Sarcouncil journal of Medical sciences

ISSN(Online): 2945-3526

Volume- 01| Issue- 05| 2022

Research Article

Received: 01-07-2022 | Accepted: 15-07-2022 | Published: 28-07-2022

Assessment of Mortality Rates for Heart Patients with Cerebral Palsy in Ira

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Abstract: This study aimed to detect risk factors for mortality in patients with heart disease and those with cerebral palsy. A cross-sectional study was conducted in Iraq by collecting information and demographic data of patients in cooperateded with Baghdad Hospital in Iraq. The study included the collection of 200 patients for the purpose of assessment mortality rates for heart patients with cerebral palsy. The average age ranged between 10 to 30 years. The patients were distributed according to the disease (110 male patients) (90 female patients) and primary information was collected (age, body composition, comorbidities), and the patients were classified according to the gross motor function classification system. (GMFCS). The study shows that there is an increased risk for patients with ischaemic heart disease in the mortality of cerebral palsy patients in males for four patients and three female patients with a p-value of 0.06, Diseases of the circulatory system for three male patients and one female with a statistically significant relationship at 0.01. Cerebral palsy is an urgent problem not only for children but also for neurodegenerative diseases in adults. Two hundred patients aged between 10 and 30 years with a confirmed diagnosis of cerebral palsy were examined. Features of motor disorders are revealed in adolescents and adults, which differ from those in childhood. The high frequency of stressful phenomena and their degree of severity at the age of 14-30 significantly worsens the quality of life of patients and significantly reduces the effectiveness of rehabilitatio.

Keywords: CP, diseases, Heart, CVD, GMFCS.

INTRODUCTION

Cerebral palsy is a group of diseases in which there is a violation of motor functions and body posture. This is due to brain injury or a violation of the formation of the brain [H..S.C.I.C, 2012; Campbell, J. *et al*., 2013]. This disease is one of the most common causes of permanent disability in children, with cerebral palsy occurring in approximately two cases per thousand people [Mathur, R. *et al*., 2014; O.N.S, 2010].

Cerebral palsy occurs as a result of injury or abnormal development of the brain. In many cases, the exact cause of cerebral palsy is not known [O.N.S, 2006-2015; Peterson, M.D. *et al*., 2015]. Damage or abnormalities in brain development can occur during pregnancy, childbirth, and even during the first 2 to 3 years after birth [De Backer, G. *et al*., 2003; van Dis, I. *et al*., 2010; Shvartz, E. *et al*., 1990].

A possible cause of cerebral palsy during pregnancy or childbirth could be genetic problems, infection, health problems in the mother or fetus during pregnancy [Martin, A.A. *et al*., 2012], and complications related to childbirth and delivery. Any of these problems can affect the development of the fetus and the blood supply and supply of the necessary nutrients that it receives through the blood [Williams, P.T. *et al*., 2001 Hasselstrøm, H. *et al*., 2002].

In the Leo Rustin 2008 study that compared 1,700 adults with cerebral palsy and 5,000 adults without cerebral palsy to determine how and to what extent non-communicable diseases such as asthma or stroke developed [Van der Dussen, L. *et al*., 2001; Mora, S. *et al*., 2008].

Patients with cerebral palsy were 75% more likely to have NCDs overall. After adjusting for other variables, the study found that adults with cerebral palsy were more likely to have cardiovascular disease and chronic respiratory disease such as asthma, but the likelihood of developing diabetes or cancer was the same for both groups [Nordestgaard, B.G. *et al*., 2009; Lean, M.E.J. *et al*., 1995].

Adults with cerebral palsy are 2.6 times more likely to develop heart failure, 5.5 times more likely to have a stroke, 2.2 times more likely to develop asthma, 1.6 times more likely to develop high blood pressure, and 2.3 times more likely to develop coronary heart disease [White, D.K. *et al*., 2007].

Worldwide, approximately 17 million people suffer from cerebral palsy. Although cerebral palsy has historically been considered a "childhood" disease, most children with cerebral palsy now live to adulthood, and many adults with cerebral palsy have a life expectancy of approximately approx.

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DOI-https://doi.org/10.5281/zenodo.6941248

MATERIAL AND METHOD

Patient Sample

A cross-sectional study was conducted in Iraq by collecting information and demographic data of patients in cooperateded with Baghdad Hospital in Iraq. The study included the collection of 200 patients for the purpose of assessment mortality rates for heart patients with cerebral palsy. The average age ranged between 10 to 30 years.

Study Design

This study sheds light on heart patients with cerebral palsy. The patients were distributed according to the disease (110 male patients) (90 female patients) and primary information was collected (age, body composition, comorbidities), and the patients were classified according to the gross motor function classification system. (GMFCS). The World Health Organization (WHO) and Cerebral Palsy Monitoring have developed the GMFCS as a global standard for determining the physical abilities of people with cerebral palsy.

Laboratory results were collected (Blood pressure, Systolic, mmHg, mean (SD), Blood lipid and lipoproteins, mean (SD, Total cholesterol, mmol/l, Glucose, mmol/l, mean (SD))

Body mass index has been measured; by dividing body mass in kilograms by the square of the height in meters conferring to the equation

$$\text{BMI} = \frac{\text{Mass (kg)}}{\text{Hieght (m}^2\text{)}}$$

The variables and the risk ratio for patient mortality were classified according to the value of the logistic regression to patients by analyzing the data statistically and calculating the p-value

Study Period

Cooperated with the Ethics Committee for the purpose of obtaining the required licenses to conduct this study and collect data on patients; this study was conducted over a period of 14 months from 29-6-2019 to 18-8-2020.

Aim of Study

This study aimed to detect risk factors for mortality in patients with heart disease and those with cerebral palsy

RESULTS

Patients were distributed according to age, and the most frequent ages in this study were 30-39 years to the male and female groups for (50 and 30) patients, respectively, while for the least frequent ages in this study were 50-60 years to the male and female groups (20,15) patients respectively as shown in table 1

Table 1: Distribution of heart patients with cerebral palsy according to age.

Age	men	Female	P value
10-14	22	25	0.89
15-19	50	30	0.44
20-24	18	20	0.06
25-30	20	15	0.55

Table 2: Patient characteristics of study (N=200)

Variable	Male (110)	Female (90)	P value
Age	20.5±9.4	22.2±7.7	
BMI	26.8±3.9	25.9±3.7	
comorbidities			
Cardiovascular disease.	39	30	0.01
Arrhythmia.	31	20	0.99
Diseases of congenital heart defects.	20	19	0.99
Cardiomyopathy.	10	11	0.88
Valvular heart disease.	10	10	0.00
GMFCS, n			
Level 1	55	30	0.01
Level2	20	28	0.33
Level3	15	12	0.06

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Level 4	10	10	0.00
Level 5	10	10	0.00
Level of education			
Primary	20	22	0.59
secondary	50	40	0.03
College	30	18	0.08
High	10	10	0.00

Table 3: Biological results of patient

Variable	Male (110)	Female (90)	P value
Blood pressure			
Systolic, mmHg, mean (SD)	130±5.2	134±5.6	0.55
Diastolic, mmHg, mean (SD)	87±9.8	82±5.6	0.04
Total cholesterol, mmol/l	4.9 (0.6)	5.4 (0.6)	<0.01
High-density lipoprotein, mmol/l	1.5 (0.3)	1.6 (0.7)	0.2
Glucose, mmol/l, mean (SD)	4.4 (0.5)	4.9 (0.8)	0.55

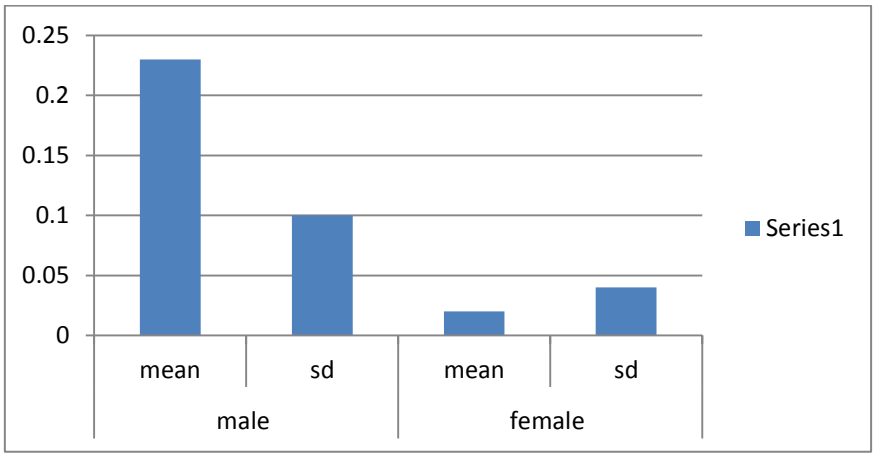

Figure 1: SCORE risk percentage of patient

Table 4: Outcomes related to Cause and rate of death

Variable	Male	Female	P value
Malignant neoplasms	2	2	0.00
Diseases of the circulatory system	3	1	0.01
Ischaemic heart disease	4	3	0.066
Cerebrovascular diseases	2	1	0.99
Diseases of the respiratory system	1	1	0.00

Table 4: Logistic regression in the assessment of risk factors for patient mortality

	ci-95%	P value
Age	1.01 (0.5-1.6)	0.039
Sex	1.3 (0.7-1.4)	0.001
Cerebrovascular diseases	1.7 (1.25-2.6)	<0.001
Malignant neoplasms	1.5 (1.2-1.9)	<0.001
Diseases of the respiratory system	1.33 (0.9-1.8)	<0.001
Diseases of the circulatory system	1.24 (0.8-1.5)	<0.001

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DISCUSSION

In this study, demographic information and data were collected from different hospitals in Iraq, and the study was conducted over a period of 14 months and the statistical analysis program IBM soft spss soft 22 was relied upon in analyzing patient outcomes related to assessing mortality rates for patients with cardiovascular disease.

Patients were distributed according to gender (110 male patients, 90 female patients), and a significant increase in the age rates of females compared to males was noted (20.5±9.4 and 22.2±7.7), respectively, and a significant increase in body mass index was observed at the ages of more than 50 years.

The Gross Motor Function Classification System (GMFCS) is a five-level classification system that focuses on the voluntary movements of children with cerebral palsy, with particular emphasis on walking and sitting. The higher the GMFCS level, the more severe the cerebral palsy.

By studied the biological results of patients, some risk factors related to patients were found, and the risk ratio related to deaths was calculated, as it was revealed that the risk ratio increased in males compared, as shown in Figure 1

The study shows that there is an increased risk for patients with ischaemic heart disease in the mortality of cerebral palsy patients in males for four patients and three female patients with a p-value of 0.06, Diseases of the circulatory system for three male patients and one female with a statistically significant relationship at 0.01.

Diseases of the respiratory system deaths were the least frequent in this study for patients in the two groups. A statistical analysis program was relied on in calculating the logistic regression to the risk factors affecting patient mortality, and it was revealed that Cerebrovascular diseases 1.7(1.25-2.6) with p-value <0.001, Followed by Malignant neoplasms ci-95% 1.5(1.2-1.9) with p value<0.001.

Statistically significant differences were found in the mortality of patients according to gender, and the sex difference was detected, and it had a significant effect in increasing the mortality rate. It was not proven in this study that age had a significant effect on death rates for patients.

In previous studies to Lu Son Korea 2013, where 500 patients with ages ranging from 8 to 30 years were collected. The distribution of patients according to gender was 300 male patients and 200 females. In this study, a positive relationship was observed between heart disease and cerebral palsy in patients CI-95% 2.4 (1.7–4.5) and differs from our current study in the sex factor which no statistically significant relationship was detected.

CONCLUSION

In studies of the characterization of risk factors in patients with heart disease, the age group 18-60 years was the most important, and that cardiovascular disease. It was the most common disease in the population. The most common lifestyle-related risk factors were smoking and high cholesterol, diseases of the respiratory system, diseases of the circulatory system.

The results of this study add to the evidence base that consistently indicates an increased risk of cardiovascular disease among people with CP.

RECOMMENDATION

Cerebral palsy can have a variety of manifestations with varying degrees of severity. The clinical picture of cerebral palsy and its severity depend on the location and depth of the damage to the structures of the brain.

In some cases, cerebral palsy is already noticeable in the first hours of a child's life, but more often, cerebral palsy symptoms appear after a few months.

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Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Ali, S.J., Zeki, H.A. and Saddam, M.I. "Assessment of Mortality Rates for Heart Patients with Cerebral Palsy in Iraq." *Sarcouncil journal of Medical sciences* 1.5 (2022): pp 18-22

Publisher: SARC Publisher