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Pattern of Congenital Malformations at Birth and Their Associated Maternal Characteristics

Sahar Hassan[1]*, Nassrin Malik Aubead[2]

1. *Department of Community Medicine, Hammurabi College of Medicine, University of Babylon, Iraq*
2. *Department of Obstetrics and Gynecology, Hammurabi College of Medicine University of Babylon, Iraq*

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Corresponding Information:
Sahar Hassan,
Departments of Community Medicine, Hammurabi College of Medicine, University of Babylon, Iraq

Email: sahar.hassanissa@uobabylon.edu.iq

ABSTRACT

Background & Objective: Congenital anomalies are a global issue and the primary reason of death in both developed and advanced countries. Congenital anomalies occur at varying rates in various populations. The purpose of this research was to determine the prevalence and pattern of congenital anomalies in newborns, as well as the associated maternal and environmental factors in newborns, presented at the Babylon teaching hospital for motherhood and pediatrics in AL-Hilla city, between 2017 and 2021.

Materials & Methods: This study follows a descriptive design, and was based on population data from the statistic registry covering the AL-Hilla city, Iraq, 2017 to 2021. The registry covers live and still births. Also, maternal and neonatal information regarding sex, birth weight, parental consanguinity, and maternal age, were recorded.

Results: There were 214 congenitally deformed newborns among the 46,777 births in AL-Hilla city. There were 109 males (50.69 percent) and 103 females (47.90 percent). The most common congenital malformations discovered were those relating to the neurological system, followed by those relating to the musculoskeletal system.

Conclusion: Anomalies in the central nervous system were most apparent, however, this research can help to determine the approximate distribution of the prevalence of congenital anomalies in AL-Hilla city in Iraq. Also, by identifying their main types, information can be applied to improve the clinical performance and public policies of Iraq.

Keywords: Congenital anomalies, Neonates, Iraq, Prevalence, Pattern

Introduction

Congenital abnormalities are genetic and/or developmental problems that occur during embryonic development. Congenital anomalies, congenital abnormalities, and birth flaws are all synonyms for structural, behavioral, functional, and metabolic diseases. They are evident at birth, have a significant morbidity, and are a major cause of neonatal and infant death. Their etiology is correlated with genetic environmental factors like physical, chemical, and biological **(1)**.

Congenital malformations refer to structural or functional defects that exist in a newborn and occurred during life in the womb. Babies who are born with congenital anomalies and survive are more at risk of developing physical, social and cognitive problems. Worldwide, congenital anomalies occur in approximately 2 to 4 percent of all births. Congenital anomalies have been recorded more in Arab countries than in non-Arab countries **(2-4)**. Also, the main disease burden study identified congenital malformations among the top 10 causes of death in children under 5 years of age in 2013 **(5)**.

In 2016, 303,000 infants were born with congenital abnormalities, according to the WHO. The overall incidence of congenital abnormalities is 3 per 1000 live births, with an expected number of 99 million births each year globally **(6)**.

According to the Global Burden of Disease Study, congenital abnormalities caused 510,400 deaths globally in 2010 **(7)**. Congenital abnormalities impact roughly one in every 33 births, resulting in 6.6 percent infant mortality and substantial illness in children. According to a WHO estimate, around 3 million fetuses and newborns are born each year with a serious congenital abnormality. Congenital abnormalities have a significant influence on the pregnancy and newborn babies, accounting for 495,000 deaths globally. The vast number of fatalities occurred within the first year of life, contributing significantly to the babies' death

rates. Most significant population-based studies estimate that significant congenital abnormalities affect roughly 2-3% of all live newborns. It accounts for 15-30% of all pediatric hospitalizations and has a greater health-care value than other hospitalizations, imposing a major burden on family and communities **(8)**.

More than 90% of babies with severe congenital malformations are born in middle-income and poor countries, while congenital malformations in Arab countries record a higher proportion than non-Arab countries **(6)**. Unfortunately, in many developing countries, registration of birth defects is unclear and missing. **(9)**.

The incidence rate and patterns of congenital anomalies are different based on the geographical area. A range of different congenital factors including genetics, environmental teratogenic factors, micronutrient deficiency and related multifactorial inheritance have been investigated and reported. These common risk factors include drugs, maternal age, alcohol consumption, consanguineous marriage, smoking, and maternal diseases, although congenital anomalies may be the result of one or more genetic, nutritional, infectious, or environmental factors, which are usually very difficult to diagnose. About 60-70% of these events are caused by unknown. **(10)**.

For ages, birth malformations had been recognized and acknowledged. Due to the obvious and great frequency of their incidence and the disastrous impact they might have on the patient and his or her family, it is a motivating topic for study **(11, 12)**. This study aimed to investigate the spread and pattern of congenital abnormalities in newborn babies in AL-Hilla city from 2017 to 2021, and correlated factors of the congenital abnormalities in infants delivered at the Babylon teaching hospital for maternity and pediatrics.

Methods

This is retrospective hospital-based records, in which the database of the local records, from the database Babylon Health Directorate The study was conducted in the Babylon teaching hospital for maternity and pediatrics .in AL-Hilla city- Iraq.

The Babylon teaching hospital for maternity and pediatrics is AL-Hilla City's sole public hospital that offers delivery and pediatric treatments. Whereas this hospital handles the majority of births in AL-Hilla City, others are handled by residences and a series of minor private hospitals

Between the 1st of January 2017 and the end of December 2021, 46,777 new births happened in the delivery room and any newborns with congenital defects, including dead infant and live births, were recognized. During the research period, 214 (4.57 percent) instances of congenital abnormalities were documented.

Babies born with congenital abnormalities were the dependent variable. The independent variables recorded, were demographic data included maternal variables, particularly mother age, parental consanguinity history of previous anomaly neonatal sex current birth teratogenic factor place of residence chronic diseases type of pregnancy birth weight

Malformations were classified into systems according World Health Organization (WHO) **(12)**.

1. Nervous system abnormality.

2. Musculoskeletal system deformity.

3. Digestive system abnormality.

4. Congenital circulatory system malformation.

5. Congenital eye, ear, facial, and neck malformations.

The committee of ethics in research at the University of Babylon's Hammurabi College of Medicine authorized this work.

Statistical Information Analysis

SPSS version 17 was the statistical tool utilized for data administration and analysis (SPSS, Inc., version 17, Chicago, IL, USA). To characterize the most prevalent forms of congenital abnormalities, percentages and frequencies were estimated.

Results

A total of 46,777 birth were recorded in the city of AL-Hilla for five years, of which 214 had a sort of congenital malformations, corresponding to a spread rate of 4.57 for every 1,000 live births throughout the time period that studied for these five years, 2019 high prevalence 6.23 followed 2020 5.42 per 1000 live birth (Figure 1).

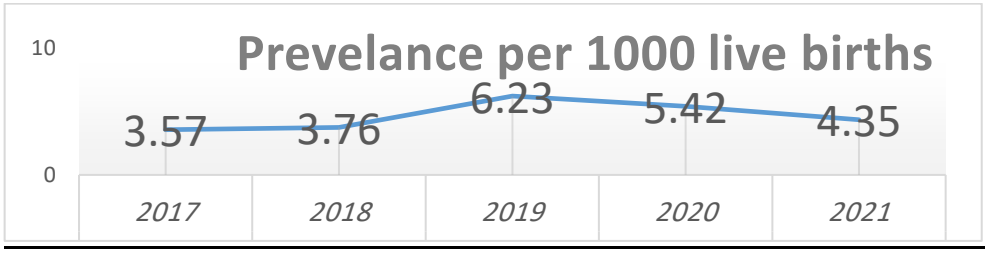

Figure 1. **Congenital Abnormalities Spread Rate Related to Study Year**

The frequency distribution of the 214 cases of newborns with birth defects according to the diagnosis of the affected system or abnormality in shown in Figures (1) and (2), the most common detected anomalies were of nervous system (36.91%) followed by musculoskeletal system (33.64%). GIT (14 %), (7.94%) genitourinary malformations, head and neck (2.33 %), non-specified (1.86%), skin, eye and respiratory system (0.93%) and syndromes 0.46% (Figure 2). Details of the distribution of congenital anomalies types are shown in Tables (Tables 1 to 5). The most common central nervous system malformations were abnormalities of brain, spinal cord, and anencephaly. The most common musculoskeletal abnormalities were congenital malformations of lower limb. The most common gastrointestinal tract malformations were cleft lip.

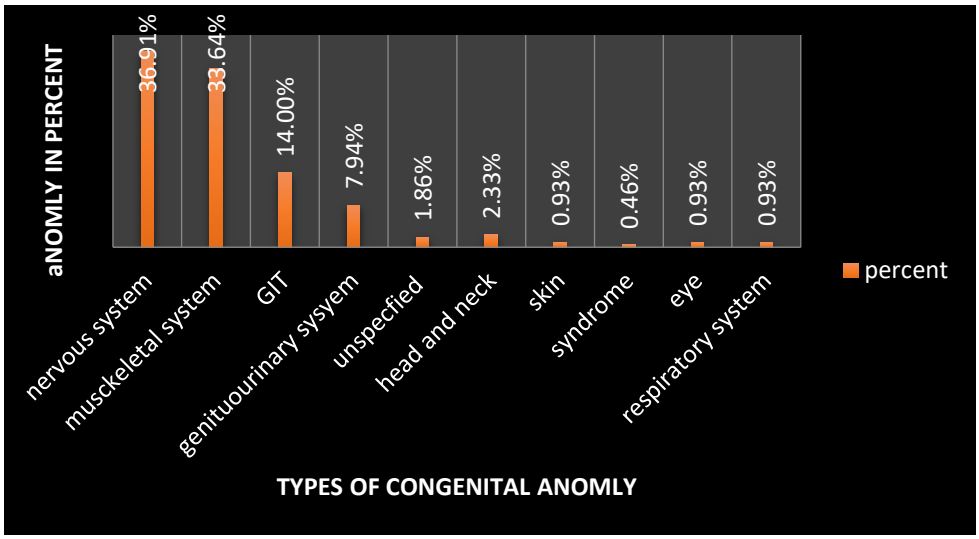

Figure 2. **Distribution of Congenital Anomalies From 2017 to 2021**

Table 1. **Forms of Abnormalities in Congenital Malformation in Newborn Infants in 2017**

Systems	Types of anomaly	n	Number of live birth	%
Nervous system n=18	anencephaly	5	4	12.19
	Congenital hydrocephalus	4	4	9.75
	Spina bifida	1	1	2.43
	Other anomalies of brain and spinal cord	8	6	19.51
Musculoskeletal system n=10	Congenital anomalies of the lower limb	5	5	12.19
	Congenital anomalies of the upper limb	4	4	9.75
	Congenital malformations of musculoskeletal system not elsewhere classified	1	1	2.43
Genitourinary system	Ambiguous genitalia	2	2	4.87
	Other anomalies of genito-urinary organs	1	1	2.43

Systems	Types of anomaly	n	Number of live birth	%
n=3				
	cleft lip	5	5	12.19
GIT	Cleft palate	1	1	2.43
n=8	Other congenital malformation of the digestive system	2	1	4.87
Eye	Congenital anomalies of the eye			
n=1		1	1	2.43
✓ **Unspecified** **n=1**	Other congenital malformations, not elsewhere classified	1	0	2.43
Total		41	36	100

Table 2. Forms of Abnormalities in Congenital Malformation in Newborn Infants in 2018

Systems	Types of anomaly	n	Number of live birth	%
Nervous System **n=15**	anomalies of brain and spinal cord	9	9	25
	Anencephaly	2	2	5.55
	Congenital hydrocephalus	2	2	5.55
	Microcephalus	1	1	2.77
	Spina bifida	1	1	2.77
Musculoskeletal system **n= 13**	Congenital anomalies of lower limb	8	8	22.22
	Congenital anomalies of upper limb	5	5	13.88
	cleft lip	3	3	8.33
GIT n=6	congenital malformation of the digestive system	3	2	8.33
unspecified n=3	congenital malformation syndromes affecting multiple systems	3	3	8.33
total		37	36	100

Table 3. Forms of abnormalities in newborn infant with congenital malformations in the 2019

Systems	Types of anomaly	n	Number of live birth	%
Nervous System n=20	anencephaly	2	2	3.77
	microcephalus	1	1	1.88
	Congenital hydrocephalus	10	10	18.86
	Other anomalies of brain and spinal cord	6	6	11.32
	Hydrocele congenital	1	1	1.88
Musculoskeletal system n=16	Congenital anomalies of upper limb	5	4	9.43
	Congenital anomalies of lower limb	11	11	20.75
GIT n=9	Cleft lip	4	4	7.54
	Cleft lip and palate	2	2	3.77
	Other congenital malformation of the digestive system	3	3	5.66
Genitourinary system n=5	Undescended testicles	3	3	5.66
	Other anomalies of genito-urinary organs	1	1	1.88
	Anal stenosis	1	1	1.88
Eye n=1	Congenital anomalies of the eye	1	1	1.88
syndromes n=1	Down's syndrome	1	1	1.88
Head and neck n=1	Other congenital malformations of face and neck	1	1	1.88
Total		53	52	100

Table 4. Forms of abnormalities in newborn infants with congenital malformations in the 2020

Systems	Types of anomaly	n	Number of live birth	%
Musculoskeletal system n=20	Congenital anomalies of lower limb	12	12	26
	Congenital malformations of musculoskeletal system , not elsewhere classified	1	1	2.17
	Congenital anomalies of upper limb	7	7	15.21
Nervous System	Other anomalies of brain and spinal cord	8	8	17.39
	Congenital hydrocephalus	3	3	6.52
	Hydrocele congenital	1	1	2.17

Systems	Types of anomaly	n	Number of live birth	%
n= 14	microcephalus	1	1	2.17
	spina bifida	1	1	2.17
GIT **n= 3**	Cleft lip	3	3	6.52
Genitourinary system **n=4**	Ambiguous genitalia	2	2	4.34
	Hypospadias and Epispadias	1	1	2.17
	Other anomalies of genito – urinary organs	1	1	2.17
Skin **n= 1**	Congenital anomalies of the skin	1	1	2.17
Head and neck **n=3**	Other congenital malformations of face and neck	3	3	6.52
Respiratory system **n=1**	Other congenital malformation of the respiratory system	1	1	2.17
Total		46	46	100

Table 5. Forms of abnormalities in newborn infants with congenital malformations in the 2021

systems	Types of anomaly	n	Number of live birth	%
Nervous System **n=12**	Other anomalies of brain and spinal cord	8	7	21.62
	Congenital hydrocephalus	2	2	5.40
	microcephalus	1	1	2.70
	Hydrocele congenital	1	1	2.70
Musculoskeletal system **n=13**	Congenital anomalies of lower limb	8	8	21.62
	Congenital anomalies of upper limb	4	4	10.81
	Congenital malformations of musculoskeletal system , not elsewhere classified	1	1	2.70
Genitourinary system **n=5**	Undescended testicles	2	2	5.40
	Other anomalies of genito – urinary organs	3	3	8.10
GIT **n=4**	Other congenital malformation of the digestive system	3	3	8.10
	Cleft lip and palate	1	1	2.70
Skin **n=1**	Congenital anomalies of the skin	1	1	2.70

Head and neck				
n=1	Other congenital malformations of face and neck	1	1	2.70
Respiratory system				
n=1	Other congenital malformation of the respiratory system	1	1	2.70
total		37	36	100

Characteristics of birth with congenital malformations (Table 6) included maternal age parameter, revealed (77.67%) mothers were 20 to 30 years, (12.09%) above 35 year (10.23%) less than 20 year. History of consanguinity was negative in (73.48%). (50.69%) were males and (47.90%) females. A total of (95.81%) mothers delivered live births; (99.06%) mothers were not exposed to medication and radiations during pregnancy. History of miscarriage was observed in (15.81%). The majority of mothers (36.27%) with no history of chronic diseases in multiple baby pregnancies (63.72%). LBW neonates were (22.32%).

Table 6. Characteristics of birth with congenital malformations, in the period from 2017 to 2021

Associated factors	2017	2018	2019	2020	2021	Total 2017-2021	
Mother's age (years)		**frequency**					**Percentage**
< 20	2	1	6	8	5	22	10.23%
20-30	30	33	40	37	27	167	77.67%
> 35	9	4	7	1	5	26	12.09%
Parental consanguinity							
Present	11	10	17	10	9	57	26.51%
Absent	30	28	36	36	28	158	73.48%
History of any previous anomaly							
Present	0	0	1	1	2	4	1.86%
Absent	41	38	52	45	35	211	98.13%
Neonatal sex							
Male	13	15	28	28	25	109	50.69%
Female	26	23	25	17	12	103	47.90%
Ambiguous	2	0	0	1	0	3	1.39%
Current birth							
Live birth	36	37	51	46	36	206	95.81%
Still birth	5	1	1	0	1	8	3.72%
Teratogenic factor							
Exposed	1	0	1	0	0	2	0.93%
Not exposed	40	38	52	46	37	213	99.06%
Place of Residence							
Urban	18	20	29	25	16	108	50.23%
Rural	23	18	24	21	21	107	49.76%
Previous abortion							

Associated factors	2017	2018	2019	2020	2021	Total 2017-2021	
Yes	4	8	12	6	4	34	15.81%
No	37	30	41	40	33	181	84.18%
Chronic diseases							
Yes	2	0	4	1	0	6	27.90%
No	39	38	49	45	37	78	36.27%
Type of pregnancy							
Single	41	37	53	46	37	78	36.27%
Multiple	0	1	0	0	0	137	63.72%
Birth weight (kg)							
<2500	7	7	16	10	8	48	22.32%
>2500	34	31	37	36	29	167	77.67%

Discussion

This research had been an epidemiological search to estimate the prevalence of congenital anomalies in the AL-Hilla city, Iraq, the prevalence of congenital defects in live births of the present study was 4.57 for every 1000 birth for five years from 2017 to 2021. True spread of CMs relies upon many factors like place of study, nature of model, ethnicity, geographical allocation and socioeconomic state; that is why, any two studies are never similar in the strict sense of the term **(13)**.

There is no inclusive research into CA in Iraq for aim of comparing. Most researches in this field were made using different approaches and in different regions throughout the state.

In overall, the prevalence of CA in our study was more than in other areas of Iraq where the overall incidence of all types of congenital anomalies from 2013 to 2016 3.3 per 1000 live births in Sulaymaniyah city in Iraq **(14)**. While in AL-Ramadi in western Iraq which reported the higher overall incidence 40.5 /1000 live birth **(15)**. In Erbil city, congenital malformations for every 1000 births, were listed (0.36%) in the maternity teaching hospital in Erbil **(16)**. In another study in Iraq for year 2011 in Bagdad congenital anomalies represent 4.8% of total admission **(17)** whereas the another study in Mosul city found the overall prevalence of congenital malformation among the newborns was 0.69% **(18)**.

Alaani et al. conducted a research on the prevalence of congenital anomalies in Iraq, and they found that the prevalence of congenital anomalies increased to 2.5% in Basra and 15% in Fallujah **(15, 19)**.

the results of this research are greater than that of a research made in Egypt (2 percent) by Shawky and Sadik **(20)**, and near to the findings of a research made in India (2.22 percent) by Sarkar et al. **(21)**, as well as greater than that of the researches made in Lahore , Saudi Arabia and Iran **(22,23,24)** Moreover, the results of this research were smaller than those of researches are done in the USA, the UK, Italy, and Canada **(25, 26)**. The spread rates of various congenital malformations in Iran between 2000 and 2016 were 18/1000 live births. In 2014, Shabbir Hussain et al. from Pakistan listed a spread rate of 70.4/1000 live births, with boys accounting for 80.99/1000 and girls accounting for 59.81/1000 **(6)**.

Again, the current research's results are less than those of researches done in Tanzania (29 percent) **(27)**, Nigeria (28.15 for every 1000 children) **(28)**, Palestine (21 percent) **(29)**, and Gaza (14 percent) **(30)**.

These discrepancies might be attributed to changes in environmental conditions as well as the devices used to diagnose CAs, including as ultrasonography, x-ray, electrocardiograph, and magnetic resonance imaging (MRI scan). We did not employ a magnetic resonance imaging instrument in this investigation. Essentially, the current study in Iraq reveals that CAs are a major issue that requires immediate action. It should also be mentioned that Iraq lacks supervision and register mechanisms for CAs, which pose long-term threats to individuals. As a result, policymakers, coders, and healthcare professionals must plan to educate the society about CAs, establish monitoring and registry systems, track the incidence of the problem in the population, and give inclusive cure, care, and rehabilitation services to ill children.

Many researches and studies have been conducted in Saudi Arabia., In a study conducted in the city of King Fahd in Saudi Arabia, mainly the prevalence of congenital anomalies before the birth of a baby in every 1000 women during pregnancy was about 52.17% and the prevalence of congenital anomalies at birth was about 46.45% in every 1000 babies born **(31)**.

Congenital abnormalities have epidemiological significance since they cause death for 276,000 babies globally each year **(32)**. According to global studies, the birth spread of CA ranges from 1.107 % in Japan to 4.3 percent in Taiwan **(33)**. Our spread rate was lower than the 13 percent indicated before **(34, 35)**. It was equivalent to a hospital neonatal based research (4.23 percent) **(36)** and high in comparison with worldwide statistics where spread has been recorded as 2.7 percent, Taiwan 4.3 %, Oman 2.46 percent, Bahrain 2.7 percent, and India 1.5 percent. In India, the occurrence of congenital abnormalities was determined to be 2.48 percent of the total number of fetuses and newborns delivered after fourteen weeks of pregnancy over a one-year period **(37)**. Fatima et al. from Bangladesh discovered a relatively increased occurrence of 3.61 percent and 3.68 percent, respectively **(38)**.

Comparison of the findings with the same methods for data collection in City of São Paulo (Brazil) from 2010 to 2014. found that the spread of congenital malformations in infants born was 1.6 for every 100 newborns. Brazil has 3 million newborns each year in general, with roughly sixty thousand having congenital malformations **(39, 40)**.

In Africa, Nigeria is second only to India in terms of maximum quantity of newborn fatalities globally. CA affects 6.3 percent of the population. Another study in Nigeria indicated a strong incidence of CA, with Adeyemo et al. reporting a high frequency of 11.1 percent among hospital admissions in Ibadan, South-West Nigeria. Our conclusion was comparable to the 6.9 percent stated by Bakare et al., which was done in the same geographic area as our center; however, identical investigations made in Nigeria's South-East and South-South areas showed a reduction in spread rates of 2.8 and 0.4 percent, accordingly. According to descriptive cross-sectional research conducted in Addis Ababa and the Amhara area of Ethiopia, the total rate of CAs was 1.99 percent, or about 2 percent. This result is quite similar to the outcome of our earlier research on birth abnormalities (1.9 percent) **(6, 41, 42)**.

The spread ratio of abnormalities varies significantly between researches due to changes in research population, geographical locations, case description and categorization, diagnosis process, and statistically computation (the denominator). Congenital abnormalities generated 9.4 percent of dead infants in Canada and 7 percent of dead infants in the UK among 22 European nations (2010), with a spread ratio of 23.9/1000 live births. In 2014, Rachel Sokal et al. in the United Kingdom recorded a spread ratio of 30.7/1000 infants born for boys (proportion rate: 51.4%) and 24.3/1000 infants born for girls (proportion rate: 48.6%) **(6, 43)**.

Variation could be explained by different nature of various studies like hospital versus community based, difference in geographical, environment factors, genetic, racial background, nutritional and socioeconomic differences. The spread ratio of 4.57 percent gained in this research does not exemplify the impression in the normal community, because it was a hospital-based research with no effort to acquire a representative sample of the general population. However, it is feasible that a community-based research or one that includes all births in the greater community will provide a greater rate of spread. In our region of the globe, for example, certain kids with congenital defects who are taken to educational or specialized hospitals are not evaluated in the neonatal care facility, but rather in other specialized units like pediatric surgery or neurosurgery. Some children born outside of hospitals with congenital anomalies are not transported to hospitals for treatment, but rather to traditional healing or other unconventional specialists, while others are merely left at home to their destiny.

There is no population-based registration of congenital malformations in Iraq, which might also result to undervaluation. It is, however, probably that the majority of pregnant women that included congenital malformations in the city were controlled in this hospital, because it was the only government tertiary hospital in Babylon city center through the period of research where the premature unit indicated congenital malformations.

The CNS was the most often impacted system in our analysis, following by Musculoskeletal, Gastrointestinal, Genitourinary, face and Neck, Unspecified, Skin, Eye, Respiratory System, and Syndromes in order from highest to lowest of frequency. In comparison, a research from Egypt and Saudi Arabia **(8, 44)** found that CNS was the most usually impacted system, following by Musculoskeletal and finally Renal. Likewise, an Iranian research **(42)** revealed CNS, Musculoskeletal, Gastrointestinal, Urogenital, and Chromosomal problems in order from highest to lowest of prevalence. An Indian research **(37)** found that CNS was ranked top, following by Musculoskeletal and afterward CVS. Another research **(45)** found that CNS abnormalities were the most prevalent. In contrary, an Iranian research **(46)** found that the genitourinary system was the most commonly impacted. Musculoskeletal abnormalities were shown to be the most prevalent in research from Iran **(47, 48)** and India **(13, 49)**.

Gastrointestinal problems were described as the most prevalent in Pakistani researches **(34, 35)**, although CNS results were validated by others **(36, 50)**. Because of the high prevalence of central nervous system abnormalities seen in our study, it becomes fair to focus further consideration on the function of preconception vitamin supplementation in the prevention and treatment of congenital malformations, especially neural tube abnormalities.

Through the research period, the most common congenital central nervous system malformations were brain and spinal cord (statistics identical to that reported in the literature), encephalopathy, and

hydrocephalus may be related with spina bifida and myelomeningocele (neural tube malformations). Genetic variables, baby birth weight (low birth weight), gestation duration (prematurity), mother age (both extremes), and maternal folic acid insufficiency may all be connected to neural tube malformations (**51, 52**).

CNS abnormalities are one of the most frequent congenital disorders, with a complicated etiology including complicated interactions between genetic and environmental variables. Sunitha et al. **(53)** studied 360 pregnant women with structurally abnormal babies and discovered a greater prevalence of CNS malformations (37%) following by genitourinary system abnormality (20%) and multiple CAs (11 percent) **(32)**.

Whereas in the United States and Europe the predominance of malformation is osteoarticular malformations where are visible during the examination at the moment of birth **(51, 52)**.

in Mosul city, Iraq discovered that the proportion of congenital malformations rise substantially with age as observed in more than one third of the mothers **(12,20.23)**. In contrast, Shawky and Sadik **(20)** found in current Egyptian research that more than 50% of children with congenital abnormalities had mothers who were beyond the age of 35. A growing body of research has also shown that excessive ages during gestation are a potential risk for producing a kid with congenital abnormalities **(8, 18)**.

In the study conducted, the risk of congenital abnormalities in male increased by 50.69%, which is in full agreement with one study in India and two studies in England. Nevertheless, a research from China described a higher risk in female **(14)**. In general, it can be said that men are at higher risk for congenital anomalies, which is consistent with previous research **(40)**.

According to Ali Jahan et al. **(54)**, paternal cognation increased the probability of malformed newborns by 2.3 and 8.7 times more than other variables. Cognation marriage is one of the risk variables for congenital malformations. The current study found mostly sample non-consanguineous.

The mortality rate among children with major CAs in the present study was 3.72% stillbirths were CNS. Child deaths were marginally greater in newborns with congenital malformations in comparison with those without (odds ratio 51.81; 95 percent confidence range, 0.95-3.46) **(55)**.

Our research's death rate was lower than the rates recorded by researches in Turkey (14 percent -15.5 percent), Denmark (1.61 percent), and Iran (78 percent) and Libya (78 percent) (49.1 percent) **(56)**.

The majority of the city sample is agreeing that premarital test and avoidance of cognation, as well as avoidance of radiation exposure throughout gestation, and minimizing exposure to stressful situations throughout gestation, may play a significant role in the controlling and preventing of congenital malformations, with an equal number of cases from rural and urban areas.

The study found that the majority of mothers who delivered babies with congenital anomalies had no previous abortions. No previous studies support this study result. The largest number of cases of congenital anomalies in multiple pregnancies congruent with study by Cosme et al., 2017 (40). Several gestations are correlated with an increased incidence of congenital malformations, which can lead to premature delivery, implying high morbidity and death rates, which can be clarified in part by failures in cell divisions (genetic factors) and environmental factors in utero, such as twin to twin transfusion syndrome, constricting of the amniotic band, or umbilical cord fatalities.

The higher percentage of congenital anomalies seen in within normal rate 77.67%.

In general, congenital malformations are common in all nations, and there is no culture in the world that is free of congenital malformations. In other words, neonates in all countries, developed or developing, are at danger of malformations. As a result, by enhancing detection and preventing of congenital problems, as well as providing rehabilitative methods and facilities, the spread of these malformations may decrease **(6)**.

Study limitations

The recent research was based on a hospital newborn unit. All neonates were solely assessed for overt congenital abnormalities. This study is not indicative of the condition in a broad population, and further research is needed to understand the actual incidence of congenital defects and the variables that contribute to them. Furthermore, the hospital lacked pediatric cardiology services, and various situations of coronary heart disease are probably have been unnoticed. Chromosomal investigations on newborns are not performed on a regular basis at the institute, genetic disorders might have been undervalued.

Conclusion

Anomalies were most likely to be in the central nervous system. However, anomalies in the central nervous system were most apparent. This research can help to determine the approximate distribution of the prevalence of congenital anomalies in AL-Hilla city in Iraq. Also, by identifying their main types, information can be improved in order to improve the clinical performance and public policy of Iraq. Promotion of timely diagnosis of congenital anomalies during pregnancy should be immediately or as soon as possible after delivery, this should be considered very important. It is also necessary to strengthen the

registration and records of all births and congenital anomalies.

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None.

Conflict of Interest

The authors declare any conflict of interest.

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