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Congenital Anomalies and the Risk Factors in Neonates in Albatool Teaching Hospital

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Abstract

Introduction: Congenital anomalies (CA) can be defined as structural or functional abnormalities including metabolic disorders, present at birth, Birth defects are a diverse group of disorders of prenatal origin that can be caused by single gene defects, chromosomal disorders.

Aims and objectives: The aim of this study was to identify the prevalence and pattern of congenital abnormalities in neonates, as well as the maternal and perinatal associated risk factors. **Method and materials:** A cross-sectional study of newborns and stillborn babies delivered at Al-batool Teaching hospital between January 2022 and march 2022. Data was collected using a structured form that was divided into two parts. first set of variables collected were about maternal characteristics, the second section discussed neonatal characteristics.

Result: The result we collect about maternal age of <35 and >35 (18,8% vs 81,2%) and the sex of infant (male 54.5% vs female 45.5%) and weight of infant >2.5kg and <2.5kg (69.3% vs 30.3%) and the gestational age >37 or <37(96.97% vs 3%) (P≤0.01), Inter-pregnancy interval >2 years and <2 years (39.39% vs 18.18 vs non (first birth).

Conclusion: Congenital malformations were associated with maternal age greater than 35 years, and the sex of the infant, birth order greater than 3, birth weight less than 2.5 kg, whereas iron folate consumption before and/or during early pregnancy, were protective against congenital anomalies.

Keywords: Congenital Anomalies and The Risk Factors in Neonates in albatool teaching hospital

Introduction

Congenital anomalies (CA) consider as a functional or structural abnormalities that including metabolic problems, present at birth. These deformities of pre-birth beginning outcome from intrinsic abnormalities or defective embryogenesis during the development process. These birth defects may be part of a syndrome or isolated abnormalities and Congenital anomalies still important cause of neonatal and infant morbidity and mortality [(1)]. Birth defects are considering a diverse group of disorders related prenatal origin which may be caused by chromosomal disorders, single gene defects, environmental teratogens, multifactorial inheritance and micronutrient deficiencies. Additionally, there are many other factors that cause birth defects such as rubella and maternal illnesses like iodine, diabetes mellitus, exposure to recreational and medicinal drugs specially tobacco and alcohol and doses of radiation and certain environmental chemicals[(2).]

Every year, as a range 7.9 million children are born has congenital anomalies. So far, birth defects registries are absent Despite the huge burden of congenital anomalies in LMICs [(3).]Due to these defects, the proportion of global neonatal mortality are increased , where it was 3% in 2008 and in 2013 it became 4.4%[(4).] The vast majority of congenital distortions, up to 90%, occur in middle and low-income countries [(5).] congenital anomalies can be affect on all organ systems within the body and The musculoskeletal system is consider the most affected with CA according to studies that have focused on externally visible anomalies [(6).] As mentioned , the Mortality range is very high among major CA in LMICs rising to 20–85% but against less than 10% in high-income countries and with compared to normal births , mortality is higher among infants with CA [(7).]There is significant under-estimation of CA in LMICs because of deficient diagnostic capacity , non-presentation at

health facilities and poor awareness [8]. The aim of study is to identify the prevalence and pattern of congenital anomalies of the neonates, as well as the perinatal and maternal associated risk factors.

MATERIALS & METHODS

This was a cross-sectional study of newborns and stillborn babies delivered at Al-batool Teaching hospital between January 2022 and march 2022. Data was collected using a structured form that was divided into two parts. The first set of variables collected were about maternal characteristics and included the date of admission, age, history of chronic illness, abortion history , anemia or folic and vitamin b12 deficiency drug ingestion, X-ray exposure, history of CM in other offspring, parental consanguinity, and were obtained through interviews with neonates and mothers. The second section discussed neonatal characteristics such as live or stillbirth, gestational age, Birth weights greater than 2.5 kg were considered normal, birth order, sex, the presence and type of congenital anomaly. There were no autopsies examinations performed. The Statistical Analysis System-SAS (2012) program was used to detect the effect of difference factors in study parameters. P < or =0.05 was considered statistically significant, P< or =0.01 considered highly significant while P > or = 0.05 mean not significant.

Result

Table 1: Distribution of sample study according to Infant (weight ,Sex ,Gestational age, Type of anomaly).

		No	Percent	*P value*
Infant weight	>2.5	69	69.70	***(P≤0.01)***
	≤2.5	30	30.30	
	Total	99	100%	
Sex of infant	Male	54	54.55	***0.365***
	Female	45	45.45	
	Total	99	100%	
Gestational (Age)	Term>37	96	96.97	***(P≤0.01)***
	Preterm <37	3	3.03	
	Total	99	100%	
Type of anomaly	Cardiac	54	54.55	***(P≤0.01)***
	CNS	24	24.24	
	GIT	3	3.03	
	Multiple	18	18.18	
	Total	99	100%	

Table 2: Distribution of sample study according to Maternal Risk Factors.

		No	Percent	*P value*
Maternal Age (years)	>35	18	18.18	***(P≤0.01)***
	≤35	81	81.82	
	Total	99	100%	
Parity	First birth	27	27.27	***(P≤0.05)***
	2-3 birth	33	33.33	
	4 and more	39	39.39	
	Total	99	100%	
Iron and vitamins intake	Yes	60	60.61	***(P≤0.05)***
	No	39	39.39	
	Total	99	100%	

Any disease during pregnancy	Hypertension	18	18.18	***(P≤0.01)***
	Dm	9	9.09	
	Non	72	72.73	
	Total	99	100%	
Inter-pregnancy interval	>2year	39	39.39	***(P≤0.01)***
	<2 years	18	18.18	
	Non	42	42.42	
	Total	99	100%	
Residence	Urban	57	57.58	***0.131***
	Not urban	42	42.42	
	Total	99	100%	
Number of abortion	1	24	24.24	*(P≤0.01)*
	>2	6	6.06	
	Non	69	69.70	
	Total	99	100%	
Type of delivery	Cesarean section	18	18.18	***(P≤0.01)***
	Normal vaginal delivery	81	81.82	
	Total	99	100%	

Table3: Distribution of sample study according to familial Risk Factors.

		No	**Percent**	***P value***
Rh compatible between parents	Yes	93	93.94	***(P≤0.01)***
	No	6	6.06	
	Total	99	100%	
Consanguineous	First degree	87	87.88	***(P≤0.01)***
	Not relative	12	12.12	
	Total	99	100%	
Siblings malformation	Yes	18	18.18	***(P≤0.01)***
	No	81	81.82	
	Total	99	100%	

Discussion

As in our study shows that the maternal age below 35 years has 81.82% and the age above 35 was 18.18% (P≤0.01) and that disagree with a study that show the age above age of 35 is 5.2% only according to Francine's, Maleki's and Mekonnen's studies [1, 9,10]. As in our study the highly percentage of 96.97% of full term delivery acceptable with the study showed full term delivery is 75.3% according to Saleh's and Abebe's studies [11,12]. A bout the sex of infant we see fully compatible results with our study that shows male is 54.5% and the female 45.4% due to studies done by Bouadil, Abebe and Li [13-15] .But for the infant weight we can see disagree with our study that show different results according to study done by Bouadil [13] but it's agree with it Mekonnen's study [16] .In congenital anomalies in infant can involved with many system, as the most common in system involvement is the central nervous system (CNS) but in our result we are define the most common involvement system is the cardiovascular system (P≤0.01) according to Mahdi's results [17]. as we are moving on, we are seeing very close result in any disease during pregnancy that is match our study according to Maleki's and Rathod's studies [9,18], for the parity we can see also fully agree with the result that we have in our study of first birth (27.27%), 2-3 births (33%) and more than 4 births (39%) Compared to a study done Abebe [12]. For the consanguinity our result show (P≤0.01) and it's agree with the following result (P≤ 0.001) from Karim's and Shivanagappa's studies [19,20] . About taking multivitamin and folic acid we can see disagree as low percentage in

our result of 60%, but we see 99% results from Mekonnen [10] but agree in Rathod's study of 55% intake folic during pregnancy [18]. For the RH compatibility between the parents are fully agree with our result of the 6,4 % according to Shivanagappa's study [20]. For the Inter-pregnancy interval our study shows 39% of <2 years and that disagree with the Al-Assadi's study [21]. For the type of delivery our result shows 81,8% (P≤0.01) of normal vaginal delivery that agreed with the Parikh's study [18,22]. In our study, 30,3% recurrent of abortion disagree with the Rathod's study [18].

Conclusion

Congenital malformations were associated with maternal age greater than 35 years, and the sex of the infant, birth order greater than 3, birth weight less than 2.5 kg, and singleton pregnancy, and the type of congenital anomalies, whereas iron folate consumption before and/or during early pregnancy, were protective against congenital anomalies. The outcomes of this study revealed that the prevalence of congenital abnormalities is growing in the studied area. Intervention initiatives will consequently require long-term surveillance and registry systems.

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