

# Survey of Cerebral Palsy Cases in Tripoli Children Hospital in the Period between (2009-2010)

W. Astiata, N. Elmesrati, N. Elmesrati, A. Abo Reyana

**Abstract**—The aim of this study is to survey the incidence, prevalence, types and associated impairments of CP in children at the Tripoli children hospital (T.C.H). The study covered all the cases the hospital had diagnosed in the period between (1.1.2009) and (31.12.2010), during which 38 cases of ages between 2 months to 3 years were diagnosed in the mentioned period. The incidence of CP was (17.42 per one thousand) out of (2143) of different neurological cases and came with a result of 23 cases of spastic CP which represented about (60.53%) out of the total number of cases, and the most associated impairment is convulsion. Medical information was collected from the patients' files at the registration department from the neurology department. The data has been collected by a questionnaire, which had been set to finely organize the patient's files.

**Keywords**—Physiotherapy, Rehabilitation, Libya, Cerebral Palsy, hospital, survey.

## I. INTRODUCTION

**T**HE term cerebral refers to (cerebrum) which is the affected area of the brain. Palsy refers to the (disorder of movement) [4].

The cerebral palsy is defined as a condition where the motor control centers of the brain affected or damaged and causes postural deformities and movement disabilities. This condition is permanent and caused by non-progressive brain lesion arises during prenatal, perinatal (congenital) which may occur in this period due to congenital infection, cerebral malformation and difficult labor, or in the postnatal period (early childhood) which called (acquired) or (postnatal cerebral palsy) mainly caused due to infection, trauma, and surgical complication [5], it affects other functions besides movement and posture like vision, hearing and sometimes it may cause epilepsy. The cerebral palsy has no clear treatment and the impairment is persistent but the consequences can be minimized by medication, surgery and physiotherapy approaches [7].

Going back in history, cerebral palsy was discovered and studied first time by (William Little) in (1860) [6].

Dr. William who was an English orthopedic surgeon, born in 1810, had an equinus deformity from early childhood secondary to poliomyelitis, he was treated by a German orthopedic surgeon, George Stromeyer, Little's interest in orthopedic deformities continued, and he is regarded as a

pioneer in orthopedic surgery and as the first to recognize spastic paralysis [3].

The cerebral palsy was referred to as the little's disease, little thought that this condition is mainly and primarily caused by described what is now known as spastic diplegia (type of CP) in 1860, and for many years this form of the CP was referred to as perinatal asphyxia, later came (Sigmund Freud) and challenged little's idea and proved that any abnormality during pregnancy could damage the brain and cause cerebral palsy [1].

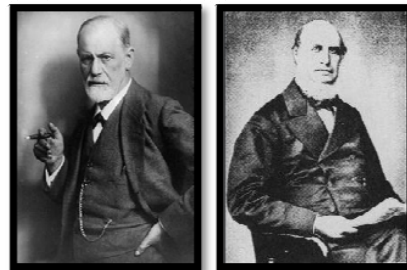


Fig. 1 (a) Sigmund Freud [2] (b) William John Little [2]

In 1950 the first definition was described from the first international study group on children neurology and cerebral palsy as (a persistent qualitative motor disorder due to non-progressive interference with the development of the brain occurring before growth on the central nervous system is complete) [1].

American and European investigators met in 1987 to 1990 and develop a common definition (CP is an umbrella term covering a group of non-progressive, but often changing, motor impairment syndromes secondary to lesions or anomalies of the brain arising in the early stages of development) [8].

An International Workshop on Definition and Classification of CP was held in Bethesda, Mary-land, (July 11 - 13, 2004), the definition that has been adopted by this group was world recognized definition (Cerebral palsy describes a group of permanent disorders of the development of movement and posture, causing activity limitation, that are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain. The motor disorders of CP are often accompanied by disturbances of sensation, perception, cognition, communication, behavior, by epilepsy and by secondary musculoskeletal problems) [8].

Dr W. Astiata is a lecturer at the Department of Physical Therapy, Tripoli University, Tripoli, Libya (phone: +218-92-542-8325; fax: +218-21-715-1598; e-mail: astiata@yahoo.it).

N. Elmesrati, N. Elmesrati, and A. Abo Reyana are graduate students from the Department of Physical Therapy, Tripoli University, Tripoli, Libya.

II. PATIENTS AND METHODS

The statistic of this project is basically collected from (T.C.H). This hospital is specialized in pediatrics, the data (medical information) was collected from the patients files from the neurology department (medical records department), all the cases in which the hospital had received in the period of time between (01.01.2009) and (31.12.2010) was analyzed and classified according to a questionnaire that have been set up before the beginning of this project. This questionnaire has been designed according to:

- 1- Either congenital or acquired.
- 2- According to symptoms and type of CP.

According to this questionnaire the data of the statistic was collected, analyzed and has been simplified into a statistical charts, the questionnaire contains other subdivisions (associated impairments, type of birth either normal or C.S, functional difficulties, side of limp involvement either right or left) these subdivisions helped in organizing the files and achieving accurate statistical data.

The questionnaire also contains all the information about the patients' names, ages, gender, birth weight) in order to collect as many information as possible, to overcome the problem of irregularity of the files that had been caused by the negligence of some doctors.

The study included all the children in the (T.C.H) whom diagnosed with CP at the ages of (2 months – 3 years), within the help of the working doctors at (T.C.H).

III. RESULTS

Thirty-eight children aged from 2 months to 3 years, was surveyed in (T.C.H) which the hospital had diagnosed in the period between (1-1-2009 to 30-12-2010), in the neurology department, these cases will be studied carefully to obtain the necessary data relating to all aspects of this disease: -

- 1- First division in this study was based according to the year in which the case was first diagnosed in (T.C.H), the results showed that (20) children which represent about (52.63%) out of (38) cases were diagnosed in (2009), and (18) children which represent about (47.36%) out of the total number of the cases that been diagnosed in (2010).

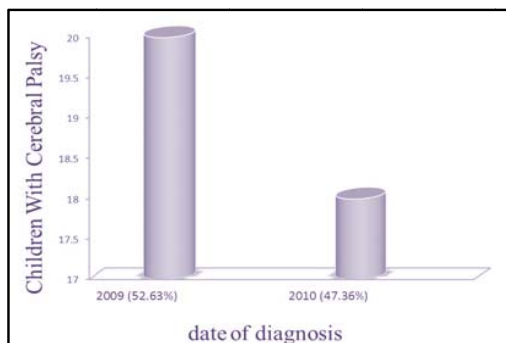


Fig. 2 First division

- 2- Second division, was based according to the gender of the children, and the results showed that the number of the

males are (24) which resulted in about (63.15%) out of the total number, and the females were (14) which also represented (36.84%) of the total number.

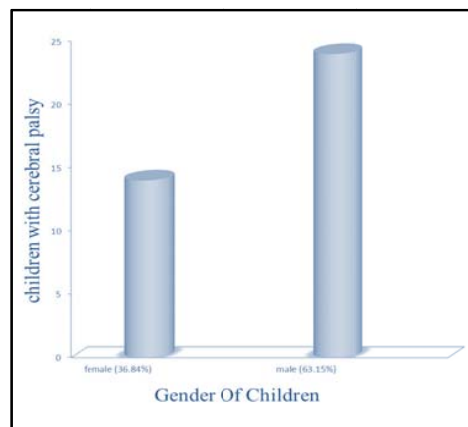


Fig. 3 Second division

- 3- The third division was set among the weight of the children at birth, and the results showed that (31) out of (38) children had a usual weight at birth which represents (81.57%), and about (7) out (38) children suffered from low weight at birth which represents (18.42%) of the total number.

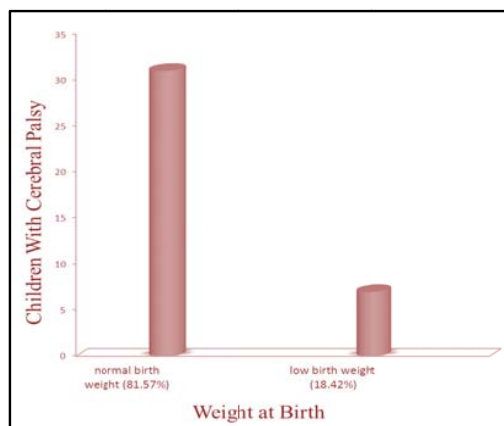


Fig. 4 The third division

- 4- The fourth division of this study is based on the time of the occurrence of disease, which includes either during the (pregnancy or delivery), which known as congenital CP, this study showed that (15) out of the total number which represent (39.47%) is congenital, and out of these congenital cases, (12) of them were suffering from difficult birth during labor and (3) of them had the CP in the neonatal period (before birth) , and the rest (23) cases had the CP after birth which known as acquired CP as result of a complex number of factors such as , meningitis which appeared in (4) children, furthermore (5) of them had CP due to acute infantile hemiplegia, as well as (3) of them had CP due to progressive degenerative spastic, only

(1) of them due to skull fracture, and (10) of them due to other causes such as rebulla infection.

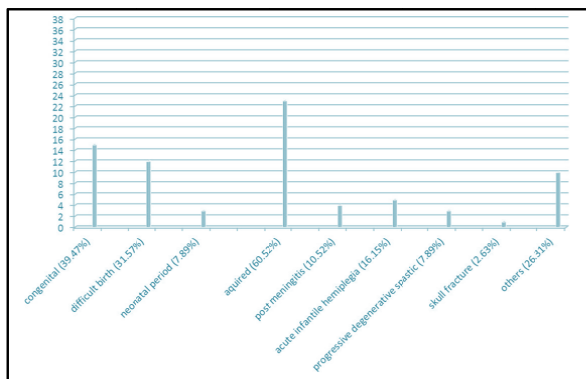


Fig. 5 The fourth division

5- The fifth division of this statistic settled on four particular types of CP which known as (spastic, athetoid, ataxia, mixed):-

a) Spastic: it appears that the number of affected children with spastic CP is (23) out of the total number with represents (60.52%), and This category has been divided according to the associated symptoms, asymmetrical quadriplegia (11), symmetrical quadriplegia (2), paraplegia (1), hemiplegia (9), (7) out of the original amount were left hemiplegia and (2) were right hemiplegia.

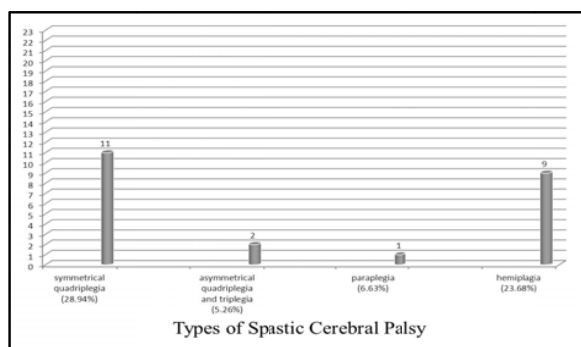


Fig. 6 The fifth division

- b) Athetoid: it found out that (4) out of (38) children had anathetoid CP, which represents a percentage of (10.52%) of the total number.
- c) Ataxia: there were none cases recorded.
- d) Mixed: in this case (6) out of (38) children had a mixed CP, which represents (15.78%) of the total number of CP cases.
- e) Flaccid: the flaccid turned to be (2) out of (38) children had a flaccid CP, which in general represents (5.26%) of the total number.
- f) Tremor and rigidity: and finally the Tremor and rigidity came out with (3) out of (38) affected children, which represents (7.89%) of the total percentage.

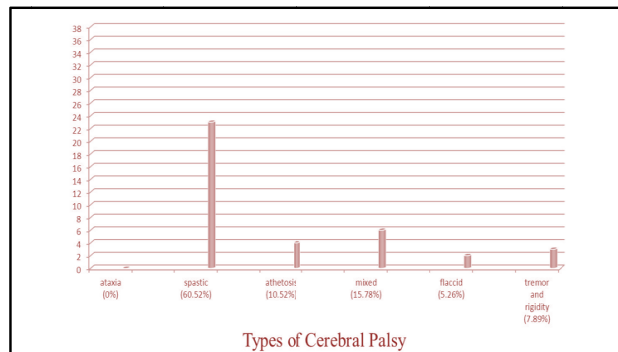


Fig. 7 Types of Cerebral Palsy

6- The sixth division in this study has been set according to the associated problems that comes along with the CP, such as convulsion which shows (18) out of (38) children have a convulsion, (6) out of (38) children have a difficult use of the hands, (10) out of (38) have difficult in speech, (6) out of (38) have visual defect, (17) out of (38) children have mental retardation, (13) out of (38) children have a rolling problems, (5) out of (38) children have crawling problem, (8) out of (38) Children have a sitting difficulties, (10) out of (38) children have difficulties in standing, and finally (8) out of (38) children have problems in walking.

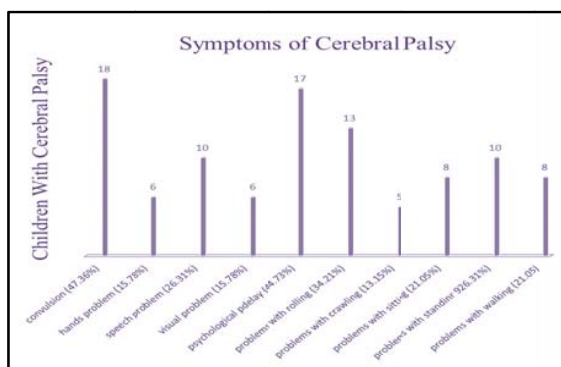


Fig. 8 The sixth division

7- The seventh division in this study based on the nature of delivery of the children in either normal or Cesarean delivery (C.S), the study showed that (29) out of (38) children were normally delivered which represents (76.31%), and (9) out of (38) children were delivered with a C.S delivery which represents (23.68%).

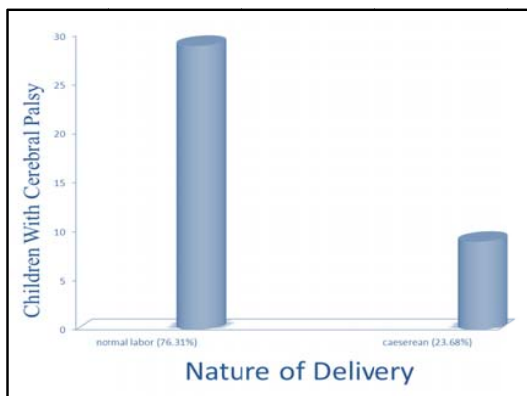


Fig. 9 The seventh division

- 8- The last division in this study was established on the basis of comparing between the total number of every neurological condition which the hospital had diagnosed in the period of (1-1-2009 to 31-12-2010) compared to the total number of CP cases, the results were (2143) case of different neurological conditions. When compared to the total number of CP (38) by percentage, it represents about (17.42 per one thousand).

#### IV. CONCLUSION

This paper has described some significant results obtained from a limited case study as part of a comprehensive ongoing research in Tripoli Children Hospital with regard to CP children cases. With the introduction of new policy in the new Libya, there is now a management policy on (receiving/discharging) patients' records in the various Libyan medical facilities, which in near future will lead to a reliable national medical archive.

It is hoped that the introduction of electronic patients record system would help doctors, and save time and effort in recording patients. It would also overcome the problems related to lack of coordination between the orthopedics, neurologists and physiotherapists, and thus help to set a sufficient treatment program.

We feel that by improving communication between hospital management and the medical universities in Libya, will have a major impact in helping students and researchers to conduct research studies leading the way to provide a road map for a better future medical services in Libya

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#### REFERENCES

- [1] A. Kavc'ic and D. B. Vodusek, (2005), (A historical perspective on cerebral palsy as a concept and a diagnosis), European Journal of

Neurology, Division of Neurology, University Medical Centre, Ljubljana, Slovenia.

- [2] Berker Nadire ,yalcin Selim, 2010, the help guide to cerebral palsy 2nd edition, global help, health education low coast publications.  
 [3] Bjorklund Ruth, 2007, health alert: cerebral palsy, 99white plains road, New York, Marshal cavendish Inc.  
 [4] Fong D. Helen, 2005, focus on cerebral palsy research, New York, Nova science publishers Inc.  
 [5] Freeman Miller, 2004, cerebral palsy, spring street, New York, springers science & business Inc.  
 [6] Hankins D.V. Gray, Speer Michael, September-2003, defining the pathogenesis and pathophysiology of neonatal encephalopathy and cerebral palsy , a study from the division of maternal -fetal medicine, the university of Texas medical branch,  
 [7] McCarthy Gillian T, 1992, physical disability in childhood, an interdisciplinary approach to management, Edinburgh; New York: Churchill Livingstone.  
 [8] Pakula Amy Thornhill, Braun Kim Van Naarden, Allsopp Marshalyn Yeargin-, 2009, cerebral palsy: classification and epidemiology, Emory University, Department of Pediatrics, The Marcus Autism Center, 1920 Briarcliff Road, Atlanta, GA 30329, USA.

**W. Astiata** was born in Derna-Libya 1972, received his BSc in Physiotherapy from the University of Tripoli in 1998.

Between 2002 and 2006, he joined the University Policlinic of Rome -Tor Vergata pursuing his graduate studies, where he received his PhD in Physical medicine and Rehabilitation in 2006, during which he published three papers in his research area of Rehabilitation from 2006 till now, he is a faculty member at the University of Tripoli, and also The Libyan Academy of Graduate Studies since 2009, in addition to part time lecturing at the Faculty of Biomedical Engineering in Sabratabah, and the High institute of Medical Technology in Mesallatah.

In 2011, after the Libyan conflict, he participated in the establishment of the dept. of Physiotherapy, the High Institute of Medical Technology-Jadu, where prepared course contents and syllabus for the aforesaid institution.

Currently, he is the head of the dept. of Physiotherapy, University of Tripoli.