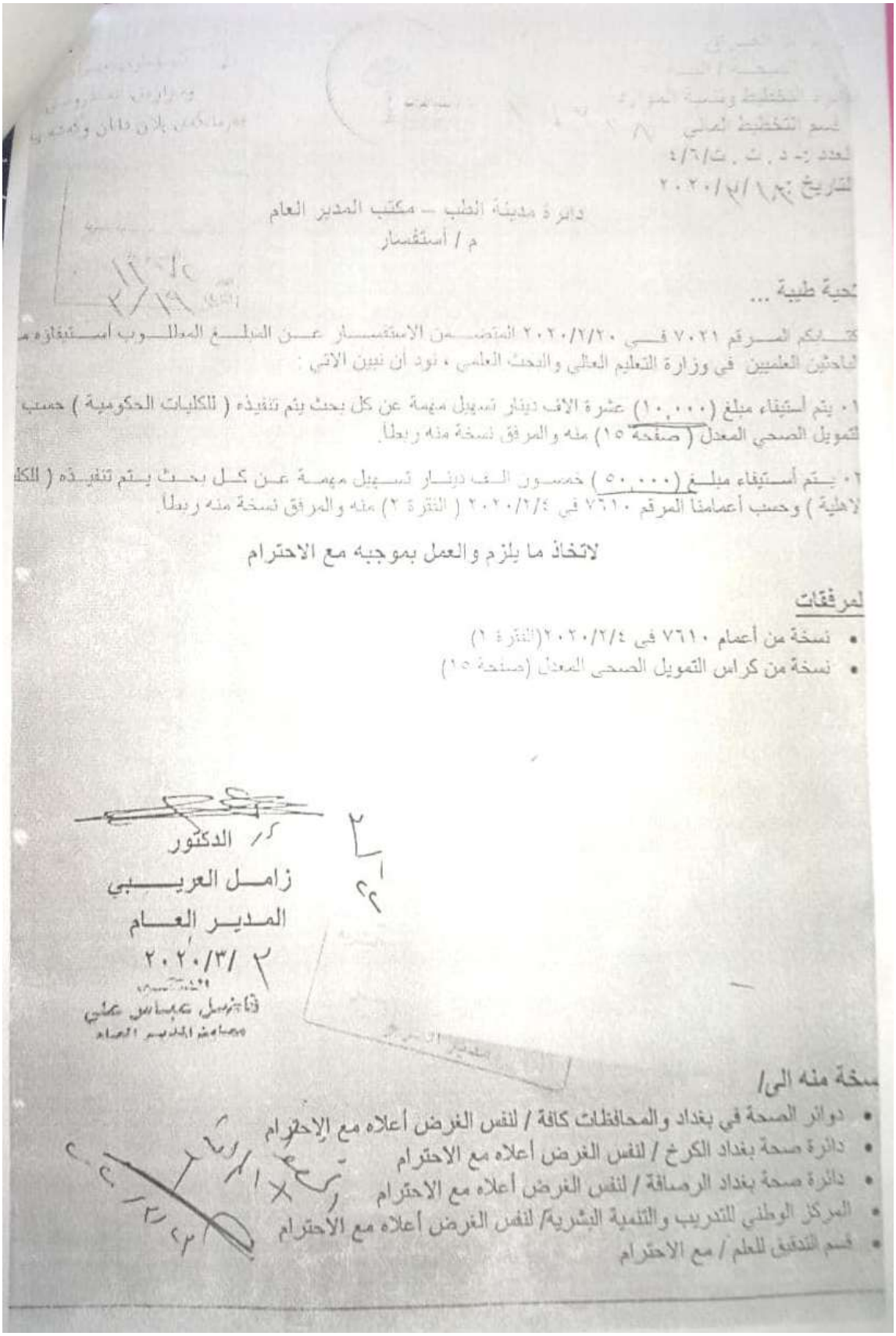
على ان لا تتحمل دائرتنا اي تبعات مالية وقانونية وادارية .

للتفضل بالاطلاع وتسهيل مهمة المومأ اليه ... مع الاحترام

الدكتور
باسل صبر عودة
المدير العام / وكالة
٢٠٢١/٤/

نسخة منه
مكتب المدير العام للتفضل بالاطلاع مع الاحترام
مركز التدريب والتنمية البشرية للعلم مع الاوليات مع الاحترام

العنوان المنوه - بناية المركز الصحي في حي الحسين / المقابل الثانوي
البريد الالكتروني train .almuthanahealth@yahoo.com
للتواصل سوك الهام مركز التدريب والتنمية البشرية/دائرة صحة المثنى



قسم التخطيط العلمي
العدد ز.د.ت.ت/٤/٦
التاريخ ٢٠٢٠/٢/١٩

دائرة مدينة الطب – مكتب المدير العام
م / استفسار

تحية طيبة ...

كتابكم المرقم ٧٠٢١ في ٢٠٢٠/٢/٢٠ المتضمن الاستفسار عن المبلغ المطلوب استيفاؤه من الباحثين العلميين في وزارة التعليم العالي والبحث العلمي ، نود أن نبين الاتي :

١. يتم استيفاء مبلغ (١٠,٠٠٠) عشرة الاف دينار تسهيل مهمة عن كل بحث يتم تنفيذه (للكليات الحكومية) حسب التمويل الصحي المعدل (صفحة ١٥) منه والمرفق نسخة منه ربطاً.

٢. يتم استيفاء مبلغ (٥٠,٠٠٠) خمسون الف دينار تسهيل مهمة عن كل بحث يتم تنفيذه (للكل الاهلية) وحسب أعمامنا المرقم ٧٦١٠ في ٢٠٢٠/٢/٤ (الفترة ٢) منه والمرفق نسخة منه ربطاً.

لاتخاذ ما يلزم والعمل بموجبه مع الاحترام

المرفقات

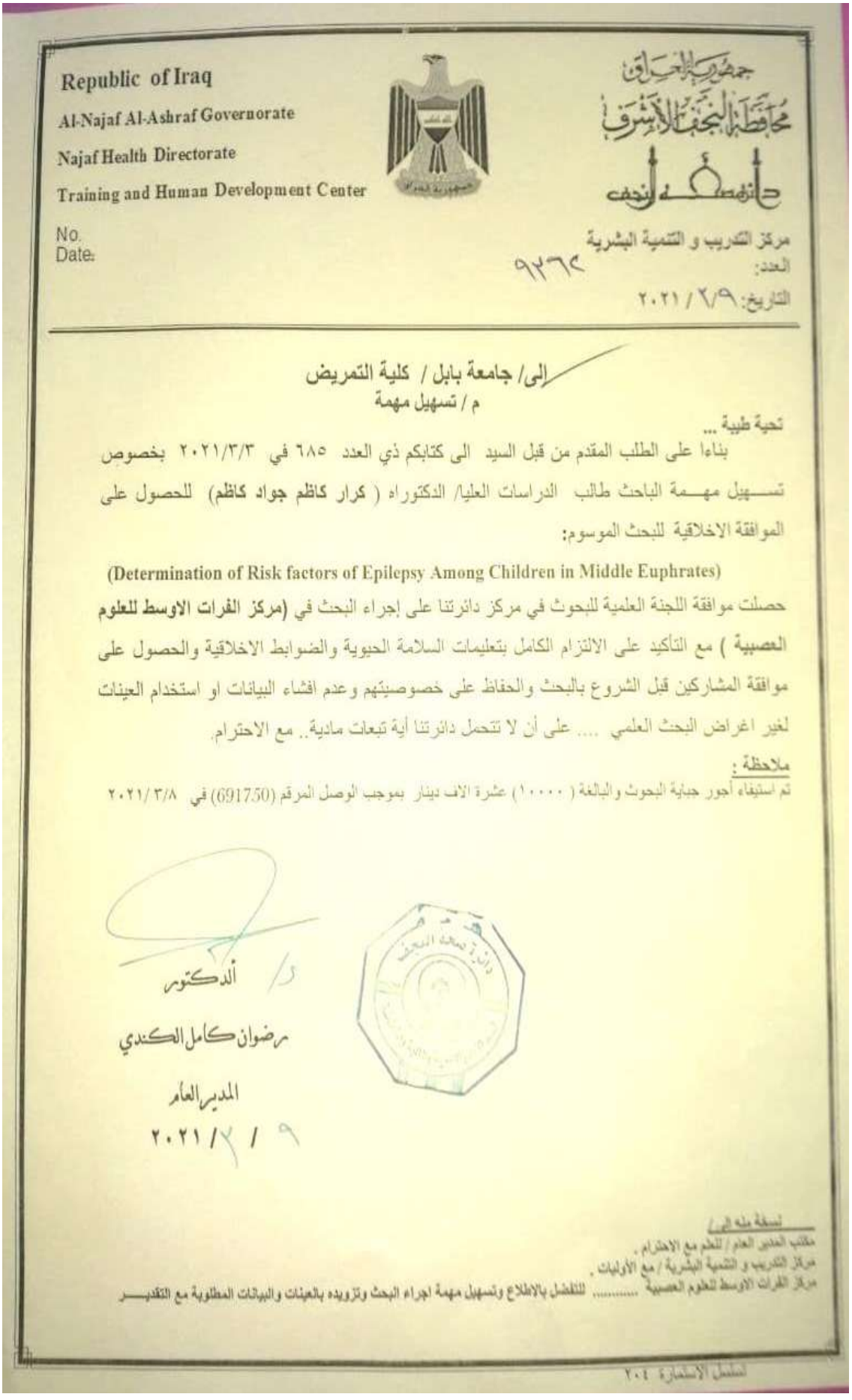
- نسخة من أعمام ٧٦١٠ في ٢٠٢٠/٢/٤(الفترة ١)
- نسخة من كراس التمويل الصحي المعدل (صفحة ١٥)

الدكتور
زامل العريبي
المدير العام
٢٠٢٠/٣/٢

فاضل عباس علي
معاون المدير العام

نسخة منه الى/

- دوائر الصحة في بغداد والمحافظات كافة / لنفس الغرض أعلاه مع الإحترام
- دائرة صحة بغداد الكرخ / لنفس الغرض أعلاه مع الاحترام
- دائرة صحة بغداد الرصافة / لنفس الغرض أعلاه مع الاحترام
- المركز الوطني للتدريب والتنمية البشرية/ لنفس الغرض أعلاه مع الاحترام
- قسم التدقيق للعلم / مع الاحترام



Republic of Iraq
Al-Najaf Al-Ashraf Governorate
Najaf Health Directorate
Training and Human Development Center

جمهورية العراق
محافظة النجف الأشرف
دائرة صحة النجف

No.
Date:

مركز التدريب و التنمية البشرية
العدد: ٩٢٦٢
التاريخ: ٢٠٢١/٢/٩

إلى/ جامعة بابل / كلية التمريض
م / تسهيل مهمة

تحية طيبة ...

بناءا على الطلب المقدم من قبل السيد الى كتابكم ذي العدد ٦٨٥ في ٢٠٢١/٣/٣ بخصوص تسهيل مهمة الباحث طالب الدراسات العليا/ الدكتوراه (**كرار كاظم جواد كاظم**) للحصول على الموافقة الاخلاقية للبحث الموسوم:

(Determination of Risk factors of Epilepsy Among Children in Middle Euphrates)

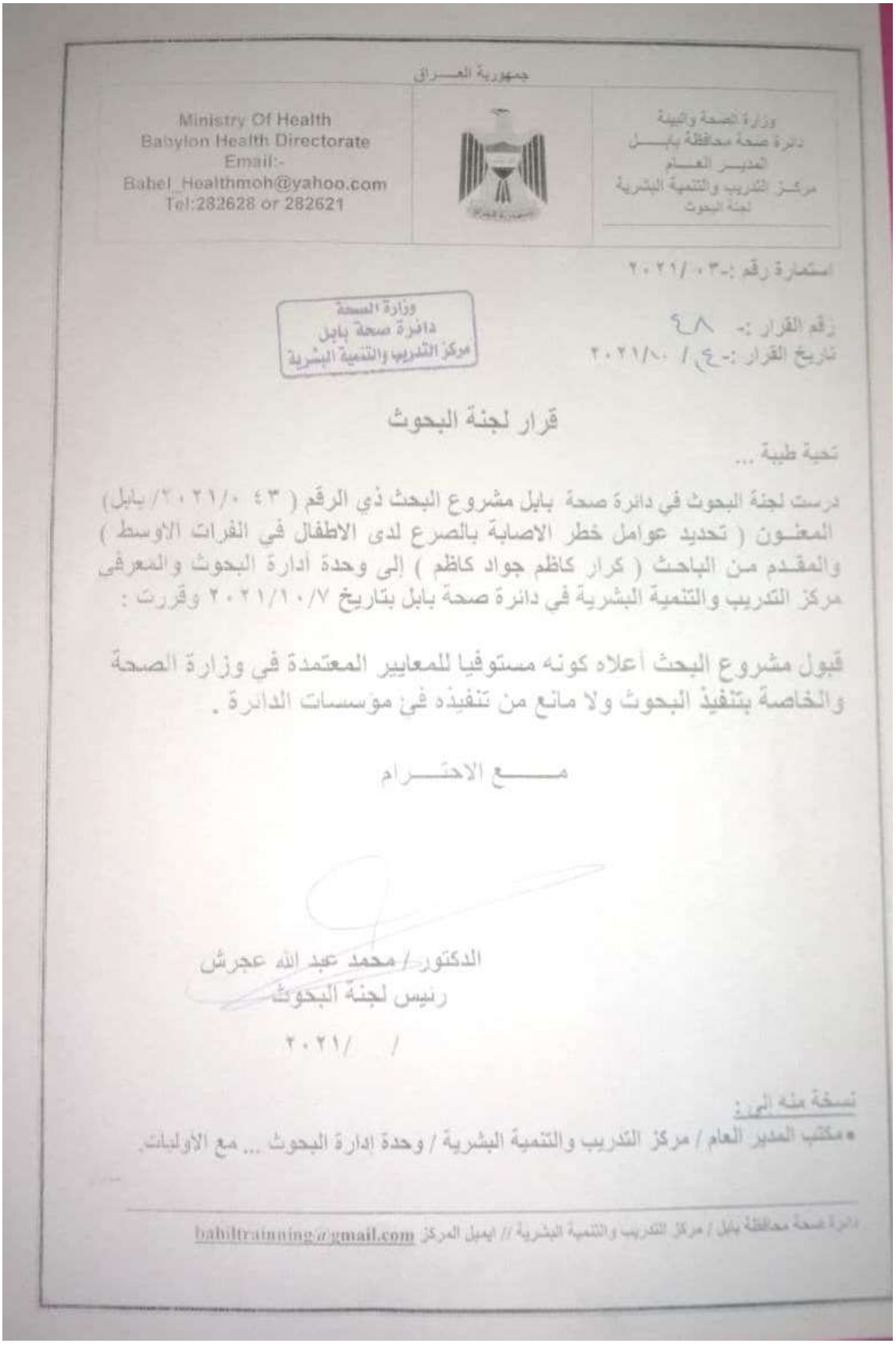
حصلت موافقة اللجنة العلمية للبحوث في مركز دائرتنا على إجراء البحث في (**مركز الفرات الاوسط للعلوم العصبية**) مع التأكيد على الالتزام الكامل بتعليمات السلامة الحيوية والضوابط الاخلاقية والحصول على موافقة المشاركين قبل الشروع بالبحث والحفاظ على خصوصيتهم وعدم افشاء البيانات او استخدام العينات لغير اغراض البحث العلمي .... على أن لا تتحمل دائرتنا أية تبعات مادية.. مع الاحترام.

ملاحظة :
تم استيفاء أجور جباية البحوث والبالغة (١٠٠٠٠) عشرة الاف دينار بموجب الوصل المرقم (691750) في ٢٠٢١/٣/٨

الدكتور
رضوان كامل الكندي
المدير العام
٢٠٢١/٢/٩

نسخة منه الى /
مكتب المدير العام / للعلم مع الاحترام .
مركز التدريب و التنمية البشرية / مع الأوليات .
مركز الفرات الاوسط للعلوم العصبية ..... للتفضل بالاطلاع وتسهيل مهمة اجراء البحث وتزويده بالعينات والبيانات المطلوبة مع التقدير

تسلسل الاستمارة ٢٠٤



جمهورية العـــراق

وزارة الصحة والبيئة
دائرة صحة محافظة بابـــل
المديـــر العـــام
مركـز التدريب والتنمية البشرية
لجنة البحوث

Ministry Of Health
Babylon Health Directorate
Email:-
Babel_Healthmoh@yahoo.com
Tel:282628 or 282621

استمارة رقم :-٠٣ /٢٠٢١

وزارة الصحة
دائرة صحة بابل
مركز التدريب والتنمية البشرية

رقم القرار :- ٤٨
تاريخ القرار :-٤ / ١٠/ ٢٠٢١

قرار لجنة البحوث

تحية طيبة ...

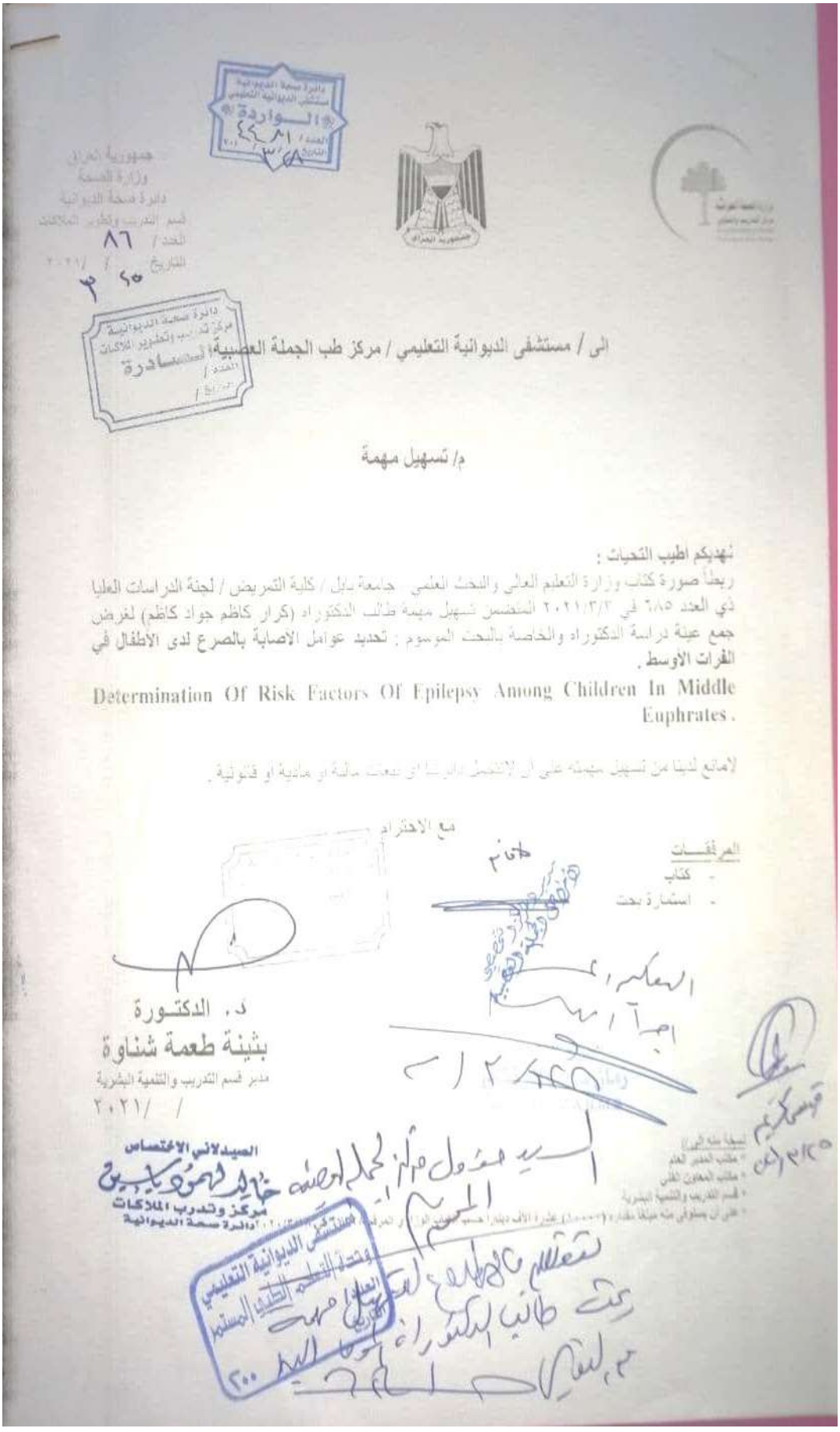
درست لجنة البحوث في دائرة صحة بابل مشروع البحث ذي الرقم (٤٣ /٠ ٢٠٢١/ بابل) المعنـون (تحديد عوامل خطر الاصابة بالصرع لدى الاطفال في الفرات الاوسط) والمقـدم من الباحث (كرار كاظم جواد كاظم) إلى وحدة ادارة البحوث والمعرفي مركز التدريب والتنمية البشرية في دائرة صحة بابل بتاريخ ٢٠٢١/١٠/٧ وقررت :

قبول مشروع البحث أعلاه كونه مستوفيا للمعايير المعتمدة في وزارة الصحة والخاصة بتنفيذ البحوث ولا مانع من تنفيذه في موسسات الدائرة .

مـــــع الاحتـــــرام

الدكتور / محمد عبد الله عجرش
رئيس لجنة البحوث
/ /٢٠٢١

نسخة منه الى :
• مكتب المدير العام / مركز التدريب والتنمية البشرية / وحدة إدارة البحوث ... مع الاولويات.



الى / مستشفى الديوانية التعليمي / مركز طب الجملة العصبية

م/ تسهيل مهمة

تهديكم اطيب التحيات :

رجاءً صورة كتاب وزارة التعليم العالي والبحث العلمي جامعة بابل / كلية التمريض / لجنة الدراسات العليا ذي العدد ٦٨٥ في ٢٠٢١/٣/٣ المتضمن تسهيل مهمة طالب الدكتوراه (كرار كاظم جواد كاظم) لغرض جمع عينة دراسة الدكتوراه والخاصة بالبحث الموسوم : تحديد عوامل الاصابة بالصرع لدى الاطفال في الفرات الاوسط .

Determination Of Risk Factors Of Epilepsy Among Children In Middle Euphrates .

لامانع لدينا من تسهيل مهمته على أن لا تتحمل دائرتنا اي تبعات مالية او مادية او قانونية .

مع الاحترام

المرفقات
- كتاب
- استمارة بحث

د. الدكتورة
بثينة طعمة شناوة
مدير قسم التدريب والتنمية البشرية
٢٠٢١/ /

الصيدلاني الاختصاص
مركز وتدريب الملاكات
دائرة صحة الديوانية

Risk Factors Associated with Epilepsy among Children in Middle Euphrates

A- Child related Risk:

1- Age: ☐ years

2- Gender: Male ☐ Female ☐

3- living location

Rural ☐ Urban ☐

4-Educational level:

- Illiterate ☐
- Continuous in elementary school ☐
- Interrupted from elementary school ☐

5- Child's hobbies:

Computer and mobile games ☐

TV watching ☐

Play football ☐

No hobbies ☐

6- Beginning of the first attack: ☐

7-The expected cause of the first seizure: ☐

8-Number of attacks per month: ☐

9-Family history of epilepsy:

- First degree relative ☐
- Second degree relative ☐
- Other relative ☐
- No family history of epilepsy ☐

10-Classification of epilepsy:

Generalized ☐

Partial ☐

Syndromes ☐

Unclassified ☐

B- during delivery Problem

Asphyxia YES ☐ NO ☐

Trauma during delivery YES ☐ NO ☐

C- post-delivery Problem (0-1year)

Jaundice YES ☐ NO ☐

Seizure YES ☐ NO ☐

D- post-delivery Problem (1-12)years

no	The Factors	Yes	No
1	Febrile seizure		
2	Cerebral palsy		
3	Hydrocephalus		
4	Encephalitis		
5	Meningitis		
6	Brain Tumor		
7	Attention deficit hyperactivity disorder		

8	psychomotor retardation		
9	Mental retardation		
10	Diabetes Mellitus		
11	blood disease such as (Anemia, Thalassemia, Leukemia)		
12	Head Trauma		
13	Hormonal Disorder		
14	Intake toxic substance		
15	Exposure to domestic violence		
16	Exposure to car accident		
17	Electric shock		
18	Autism		

E-Daily Habits:

- Eating(balance diet, low in sugar and fat)
- drinking milk
- Don't drinking coffee
- sleep well(about 8-10hours a night)
- sensible balance between rest, school and play

Yes	**No**

F: risk related to father:

1- Age at marriage: Years

2- Consanguinity

3- History of epilepsy

4-Smoker

5-Drinking Alcohol

6-Substance abuse

G- Risk related to Mother:

1-Age at marriage: Years

2- Consanguinity

3- History of epilepsy pre per

4-Smoker pre per

5-Drinking Alcohol pre per

6-medical history pre per

7-Substance abuse pre per

8-Delivery Premature Mature

9-Type of childbirth

- ❖ C/S
- ❖ Forceps
- ❖ Normal
- ❖ Other

10- Problems through gravidity:

Pregnancy high pressure

vaginal hemorrhage

Hyperemesis Gravid arum

Anemia

No complications

11- congruence factor**:**

Yes

No

12- situation of birth:

Hospital

home childbirth

13-Factors during Delivery:

umbilical cord prolapse: Yes No

length of pregnancy: Yes No

Occurrence of seizure: Yes No

عوامل الخطر المرتبطة بالصرع بين الاطفال في محافظات الفرات الاوسط

أ- المخاطر المتعلقة بالطفل

١- العمر : سنة

٢- الجنس : ذكر انثى

٣- السكن

الريف الحضر

٤- مستوى التعليم :

- لا يقرا ولا يكتب
- مستمر في المدرسة الابتدائية
- منقطع من المدرسة الابتدائية

٥- هوايات الطفل :

العاب الكمبيوتر و الهاتف النقال

مشاهدة التلفاز

لعب كرة القدم

لا توجد اي هواية

٦- العمر عند اول نوبة :

٧- المسبب المتوقع لاول نوبة:

٨- عدد النوبات لكل شهر:

٩- التاريخ الاسري لمرض الصرع:

- قريب من الدرجة الاولى
- قريب من الدرجة الثانية
- اقرباء اخرون
- لا يوجد تاريخ لمرض الصرع في العائلة

١٠-تصنيفات الصرع

- المعمم
- جزئي
- المتلازمات
- غير مصنف

ب- مشكلة اثناء الولادة

- اختناق نعم كلا
- الصدمة اثناء الولادة نعم كلا

ت- مشكلة ما بعد الولادة

- يرقان نعم كلا
- نوبة نعم كلا

ث- مشكلة ما بعد الولادة (١-١٢) سنوات

-

ت	العوامل	نعم	كلا
١	النوبة الحموية		
٢	الشلل الدماغي		
٣	الاستسقاء		
٤	التهاب الدماغ		
٥	إلتهاب السحايا		
٦	ورم الدماغ		
٧	اضطراب نقص الانتباه وفرط النشاط		
٨	التخلف النفسي الحركي		
٩	التخلف العقلي		
١٠	داء السكري		

١١	أمراض الدم مثل (فقر الدم، الثلاسيميا، اللوكيميا)		
١٢	إصابات الرأس		
١٣	اضطراب هرموني		
١٤	تناول مادة سامة		
١٥	التعرض للعنف المنزلي		
١٦	التعرض لحادث سيارة		
١٧	صدمة كهربائية		
١٨	التوحد		

ج- العادات اليومية :

كلا	نعم

- شرب الحليب
- عدم شرب القهوة
- النوم المنتظم (حوال ٨-١٠ ساعات ليلا)
- توازن معقول بين الراحة والمدرسة واللعب

ح- عناصر الخطر المتعلقة بالاب

١- الزواج في عمر : ☐ سنوات

٢- القرابة ☐

٣- تاريخ الصرع ☐

٤- مدخن ☐

٥- شرب الكحول ☐

٦- اساءة استخدام المواد ☐

خ- عناصر الخطر المتعلقة بالام :

١-الزواج في عمر : سنوات

٢- القرابة

١- تاريخ الصرع		قبل		اثناء
٢- مدخنة		قبل		اثناء
٣- شرب الكحول		قبل		اثناء
٤- اساءة استخدام المواد		قبل		اثناء
٥- التاريخ الطبي		قبل		اثناء

٦- الولادة

خديـــج ناضج

٩- نواع الولادة

- ❖ ولادة قيصرية
- ❖ ملقط
- ❖ طبيعي
- ❖ اخرى

١٠ ـ مشاكل خلال الولادة

- ارتفاع الضغط عند الحمل
- نزيف مهبلي
- القيء المفرط
- فقر الدم
- لا يوجد مضاعفات

١١- عامل التطابق

- نعم
- كلا

١٢- حالة الولادة

- في المستشفى
- ولادة منزلية

١٣- العوامل أثناء الولادة

- تدلي الحبل السري نعم كلا
- مدة الحمل نعم كلا
- حدوث النوبة نعم كلا

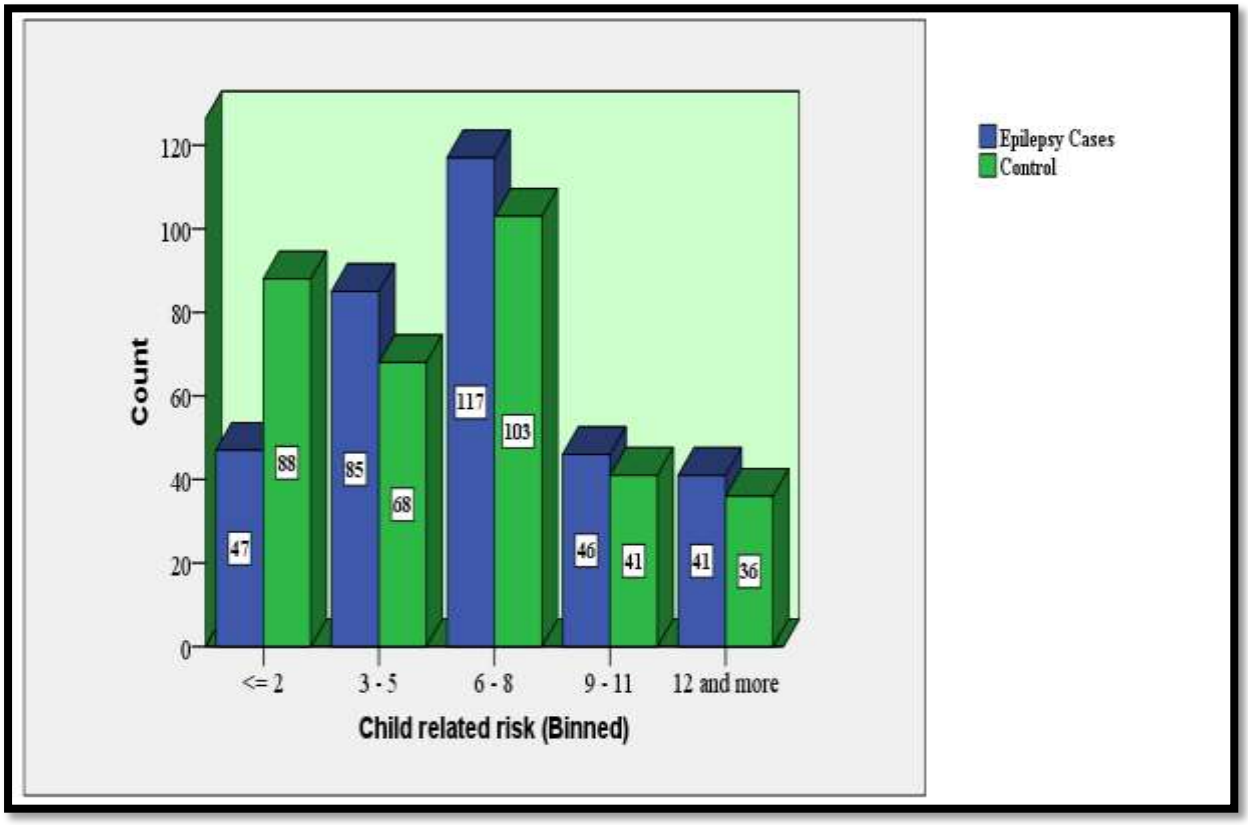


Figure (1): Bar Chart distribution of the studied groups according to Age Groups (Years).

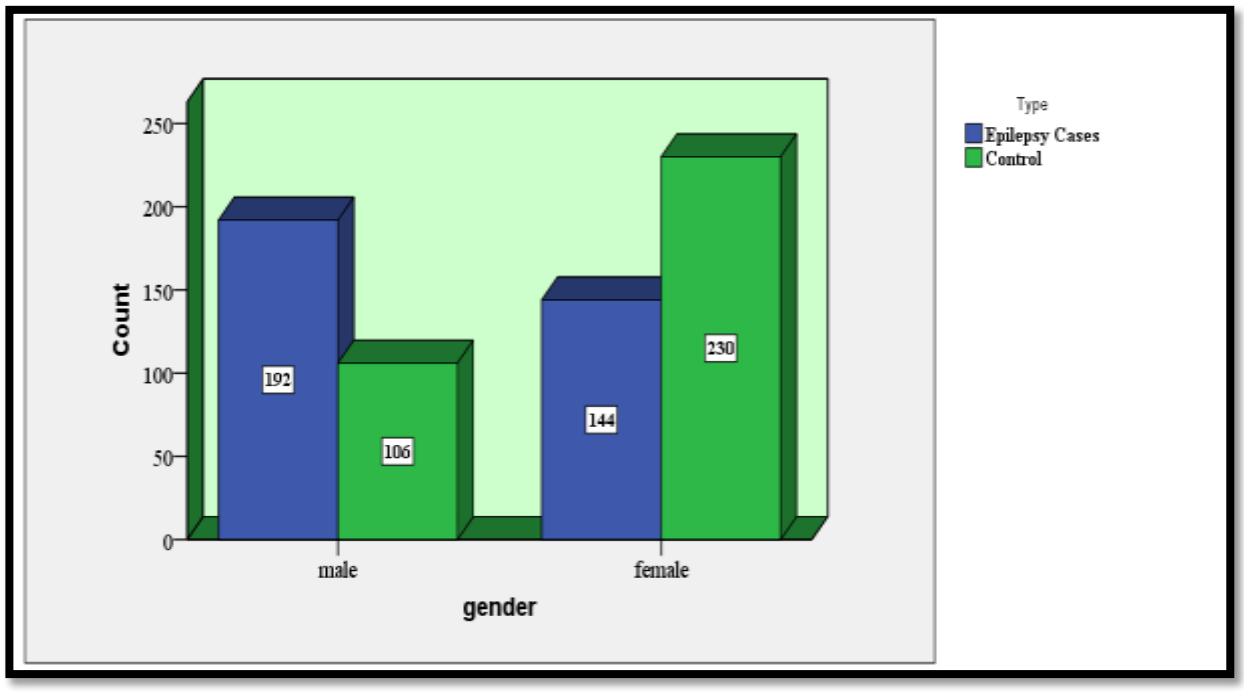


Figure (2): Bar Chart distribution of the studied groups according to Gender.

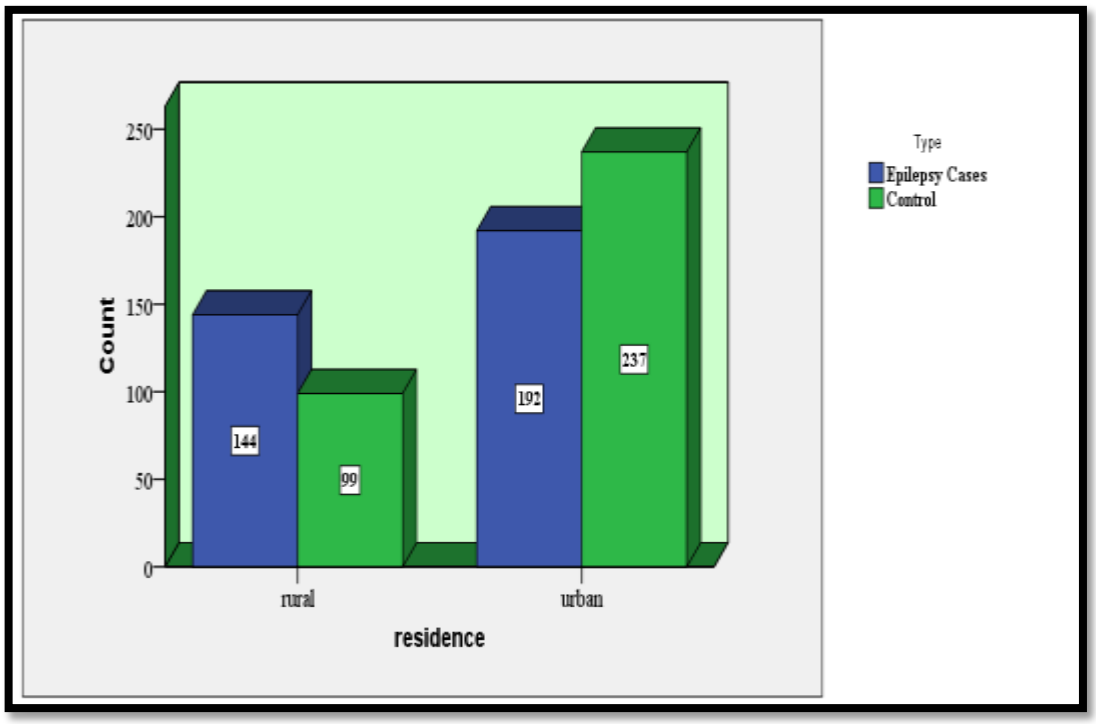


Figure (3): Bar Chart distribution of the studied groups according to Residence.

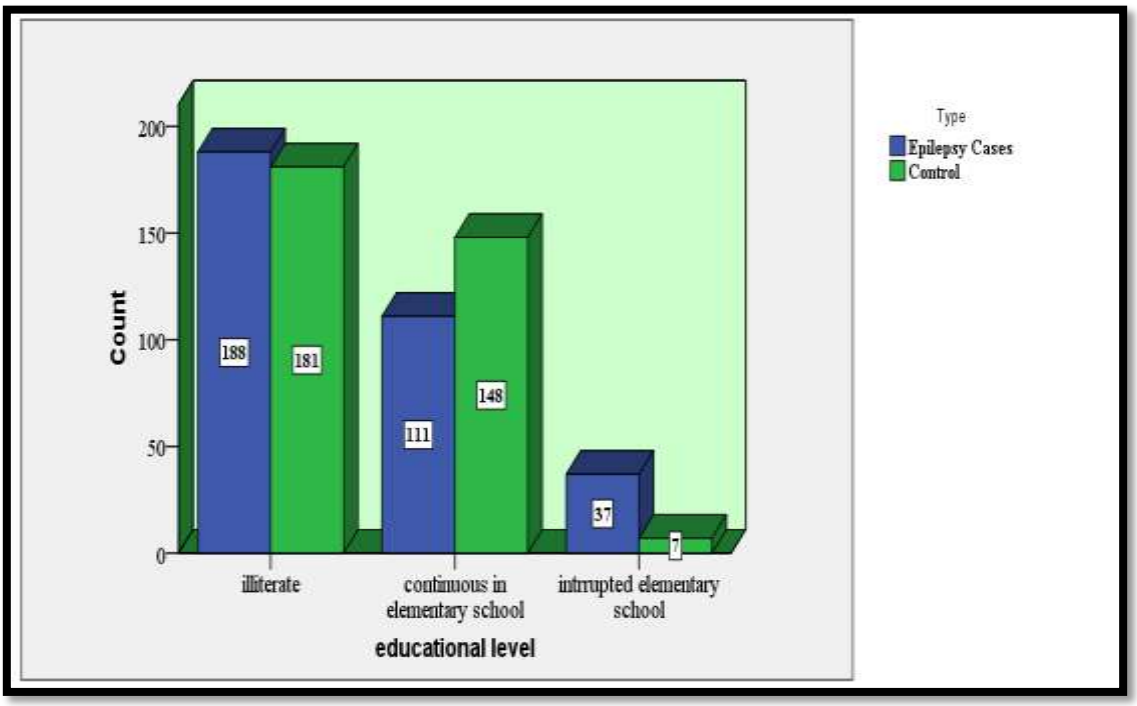


Figure (4): Bar Chart distribution of the studied groups according to Educational Level.

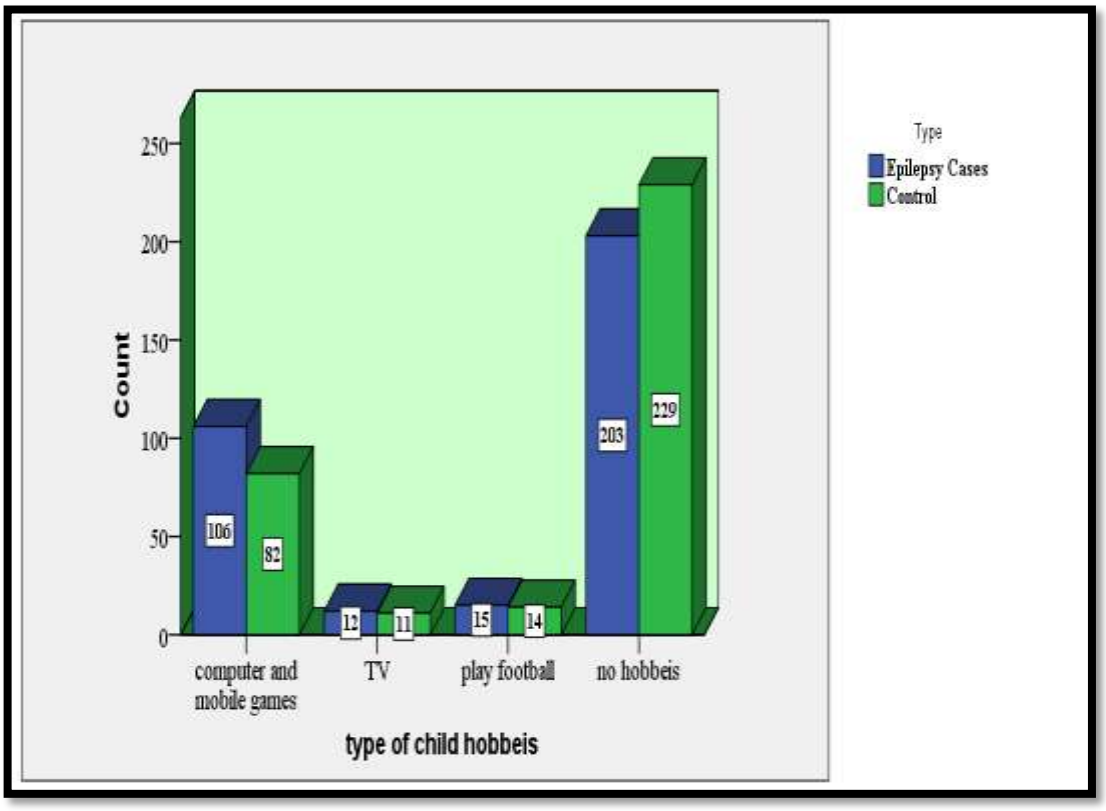


Figure (5): Bar Chart distribution of the studied groups according to type of hobbies.

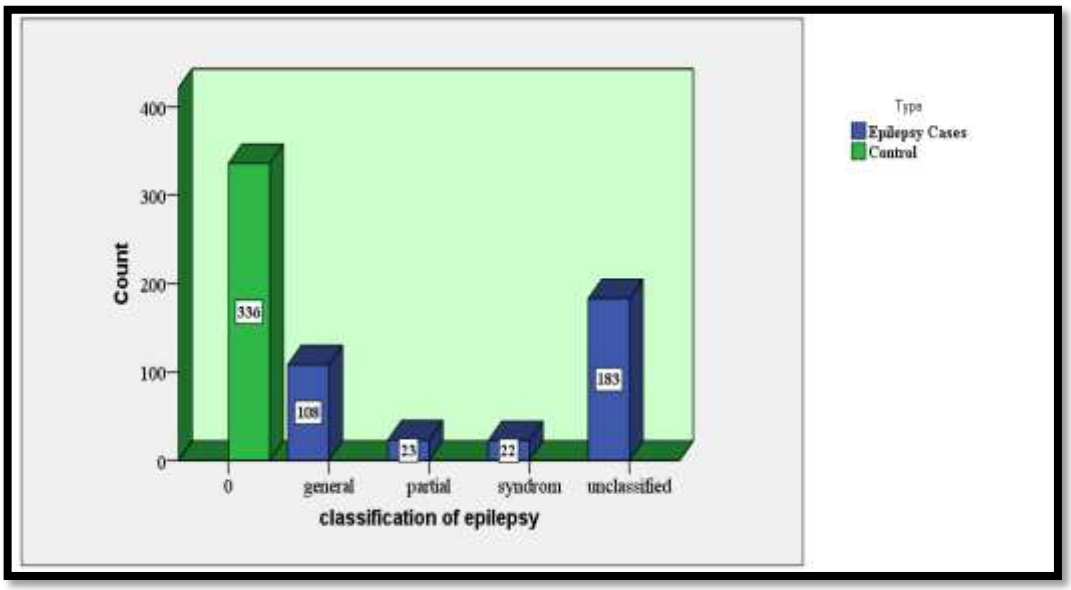


Figure (6): Bar Chart distribution of the studied groups according to groups of epilepsy.

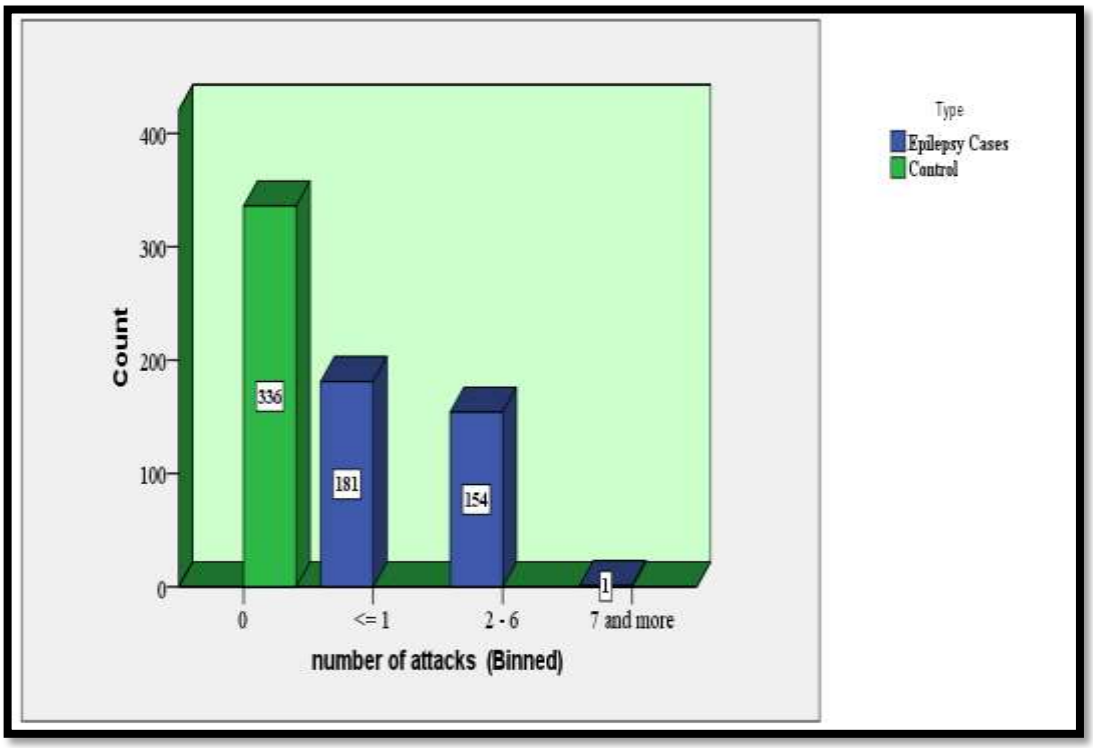


Figure (7): Bar Chart distribution of the studied groups according to Number of Attacks.

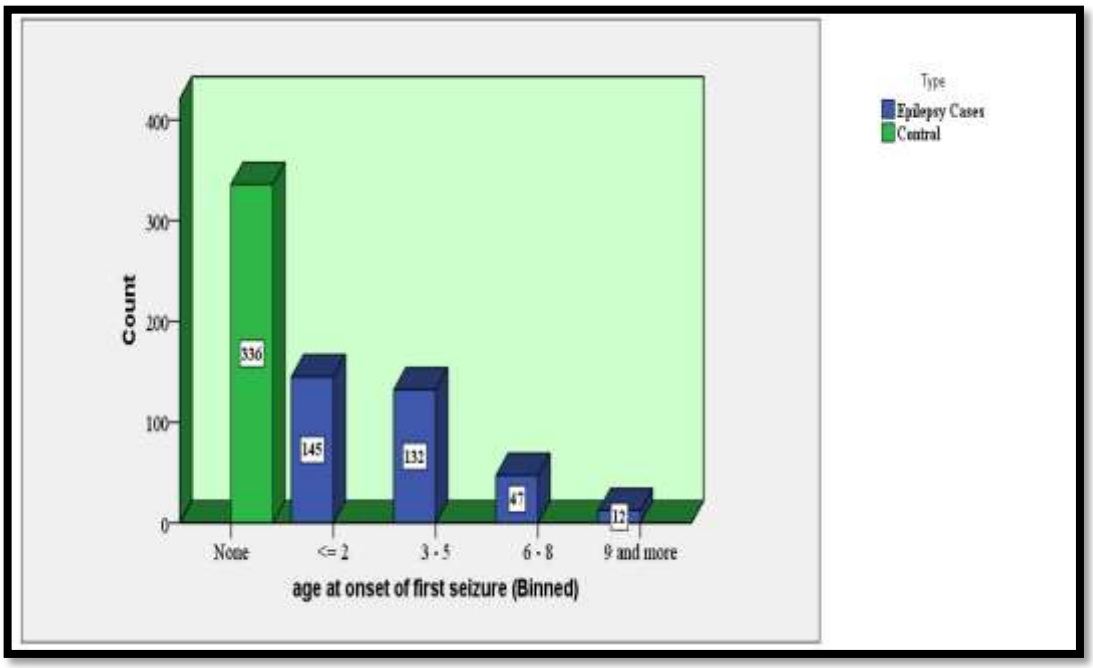


Figure (8): Bar Chart distribution of the studied groups according to Age at onset of first seizure.

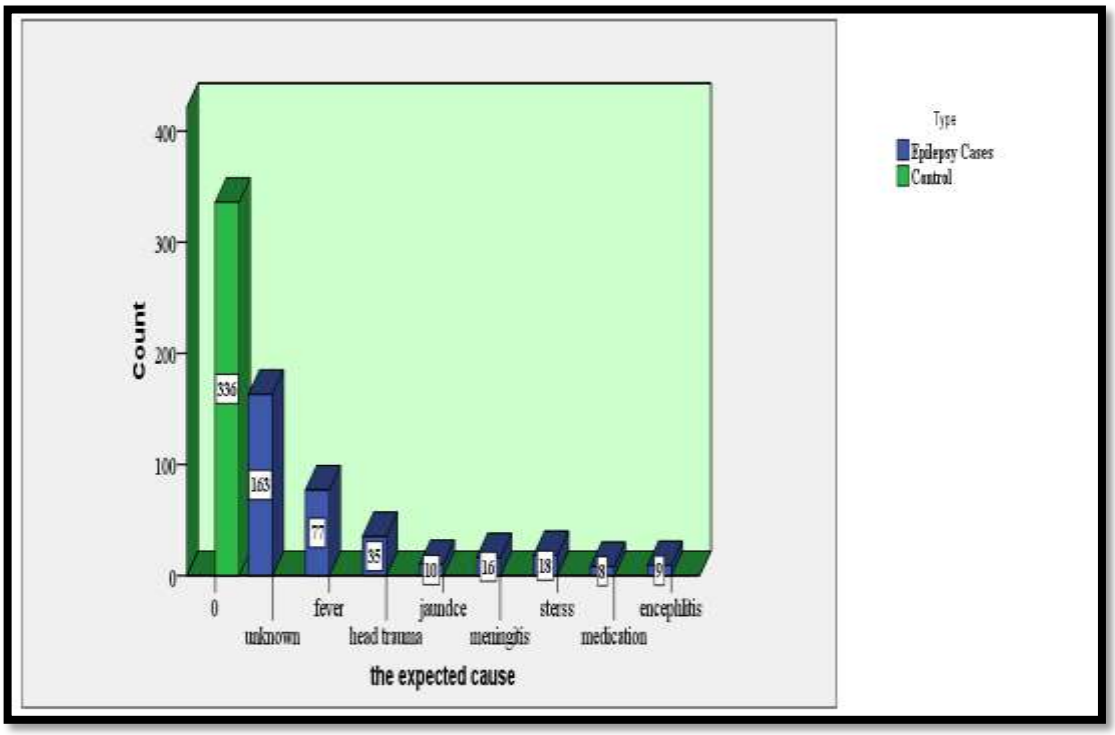


Figure (9): Bar Chart distribution of the studied groups according to the expected cause.

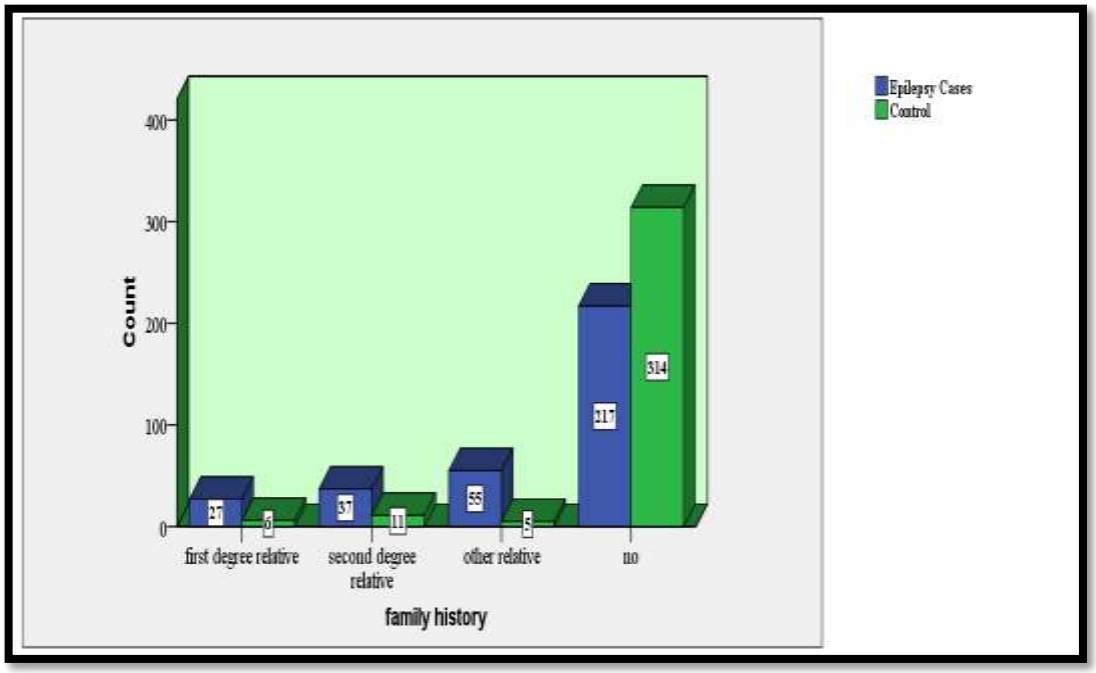


Figure (10): Bar Chart distribution of the studied groups according to Family history.

الخلاصة

الصرع مشكلة واسعة الانتشار على الصعيد العالمي قد يكون لها آثار مدمرة على صحة الأطفال ونموهم ، فضلاً عن تفاعلاتهم الاجتماعية وإنجازاتهم التعليمية ، بالإضافة الى وصمة العار الاجتماعية التي يحملها. نتيجة لذلك، من أجل تقديم أفضل رعاية تمريضية للأطفال المصابين بالصرع ، من المهم معرفة ما يمكن أن يسبب لهم الصرع.

من أجل تلبية الأهداف المذكورة ، تم إجراء دراسة وصفية، (دراسة حالة والشاهد). تم إجراء البحث في جميع أنحاء محافظات الفرات الأوسط الخمس في العراق ، في الفترة ما بين الأول من تشرين الأول ٢٠٢٠ والسادس والعشرون من نيسان ٢٠٢٢. لغرض تحديد عوامل الخطر للصرع عند الأطفال وتحديد العلاقة بين عوامل الخطر و البيانات الاجتماعية والديموغرافية لأولياء الأمور والبيانات السريرية والعادات اليومية.

عينة صدفة مكونة من ٦٧٢ طفل من خمس مدن في محافظات الفرات الأوسط ، مقسمة بالتساوي إلى مجموعة دراسة (أطفال مصابين بالصرع) ومجموعة ضابطة (أطفال غير مصابين بالصرع). تشير النتائج إلى أن أهم العوامل التي تؤثر على حدوث الصرع عند الأطفال هي: (الاختناق ، الصدمات أثناء الولادة ، اليرقان ، الحمى ، التهاب الدماغ ، التهاب السحايا ، أورام المخ ، اضطراب فرط الحركة ونقص الانتباه ، وصدمات الرأس). وكذلك حدوث الصرع يتأثر بحدوث اضطراب كبير في النوم. بالإضافة إلى ذلك ، كان الأطفال المصابون بالصرع الذين يبلغون من العمر خمس سنوات أو أقل لديهم أعلى نسبة من النوبات الأولية.

من أجل فهم أسباب وعوامل الخطر الخاصة بالصرع عند الأطفال بشكل أفضل ، لخصت الدراسة إلى ضرورة إجراء مزيد من البحوث. و أيضًا استخدام عينات أكبر لإجراء بحوث أكثر تركيزًا على كل عامل من عوامل الخطورة على حدة.

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة بابل
كلية التمريض

تحديد عوامل خطر الاصابة بالصرع لدى الاطفال في الفرات الاوسط

أطـــروحـــة

مـقـدمـــة الـــى مجـلـس كـلـيـة الـتـمـريـض/ جـامـعـــة بـــابـــل

من قبل

كرار كاظم جواد العامري

كجزء مـن مـتـطـلـبات نـيـل درجـة الـدكتوراه - فـلـسـفـة فـــي الـتـمـريـض

بأشراف

أ.م.د ناجي ياسر سعدون

ربيع الثاني ١٤٤٣ هجرية **نيسان٢٠٢٢ ميلادية**