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Establish Registry of Cerebral Palsy in Suez Governorate

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Abstract: *Patient registry is an organized system that uses observational study methods to collect uniform data to evaluate specified outcomes for a population defined by a particular disease, condition, or exposure, and that serves one or more predetermined scientific, clinical, or policy purposes.Aim of the Study: This study was conducted to establishdatabase about cerebral palsy in Suez city.*
Subjects and Methods: *Cerebral palsy children inGeneralhospital , Health Insurance Hospital ,Units of Family Medicine and five privatecenters in Suez city were involved in this study. Cerebral palsy children who receiving physical therapyservices of both genders, ranged in age frombirth to 18years, are subjected to confidential registry form. The outcomemeasures were gross motor function classification system,,gross motor function measurement,manual classification system and Viking speech scale.*
Results: *Within the study population, 85% were spastic*
type, 7.9% were dyskinetic, 2.1% were ataxic and 5% hypotonic, percentage of CP based on GMFCS were, 8.6 for level I, 9.3% for level II, 16.4% for level III, 12.9% forlevel IV and 52.9% for level V. Percentage according GMFM,MACS and viking were also recorded
CONCLUSION
The current study revealed that CP children who are receiving physical therapy; incidence of spastic type is the major while is the least prevalence, ataxic type. Demography revealed that 62.9% were males and 37.1% were females. High incidences of children with CP were level V in GMFCS, and level III in MACS and Viking speech scale..

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I. Introduction

Cerebralpalsy : Is a neuromuscular disorder caused by an injury to the fetal or infant brain that affects the development of movement and posture and causes activity limitations. The motor disorders of CP are often accompanied by disturbances of sensation, perception, cognition, communication, and behavior; by epilepsy; and by secondary musculoskeletal problems[1].

Cerebralpalsyis one of the most common motor disabilities in childhood, affecting approximately 2 per 1000 children, creating an important health burden for affected children, their families, and their communities. Biological risk factors for CP include placental abnormalities, major and minor birth defects, and preterm delivery[2].

Registry is a collection of standardized information about a group of patients who share a condition or experience. The use of patient in patient registry is often used to distinguish the focus of the data set on health information [3].

Patient registriesis an organized system that uses observational study methods to collect uniform data to evaluate specified outcomes for a population defined by a particular disease, condition, or exposure, and that serves one or more predetermined scientific, clinical, or policy purposes[4].

Cerebral palsy registry has been explained a significant knowledge regarding the prevalence, cause, distribution, frequency, and severity of cerebral palsy throughout the world.Although it is the most common cause of motor deficiency in young children, it occurs in only 2 to 3 per 1000 live births[5] .

II. Material and Methods

Participants:
All diagnosed CP children of both genders from Suez City participated in this study. Their ages ranged from birth to 18 years. They were 88 boys and 52 girls. Data were collected from: 1-Birth information of each child obtained from parents or medical reports. 2- Examination of CP children

Procedure:This study was conducted to establish data base for cerebral palsy .Patient were examined in general hospital, health insurance hospital, and private centers of physical therapy in Suez governorate

.Consent form was obtained from the child's parents or legal guardians . Approval of the ethical committee of the Faculty of Physical Therapy, Cairo University to start this research was obtained. This study was conducted from 1 st of November 2017 up to 30 April 2018.

For evaluation:

1 - Gross Motor Functional Measurement (GMFM):

The Gross Motor Functional Measurement was a standardized observational instrument designed and validated to measure change in gross motor function over time in children with cerebral palsy. The GMFM consists of 88 items grouped into 5
dimentios: 1- Lying and rolling (17 items), 2- Sitting (20 items), 3- Crawling and kneeling (14 items), 4- Standing (13 items) and 5- Walking, running and jumping (24 items) all items generally could be completed by age 5 years in children without motor delay [6] .

2-The Gross Motor Function Classification System (GMFCS):

It is arranged into five formative measurements frequently with children with CP to characterize the motor involvement of children with CP on the basis of their functional and walking abilities and their need for assistive technology and wheeled mobility according to chronological age. This test classifies children as; Level I: "Walks without limitations"; Level II: "walks with limitations"; Level III: "Walks using a hand-held mobility device"; Level IV: "Self-mobility with limitations", can use motorized mobility; and Level V: "Transported in a manual wheelchair"[7].

3-Manual Ability Classification System for Children with Cerebral Palsy (4-18) years, is a functional description that can be used in a way that is complement to the diagnosis of cerebral palsy and its subtypes [8].

4-The Viking Speech Scale, is developed for use with children aged 4 years and above, the scale has four levels [9].

III. Results

This study has been conduct in Suez governorate. The population of Suez governorate according to 2017 census is728,180 out of which 267,253 are 18 years or less which accounted for 36% of total population.A random sample of 140 child was selected from(9) centers from (from 1 st of November 2017)to (30 March 2018) the following table showed sample distribution according to each center. The prevalence of CP in Suez governorate is 5 for each 10,000 live births.

There were 88 boys which represent (62.9%) form CP cases and 52 girls represent (37.1%) from CP cases as shown in (Table 1).

Gestational age show 77 children with full-term pregnancy represent (55%) form the total sample, while 57 children were a pre-term repre-senting (40.7%) from the total sample and 6 children were post-term represent (4.3%) from the total sample.

According to place of birth 123 of childrendelivered at hospital which represent 87.9% of CPcases, 17 of CP cases were delivered athome represent (12.1%).According to birth weight, 8 children withvery low birth weight represent (5.7%) fromsampled cases, low birth weight 79 (56.4%),normal birth weight 53 (37.9%) .

According to type of delivery 47 of the sampledelivered by normal delivery thatrepresents (33.6%) from the total sample and 93of them delivered by cesarean section which represents (66.4%) from the total sample.

Type of cerebral palsy: Spastic CP was the mostcommon type which founded in 119 cases (85%),dyskinetic 11 case (7.9%), ataxic 3 (2.1%), andhypotonia was 7 (5%). Distribution of spasticity was as follow, diaplegic children were 68(48.6%), hemiplegic children were 26 (18.5%), 16of them right hemiplegia, 10 of the left hemiplegiaand quadriplegic were 25 (17.9%).function classification system: Level of impairmentaccording to gross motor function classificationsystem, level, I 12 (8.6%), level II, 13 (9.3%),level III, 23 (16.4%), level IV, 18 (12.9%), levelV, 74 (52.9%).Gross motor function measurement: Childrenless 47, (25%), 84-103, (25%), 104-170, (25.7%),and more than 170, (24.3%).Level of impairment according to manual ability classification system: Level I (4.3%), level II m(9.3%), level III (20%), level IV (8.6%), and
level V (10.7%).Level of impairment according toviking speech scale:Level I (10%), level II(10%), level III (17.1%), and level IV (15.7%).

Associated impairment:

- Epilepsy founded in 42 cases (30%).
- Intellectual affected in 90 cases (64.3%).
- Vision affected in 83 cases (59.3%).
- Hearing affected in 29 cases (20.7%).
- Speech affected in 119 cases (85%).

• Swallowing affected in 59 cases (42. 1 %).
• Congenital anomaly founded in 23 cases (16.4%).

Table (1): Demography, genderplace of birth, birth weight, gestational age and delivery mode.

Variable	Subjects data
Gender:	
Boys	88 (62.9%)
Girls	52 (37.1%)
Gestational age:	
Preterm	57(40.7%)
Full term	77(55%)
Post term	6(4.3%)
Place of birth:	
Hospital	123(87.9%)
Home	17(12.1%)
Birth weight:	
Very low birth weight	8 (5.7%)
Low birth weight	79 (56.4%)
Normal birth weight	53 (37.9%)
Delivery mode:	
Normal delivery	47(33.6%)
Cesarean section	93 (66.4%)

Table (2): Frequency and percentage of different type ofcerebral palsy.

Variable	Freq.	%	Rank
Quadriplegia	25	17.9	2
Diplegia	68	48.6	1
Right hemiplegia	16	11.4	3
Left hemiplegia	10	7.1	4
Dystonic	6	4.3	6
Choreo -Athetoid C.P	5	3.6	7
Ataxia	3	2.1	8
Hypotonia	7	5	5
Total	**140**	**100**	-

Table (4): Frequency and percentage of level of impairment according to gross motor funciton measurement.

Variable	Freq.	%	Rank
Level I	12	8.6	5
Level II	13	9.3	4
Level III	23	16.4	2
Level IV	18	12.9	3
Level V	74	52.9	1
Total	**140**	**100**	-

Table (5): Frequency and percentage of level of impairment according to manual ability classification system.

Variable	Freq.	%	Rank
0	66	47.1	1
Level I	6	4.3	6
Level II	13	9.3	4
Level III	28	20	2
Level IV	12	8.6	5
Level V	15	10.7	3
Total	**140**	**100**	-

Table (6): Frequency and percentage of level of impairment according to viking speech scale.

Variable	Freq.	%	Rank
0	66	47.1	1
Level I	14	10	4
Level II	14	10	4
Level III	24	17.1	2
Level IV	22	15.7	3
Total	**140**	**100**	-

IV. Discussion

There is no cp registry in suez governorate, so the current study was conducted to establish data base about CP children who are receiving physical therapy services in general, health ministry hospitals and all private centers and other who aren't receive physical therapy services . In suez governorate, all children who were diagnosed as cp were included in this study.

The collected data in this study revealed that CP can affect both genders however males are affected higher than females . In this current study the results revealed that 88 of 140 patients were males (62.9%) and 52 of 140 patients were females (37.1%) . Consistent with the results of Johnson[10] who reported male/female ratio as 1.33/1 in Europe and Laisramet al ., [11]reported as 1.9/1 in India..

Johnston and Hagberg [12] and Skiold et al., [13] reported that the risk of CP is significantly greater in males than in females.The collected data in this study showed 123 baby delivered at hospital (87.9%), 17 baby delivered at home (12.1%) total baby represent from total sample delivered out of hospital which was very dangerous due to the lack of instrument, tools and experience.

According to Lawson et al.,[14]for a long time, the only causal factors explored to account for risk for cerebral palsy were complications of labor and delivery. As other periods have been investigated.

The current study showed (5.7%) of sample were very low birth weight ,and (56.4%) low birth weight .These results matches with the result of Michael, [15]who stated that the most important risk factor seems to be prematurity and low birth weight with risk of CP increasing with decreasing gestational age and birth weight .

Cerebral palsy children were classified according to their gestational ages : preterm : gestational age below 37 weeks, full term gestational age between 37-42 and post term: gestational age over 42 weeks.The current study showed (40.7%) baby from the present CP sample were preterm this result matches with Wu[16]who reported that CP occurs equally in Children who are born very premature or full term.

Although term infants are at relatively, low absolute risk, term birth constitute the large majority of all births, as well as approximately half of all births of children with cerebral palsy. Regarding to type of delivery for CP children, 93 were delivered by cesarean section (66.4) and 47 were represented by spontaneous normal delivery (33.6) . Regarding to this result , CP children who delivered by emergency cesarean section were very high due to, low economic status, they do many trials for normal labor, as the majority of CP children from rural and lack of neonatal care so emergency cesarean section was done for live saving either to the mother or infant.

The current study revealed that spastic CP was 85% ,Dyskinetic was 7.9% , Ataxic was 2.1% , Hypotonic was 5%. These results matched with the results of Blair and Watson.,[17]they reported that spasticity was typically cited as the predominant motor type, occurring in 77% to 93% of CP cases, dyskinesia in 2% to 15% and ataxia in 2% to 8% .

The most common types are the spastic types in worldwide. Similarly, most of our patients 85% were spastic CP. In our study , 48.6% were spastic diplegic, 17.9% were spastic quadriparesic and 18.5% were spastic hemiplegic. The distribution of the clinical subtypes of our spastic CP patients differed from European countries spastic diplegia percentage found as 40.9% - 54.9% and spastic quadriparesic CP as 18% -20.8% [10]

The current study revealed thatdyskinetic CP ratio was 7.9 These result were near to Fidan and Baysal[18]who recorded dyskinetic CP ratio of 11.5% and also similar to European countries, which reported as 6.5% Johnson[10].

The current study showed Ataxia CP ratio as (2.1%) . Regarding to study carried out in El-Quseir City , located in Red Sea Governorate in Egypt, El-Tallaw et al.,[19]recorded that ataxic CP ratio was. Ataxic CP is clinically observed in approximately 5-10% of all cases of CP, making it the least frequent form of CP diagnosed (McHale et al.,[20]These results matched with the results of the current study

In the present study, hypotonic CP were 7 cases representing (5%) of total CP cases . Which affect all antigravity activities. And this matches with Yasin and Abdalazim[21] who reported hypotonia presented in (4.5%) .

This study showed that of CP children had 64.3% intellectual impairment. Epilepsy found in 30% , congenital anomaly in 16.4% , visual disorder in 59.3% and hearing disorder in 20.7% .

The study showed that 42.1 % of CP children had swallowing problems and85% Of CP children had speech problems .

The current study revealed that the total CP cases who were referred to receive physical therapy services in Suez governorate, were 140 cases representing 5 per 10000 live birth. Prevalence of CP occurs at a rate of 2-2.5 per1000 live births in developed countriesShevell and Bodensteiner,[22]. Also in Egypt, EL-TALLAW et al.,[19]recorded the prevalence was 2.03 and 3.6 per 1000 live birth birthin Al-kharga District and Al-Quseir city.

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