The effect of some factors (age group of mother, new borne gender year months) on the congenital malformation percent of new borns in Al-Zahra Hospital for obstatric and pediatric / Najaf goverement

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الخلاصة

اجريت الدراسة على عينة (402) من التشوهات الخلقية للمواليد خلال الأعوام 2009،2010،2011 في مستشفى الزهراء للولادة/ النجف، وذلك لإيجاد علاقة مابين الفئة العمرية للأم، جنس المولود، أشهر السنة ونسبة التشوه.

ظهر من الدراسة ان الفئة العمرية(22-26) سنة هي الأكثر نسبة تشوه وكانت للعام 2009(38%)، للعام 2010 (31.6%) وللعام 2011 (29.4%) .

وكان مجموع التشوهات الخلقية للمواليد حديثي الولادة للسنوات الثلاث (2009، 2010، 2011)هي 117,105و180 على التوالي .

وتبين ان أعلى نسبة تشوه خلال العام 2009 هي تشوه الرأس الكبير Congenital hydro- cephallus (19%)، وخلال العام 2010 ظهر تشوه الرأس الصغير Microcephallus(27%)، في حين كان تشوه الجهاز القلبي الوعائي هو أعلى النسب (40.5%) للعام 2011.

وكان تأثير جنس المواليد على نسبة التشوهات معنوي إحصائيا للعام 2011و ولصالح الذكور إذ بلغت النسبة في الذكور (59.5%) والإناث (40.5%) ،اما في عام 2010 كان لصالح الإناث وبنسبة (57.5%).

لوحظ ان أعلى نسب التشوه (10.2% و13.8%) ظهرت في شهر آذار ونيسان للعام 2010و2011 ،في حين كانت أعلى نسب التشوه (14.2%) للعام 2009 في شهر كانون الأول.

Abstract

The study was conducted on specimen (402) of new born congital malformations during years (2009,2010,2011) in al-Zahra hospital of obstatric / Al-Najaf , for determine the relation-ship among (age group of mother ,new borne gender, and year months) with malformation percent.

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The present study was revealed that the age group (22-26) year which more percentage of malformation , was (%38) in year 2009. (%31.6) in year 2010 , and (%29.4) in year 2011.

The total of congenital malformations of new borns for three (years 2009, 2010, 2011) were (105 ,117, 180) case at respectively.

The high percent (%19)of malformations appeared during year 2009 was congenital hydrocephalus, in the period year 2010, the high percent of malformation (%27) was Microcephallus, while the cardiovascular malformation were high percent in year 2011, that reached to (%40.5).

The effect of new borne gender on the malformations percent was biostatical significant for year 2011 in the males (%59.5) when compared with female (%40.5), while in year 2010 the percent in female (%57.5).

The high malformation percent (%10.2, %13.8) were appeared in the March and April in year 2010 and 2011. while the high percent of malformation (%14.2) was in year 2009 during December period.

Introduction

According to the World Health Organization the term congenital anomaly includes any morphological, functional, biochemical or molecular defects that may develop in the embryo and fetus from conception until birth, present at birth, whether detected at that time or not(1). In recent years, a number of studies have shown that prenatal exposures of the parents are associated with an increased risk for having malformed child(2,3). There may be regional variations in the rate and pattern of congenital malformations or these could vary over time(4).

Epidemiological surveys of congenital malformations in various part of the world and among different ethnic groups with widely varying marital habits, socioeconomic status and environment not only help in understanding the frequency of malformations in specific areas but also contribute to the general knowledge about the predisposing factors and different patterns of congenital malformations (5).

Based on World Health Organization report, about 3 million fetuses and infants are born each year with major malformations. Several large population based studies place the incidence of major malformations at about 2–3% of all live births(1). About 20% of all major congenital malformations are genetically transmitted by a monogenic abnormality, 5-10% are due to chromosomal anomalies, and 2-10% are due to viral infections. In about 60%, the cause is unknown and presumed to be multifactorial (6).

The aim of study was undertaken to determine the relationship among congenital malformation, age of pregnant women, neonate's sex and seasonal period during three years(2009,2010and 2011).

Material and Methods

The present study was involved (402) cases of delivery pregnant woman posses neonates with congenital malformations in Al-Zahra hospital for obstetric and pediatric in Al-Najaf government. The continuous visits was done to diagnosed the congenital malformations for the years (2009, 2010, 2011). The age of mother range from 12 to 47 years.

Chi-square test and analysis of variance were used for statistical analysis of data (Snedecor and Cochran, 1974), has been used to determine the relationship between:

1- age of mother and malformations percent

2-gender and malformations during period distribution of malformations according to years.

3-months in the period and malformations.

Results

The present study revealed that the total collect cases of congenital anomalies of years (2009, 2010 and 2011) was 402 cases of the total (56043) live births, the on basis on the distribution of cases depending on years of study was the year 2011 more frequent and the last of the past years 2009 (Table 1). , the causation of the anomalies is for the most part unknown. These anomalies may be due to a variety of factors, including maternal health, heredity, environmental factors(7), the maternal overweight

and obesity(8), diabetes, epilepsy and those taking other specific drugs with teratogenic effects(7).

In this present study was recorded the type of congenital malformations and their numbers for each month during period of the study. The high malformations percent (10.2%, 13.8%) were appeared in the March and April in year 2010 and 2011. While the high percent of malformations (14.2%) was in year 2009 during period in December, these information were presented in the tables(2,3,4). In contrast (9,10,11) whose found that hot season recorded high percent of anomalies during summer months. The effect of Monthly variation in the incidence of congenital malformations may be secondary to the effect of yet to be identified teratogens acting on the population at large, or, more likely, to changes in activity and dietary patterns of the population(12).

The present study revealed that the relationship between the mother age and congenital malformations during the period 2009, 2010 and 2011 years, the results revealed that the age group (22-26) year which more percentage of malformations, was (38%) in year 2009, (51.6%) in year 2010 and (29.4%) in year 2011(Table 5,6,7). The increase of percentage of anomalies according to maternal age (22-26)in all years of study may be due to hormonal imbalance especially steroid hormones (progesterone, estrogen or androgen) and gonadotrophic hormones as well (FSH,LH)as other causes of congenital malformations involved the malnutrion, chemical pollutions and microbial agents, these suggestions which accordance with previous studies (13,14) .from another hand, the drug intake during pregnancy include oral contraceptive pills, progesterone analogues to confirm pregnancy medications for medical dilments and sex selection drug to bear male off spring. The present study revealed that the high percent (19%) of malformations appeared during year 2009 was congenital hydrocephalus, in the period year 2010, the high percent of malformations (27%) was microcephalus. While the cardiovascular malformations were high percent in year 2011, that reached to (40.5%) (Table 8). This finding is agree with the result of (15) how

found that congenital heart disease was the commonest associated anomaly (47%) identified and this results may be attributed to multiple factors, spontaneous abortions, involuntary childlessness, maternal disease, body mass index, medical drug use, alcohol use parental employment and paternal age (15). The only single putative risk factor that could have directly contributed to the increased risk for cardiac defects was maternal residency in a rural district (16).

The present findings show that the malformations in the male (59.5%) neonates higher than female neonates (40.5%) and represent the significant differences at (p⬚ 0.05) during the year 2011 (Table 9). While in year 2010 the results showed that the malformations in the female neonates (57.5%) higher than male neonates (42.4%) and represent the significant differences at (p⬚ 0.05) (Table 10), and in year 2009 the result reveal that the gender of neonates have no effect on the percent of malformations these results was revealed biostatical non-significant (Table 11), our findings agreement and contrast in some way with (9) who found that the percent of malformations in female is higher than male especially in years 2005 and 2006. This variation in all these result may be indicate that the gender of neonates doesn't the only factor that contribute to the occurrence of malformations.

Table 1: The number of malformations in the males, females and hermaphrodites during period years 2009, 2010 and 2011, in Najaf city.

Year	male	Female	Hermaphrodites	Total
2009	50	53	2	105
2010	48	65	4	117
2011	106	72	2	180
	204	190	8	402

Table 2: The relation between congenital malformations and months in the period (2009) in Najaf government.

Types of malformations	January	February	March	April	May	June	July	August	September	October	November	December	Total
Down's syndrome (mongolism)		1											1
Cleft lip		1				1	1			1			4
Spinabifida					1	2					1	3	7
Congenital hydrocephalus	1	2	1		1	2	5	1	2		3	2	20
Microcephalus	1	1	1	1		1	4	1		2	3	2	18
Other anomalies of brain spinal cord									2	2			4
Ambiguous external genitalia								1	1				2
Other anomalies of genitio-urinary organs												1	1
Congenital anomalies if the skin				1		1		1				1	4
Congenital anomalies of the eye				1									1
Congenital anomalies of upper limb	1		3										4
Congenital anomalies of lower limb				1				3	1		3		9
Other anomalies not mentioned above	4		2		1		1	1	1	3	3	3	19
Anencephaly						2							2
Other congenital malformation of the digestive system				1		1		1	4			2	9
Total	7	5	7	4	4	10	11	9	11	9	13	15	105

Table 3:The relation between congenital malformations and months in the period(2010) in Najaf government.

Type of malformations	January	February	March	April	May	June	July	August	September	October	November	December	Total
Cleft lip	1	1	1				1		1	1			6
Spinabifida		2	2				1	3			2		10
Congenital hydrocephalus	1	1	1	5	3	2	1	2	2	3	2	2	25
Microcephalus	3	4	4	6	1	2	4	1	2	4	1	2	32
Other anomalies of brain spinal cord					1	1			1		1		4
Ambiguous external genitalia	1			1									2
Other anomalies of genitio urinary organs	1	1	1		1						1		5
Congenital anomalies of upper limb		1											1
Congenital anomalies of lower limb	3	1						3	1	1	1	1	11
Other anomalies not mentioned above	1	1	3		3	1	3		1	1	2	1	17
Other congenital malformation of the digestive system						1	1					2	4
Total	11	11	12	12	9	7	10	9	8	10	10	8	117

Table 4:The relation between congenital malformations and months in the period(2011) in Najaf government.

Types of malformations	January	February	March	April	May	June	July	August	september	october	November	December	Total
Congenitai anomalies of heart and circulatory system			11	8	13	9	4	8	6	4	8	2	73*
Down□s syndrome (mongolism)		1	2				1					1	5
Cleft lip		1	3	1	3		1		1	1			11
Spinabifida		1		1		1	1						4
Congenital hydrocephalus	5	2	3	2	1		1	1	2	1		2	20
Microcephalus				1	2			1			1		5
Other anomalies of brain spinal cord			1	1		3				3	1		9
Ambiguous external genitalia		1	1										2
Other anomalies of gentio-unirary organs								1	1				2
Congenital anomalies of upper limb						2				1			3
Congenital anomalies of lower limb		2					2	1	1	1	2		9
Other anomalies not mentioned above		3	4	1	2	6	4	1		1		3	25
Anencephaly	1							1	2			2	6
Other congenital malformation of the digestive system	1									2	1	2	6
Total	7	11	25	15	21	21	14	14	14	14	13	12	180

Table 5: The percent of malformations cases in year 2009 according to the age group of mother, in Najaf government.

Mother age group	down□s syndrome (mongolism)	Cleft lip	Spinabifida	Congenital hydrocephalus	Microcephalus	Other anomalies of brain spinal cord	Ambiguous external genitalia	Other anomalies of gentio-unirary organs	Congenital anomalies if the skin	Congenital anomalies of the eye	Congenital anomalies of upper limb	Congenital anomalies of lower limb	Other anomalies not mentioned above	Anencephaly	Other congenital malformation of the digestive system	No	%
12-16		1	1	1											1	4	3.8
17-21			1	5	3	1	1		1		2	1	5		3	23	22
22-26*		2	2	10	4			1	3		1	6	8	1	2	40	38
27-31	1		3	2	6	2	1			1	1	1	3	1	1	23	22
32-36				1	2										1	4	3.8
37-41		1		1	3	1							1			7	6.6
42-47												1	2		1	4	3.8
Total	1	4	7	20	18	4	2	1	4	1	4	9	19	2	9		100

Table 6: The percent of malformation cases in year 2010 according to the age group of mother, in Najaf government.

Mother age group	Cleft lip	Spinabifida	Congenital hydrocephalus	Microcephalus	Other anomalies of brain spinal cord	Ambiguous external genitalia	Other anomalies of gentio-unirary organs	Congenital anomalies if the skin	Congenital anomalies of the eye	Congenital anomalies of upper limb	Congenital anomalies of lower limb	Other anomalies not mentioned above	Anencephaly	Other congenital malformation of the digestive system	No	%
12-16		1	2	3								1			7	5.9
17-21	2	3	8	5							2	8			28	23.9
22-26*	2	4	4	14	1	1	3			1	5	1		1	37	31.6
27-31	2	1	7	5	3		1				2	4		2	27	23
32-36			4	4		1	1				1	2			13	11
37-41		1		1								1		1	4	3.8
42-47											1				1	0.8
Total	6	10	25	32	4	2	5			1	11	17		4	117	100

Table 7: The percent of malformations cases in year 2011 according to the age group of mother, in Najaf government.

Mother age group	Congenitai anomalies of heart and circulatory system	Down□s syndrome (mongolism)	Cleft lip	Spinabifida	Congenital hydrocephalus	Microcephalus	Other anomalies of brain spinal cord	Ambiguous external genitalia	Other anomalies of gentio-unirary organs	Congenital anomalies of upper limb	Congenital anomalies of lower limb	Other anomalies not mentioned above	Anencephaly	Other congenital malformation of the digestive system	No	%
12-16	5		1									2			8	4.4
17-21	16		3	2	2		1		2	1	2	5	1	1	36	20
22-26*	23		4	2	8	1	4			1	2	6		2	53	29.4
27-31	12	3	2		7	1	1			1	2	6	2	1	38	21.1
32-36	8	2	1		2	3	2	1			3	5	3	2	32	17.7
37-41	6				1		1	1				1			10	5.5
42-47	3										1				3	1.6
Total	73	5	11	4	20	5	9	2	2	3	9	25	6	6	180	100

Table 8: The distribution of malformations cases according to years in Najaf government.

Type of malformation	Years		
	2009%	2010%	2011%
Congenitai anomalies of heart and circulatory system			73*
Down□s syndrome (mongolism)	1		5
Cleft lip	4	6	11
Spinabifida	7	10	4
Congenital hydrocephalus	20*	25	20
Microcephalus	18	32*	5
Other anomalies of brain spinal cord	4	4	9
Ambiguous external genitalia	2	2	2
Other anomalies of gentio-unirary organs	1	5	2
Congenital anomalies if the skin	4		
Congenital anomalies of the eye	1		
Congenital anomalies of upper limb	4	1	3
Congenital anomalies of lower limb	9	11	9
Other anomalies not mentioned above	19	17	25
Anencephaly	2		6
Other congenital malformation of the digestive system	9	4	6
Total	105	117	180

Table 9: The relationship between gender and congenital anomalies during period 2009 in Najaf government.

gender	Anomaly		Normal		Total		X^2&P-value
	NO	%	NO	%	NO	%	X^2=0.3
male	50	48.5	10259	51.5	19995	100	P 0.05
female	53	51.4	9633	48.4			Non_
Total	19995						significant

Table 10: The relationship between gender and congenital anomalies during period 2010 in Najaf government.

gender	Anomalies		normal		Total		X^2&P-value
	number	%	number	%	number	%	X^2=33.3
male	48	42.4	11275	91.5	12435	100	P 0.05
female	65	57.5	1047	8.4			significant
Total	12435						

Table 11: The relationship between gender and congenital anomalies during period 2011 in Najaf government.

gender	anomalies		normal		Total		X^2&P-value
	number	%	number	%	number	%	X^2=4.92
male	106	59.5	11969	51	23613	100	P 0.05
female	72	40.4	11466	48.9			significant
Total	23613						

Recommendations

1-On a population level include childhood rubella immunization, screening and treatment for syphilis during pregnancy, periconceptional folic acid supplementation and/or folate food fortification for the prevention of neural tube defects.

2- On an individual level, optimizing the management of women at higher risk, for example, for women who are diabetic or epileptic, is the ideal approach to minimizing the risks of anomalies.

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