

Impact Of Congenital Heart Disease Upon Children Physical Growth Pattern In Cardiac Center –Erbil/ Kurdistan Region/Iraq

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الهدف: تهدف الدراسة إلى تقييم تأثير أمراض القلب الخلقية على نمط النمو الجسماني لهؤلاء الأطفال وعلاقتها ببعض المتغيرات في المستشفى الجراحة التخصصية-مركز القلب اربيل / إقليم كردستان/العراق

المنهجية: أجريت دراسة وصفية في المستشفى الجراحة التخصصية-مركز القلب اربيل/ إقليم كردستان/العراق للفترة ما بين (الأول- اذار -2009 ولغاية لنهاية أيلول - 2010) اختيرت عينة غير احتمالية (غرضيه) (200) من الأطفال المصابين بأمراض القلب الخلقية أعدت استمارة استبائية تضمنت ثلاثة أجزاء(المعلومات الديموغرافية الاجتماعية ، المعلومات الطبية) الأطفال المصابين بأمراض القلب الخلقية ، وأداة لقياس النمو الجسماني. تم تحديد صلاحية الاستبيان من خلال لجنة من (21) خبيراً. تم جمع البيانات عن طريق ملئ استمارات أالاستبيان ومقابلة الأطفال المصابين بأمراض القلب الخلقية تم تحليل البيانات بواسطة استخدام Excel و SPSS version 19 المبرمجة

: بينت الدراسة الحالية أن معظم الأطفال المصابين بأمراض القلب الخلقية كانوا بنسبة 51.5% من الذكور، 59% قادمين من المناطق الحضرية، 39% من محافظة هولير، 51.5% كانوا من المستوى الاجتماعي والاقتصادي المنخفض، و 51.5% تم تشخيص حالتهم المرضية قبل ثلاث سنوات،

: أشارت الدراسة أن هناك علاقة ذات دلالة إحصائية عالية بين البيانات الديموغرافية والاجتماعية الأطفال و نمط النمو الجسماني لهم

التوصيات: أوصت الدراسة بضرورة استخدام وسائل الإعلام والتلفزيون والإذاعة، والفاء المحاضرات في مختلف الجمعيات الأهلية أو في المراكز الصحية بشأن التعرف على العوامل الخطرة والوقاية من أمراض القلب الخلقية تدريب الممرضات على كيفية العناية بالأطفال وأجراء دراسات مستقبلية بحجم عينة أكبر لمساعدة هؤلاء الأطفال على أن يعيشوا حياة أفضل

Abstract:

Objective :The study aimed to assess the impact of congenital heart disease upon children's physical growth pattern with some variables in Surgical Specialty Hospital/ Cardiac Center in Erbil/Kurdistan Region/Iraq.

Methods: A descriptive correlation study was conducted in Surgical Specialty Hospital/ Cardiac Center in Erbil/Kurdistan Region/Iraq from first of March 2010 to the end of September 2011. A purposive sample of (200) children with congenital heart disease were selected. The tool is consisting of three parts questionnaire format Socio-demographical characteristic , medical data of children, and tool and physical growth measurement questions. The validity of the study questionnaire was determined initially through a panel of (21) experts. Determination. Data were collected by the mothers' interview and the data were analyzed through using by Excel and SPSS version 17 programmed.

Results: The present study indicated that the most of children (51.5%) were male, (59%) were coming from urban areas, (39%) were living in Hawler Governorate , (51.5%) were from low socioeconomic status, and (51.5%) was diagnosis before three years. The findings of the study indicate that the Congenital Heart Disease had been affect growth pattern and there is a statistically significant association between socio-demographic characteristics (age, gender, residential area, and severity of disease) and their growth pattern .

Conclusion: The study indicated that there is a high significant association between the children socio demographic data and growth pattern .

Recommendation. 1-Mass media, TV and radio, lectures in different community associations or in health centers regarding risk factor, prevention of CHD. 2-Nurses should have special training to give effective care to the children.3-Further studies are necessary to be conducted with large sample size to improve the intervention the disease .

Keywords: Impact , children , Congenital Heart Disease and physical growth measurement

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INTRODUCTION:

Congenital Heart Diseases is the most common group of structural malformations in children¹. The incidence of CHD in children is approximately 5-8 in 1000 live births². The severity of malnutrition can range from mild under nutrition to failure to thrive, The mechanisms for growth deficiency in CHD are multi-factorial which includes an associated of chromosomal anomalies/genetic syndromes, inadequate nutritional intake due to feeding difficulties, and poor absorption of nutrients from the digestive tract in chronic congestive heart failure (CHF)⁴. There are several studies documenting the high prevalence of malnutrition in congenital heart diseases and improvement in growth after corrective surgery⁵. Anthropometric measures are important health indicators to assess children's growth⁶. About 428 children with congenital heart disease from all Kurdistan Region/Iraq admitted in Surgical Specialty Hospital-Cardiac Center for care and treatment during 2008⁷. Congenital heart defects are the second leading cause of death in infancy, result from abnormal cardiovascular development during fetal life that obstruct or alter blood-flow patterns⁸. There is no study to assess the relation between anthropometric measures and Congenital Heart Diseases in Kurdish population. The aim of the study aimed to assess the impact of congenital heart disease upon children's physical growth pattern with some variables in Surgical Specialty Hospital/ Cardiac Center in Erbil/Kurdistan Region/Iraq.

SUBJECTS AND METHODS: A descriptive correlation study was conducted in Surgical Specialty Hospital/ Cardiac Center in Kurdistan Region/Iraq

from 1 of Mar.2010 to 30 of Sept. 2011. Formal administrative approval was obtained from the Directorate of Ministry of Health in Erbil Kurdistan region ,Surgical Specialty Hospital-Cardiac Center and from child's families who are participants in this study .A purposive sample of (200) children with CHD were selected. The questionnaire consists of three parts, first part includes: socio-demographic characteristic of child, second part includes: medical data and third part includes: growth pattern chart of (weight, height, head circumference and BMI).The classification of growth measurement and BMI are taken from (Centers for disease control and prevention, 2000).

The Inclusion criteria of the sample including :both gender , who diagnosed with the CHD by physician for at least 1year and who attending Surgical Specialty Hospital/ Cardiac Center in Erbil / Kurdistan Region/Iraq for treatment or follow up. The Exclusion criteria including : a child's age less than one year or child newly diagnosed with CHD and who have Down syndrome with CHD. The data of present study were collected from medical record in cardiac center and by the investigators filled the questionnaires format it take 20 minutes to fill out of it and the questionnaires with incomplete data were dropped out eliminated from the final analysis . standard for calculation of BMI-for-age, boys and girls, Height, weight and head circumference were measured by standard scales and standardized stadiometers. Body mass index (BMI) was calculated according to the formula $BMI = \text{Weight (kg)} / \text{Height (m)}^2$.Data were analyzed by Excel and SPSS version 19 programmed through the application of descriptive and inferential statistical data analysis. The Significant were rated as $p - \text{value} \leq 0.01$ High

significant (HS), ≤ 0.05 Significant (S) and > 0.05 Non significant (NS).

RESULT:

Table (1) Distribution of socio-demographic characteristics of the children with congenital heart disease.

Variables		F. n=200	%
Child's age	1-3 years	85	42.5
	4-5 years	30	15.0
	6-12 years	63	31.5
	13-18 years	22	11.0
Gender	Male	103	51.5
	Female	97	48.5
Residential area	Urban	118	59.0
	Sub urban	46	23.0
	Rural	36	18.0
Governorate	Hawler	78	39.0
	Sulaymania	31	15.5
	Dohuk	59	29.5
	Kirkuk	20	10
	Musial	12	6
Socio-economic status	Low	103	51.5
	Moderate	92	46.0
	High	5	2.5
Attendance to school	Yes	54	27.0
	No	33	16.5
	\leq six years	113	56.5
Achievement in the school	Excellent	7	12.96
	Good	26	48.14
	Bad	21	38.88

Table (1) the present study show that most of the children (42.5%) were (toddler) ,(51.5%) were male, (59%) were coming from urban areas, (39%) were living in Hawler Governorate , (51.5%) were from low socioeconomic status, and (27%) were attend to school , while (48.14%)of them were good in the school achievement.

Table (2):- Medical data of children with congenital heart disease.

Medical Data		F. n=200	%
Medical diagnosis of congenital heart disease	Ventricular Septal Defect (VSD)	75	37.5
	Tetralogy of Fallot (TOF)	43	21.5
	Atrial Septal Defect (ASD)	15	7.5
	Aortic Stenosis (AS)	10	5
	Pulmonary Stenosis (PS)	16	8
	Coarctation of the Aorta (COA)	7	3.5
	Patent Ductus Arteriosus (PDA)	8	4
	VSD.PDA	11	5.5
	Transposition of the Great Vessels (TGA/TGV)	4	2
	VSD.PH	6	3
	Atrioventricular Chanal (AVC)	3	1.5
	Tricuspid Atresia (TA)	2	1
Years of Diagnosis	≤ 1- 3	103	51.5
	4-7	53	26.5
	8-16	44	22
Severity of congenital heart disease	Insignificant disorder - has no impact on child health	46	23.0
	Mild disorder -lesion requires no operative intervention, only follow up	51	25.5
	Moderate disorder -child is asymptomatic, but has had or will require operation, simple operation	31	15.5
	Marked disorder -child quite symptomatic; has had, will require major difficult repair	37	18.5
	Sever disorder -uncorrectable cardiac lesion	35	17.5

Table (2) shows that (37.5%) of children were have (VSD), (21.5%) have (TOF), and (51.5%) was diagnosis before three years, while (25.5%) of child's have mild disorder, and (15.5%) of them had moderate disorder.

Table (3):- Distribution of growth measurement for children with congenital heart disease

Growth measurement		F. n=200	%
Height , Length Classification	Stunting	61	30.5
	Normal length or height	139	69.5
Weight Classification	Under weight	61	30.5
	Healthy weight	111	55.5
	Over weight	15	7.5
	Obese	13	6.5
Head circumference Classification	Small head	99	49.5
	Normal head	94	47
	Large head	7	3.5
BMI Classification	Overweight	11	5.5
	Normal	112	56.0
	Risk for under weight	25	12.5
	Under weight	52	26.0

Table (3) indicate that (69.5%) of children were normal in length, While (30.5%) were stunting, (49.5%) have small head, (30.5%) were underweight and (7.5) of them were over weight .Concerning the child's BMI classification, shows (26.5%) were underweight.

Table (4) Association between the child's socio - demographic characteristics and their growth pattern.

Growth measurement		P. Value	Decision
socio - demographic characteristics			
Child's age	Height	0.275	Non Significant
	Weight	0.08	Non Significant
	Body Mass Index	0.08	Non Significant
	Head Circumference	0.05	Significant
Child's gender	Height	0.043	Significant
	Weight	0.166	Significant
	Body Mass Index	0.42	Non Significant
	Head Circumference	0.45	Non Significant
Residential area	Height	0.05	Significant
	Weight	0.768	Non Significant
	Body Mass Index	0.376	Non Significant
	Head Circumference	0.158	Non Significant
Socio-economic state	Height	0.3	Non Significant
	Weight	0.48	Non Significant
	Body Mass Index	0.857	Non Significant
	Head Circumference	0.97	Non Significant
Years of Diagnosis	Height	0.69	Non Significant
	Weight	0.2	Non Significant
	Body Mass Index	0.05	Significant
	Head Circumference	0.169	Non Significant
Severity of Congenital Heart Disease	Height	0.008	Highly Significant
	Weight	0.000	Highly Significant
	Body Mass Index	0.001	Highly Significant
	Head Circumference	0.3	Non Significant

Table (4) show there is a statistically significant association at $p - \text{value} \leq 0.05$ between child's age with head circumference, child's gender with their height and weight, and between residential area with height, and between years of diagnosis with their BMI, also there is highly statistical significant association at $p - \text{value} \leq 0.01$ between the severity of CHD and their height and weight .

DISCUSSION

The present study stated that most of children were toddler, this finding are similar to study done in Thailand, indicates that 51.5% of child's age was between 1-4 years old⁸. Also it's agreed with study done in Egypt⁷. More than half of sample was male, similar finding is reported by study done in Turkey⁹. Also it's similar with study done in Germania¹². The highest percentage of the sample were coming from urban areas, while few of them were from rural

areas, this may be due to the population size in the urban area is larger than suburban and rural area the highest percentage of the children was living in low socio-economic class. The finding comes along with study done in Turkey their result indicates that 47% of the sample has financial difficulties⁹. Also it's agree with study done in Egypt their study showed that more than two third of the families (71%) were from lower and middle social class⁷. Table (2) Regarding the

child's medical diagnosis, the highest percentage of the study sample has (VSD) and low percentage have (AV). The finding is highly agreed with study done in Germania, in which their results indicate that the highest percentage of children have (VSD), (7%) of children have (PS), and (8%) of children have (ASD)¹². Also the findings are similar to study done in China, their results indicate that most of the children with CHD (33.3%) have (VSD), (8.3%) of them have (PS)¹¹. Regarding the severity of CHD, most of children has mild disorder. It's similar study done in Germania, Turkey and Thailand, their results indicate the majority of children were having mild disorder^(12,9,8). Regarding the age there is no significant association between age and growth pattern, our finding is agree with study done in Turkey found that there is no significant differences between anthropometric with respect to age¹⁰. Concerning the gender there is significant association with height this finding is agree with study done in Brazil indicate there is significant logistic regression models with gender⁶. Concerning the socioeconomic status there is no significant association with growth pattern. This finding is closely agree with study done in Turkey indicate there is no significant association between socioeconomic level and growth pattern¹⁰. The present study there is a highly significant association between weight and body mass index this finding is come with study done in Turkey mentioned that the degree of growth impairment was closely associated with severity of the hemodynamic impairment⁹, and also agree with study was done in Nigeria the wasting was significantly higher (58.3%) in a cyanotic congenital heart disease ($p=0.0001$)⁵.

CONCLUSION.

The study conclude that the majority of children with CHD their age's were less

three years, male, from urban, living in poor socioeconomic family, have VSD, and mild disorder. Some of children with CHD have growth retardation like (stunting, under weight and small head). The study indicate that there is a high significant association between the children socio demographic data and growth pattern.

RECOMMENDATION.

- 1- Mass media, TV and radio, lectures in different community associations or in health centers regarding risk factor, prevention of CHD.
- 2 -Nurses should have special training to give effective care to the children.
- 3- Further studies are necessary to be conducted with large sample size to improve the intervention the disease.

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