

## Nursing Intervention provided To Infants with Congenital Hip Dislocation at Zagazig City

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### Abstract

**Background:** Nursing care provided to infants with Congenital Hip Dislocation is particularly important. An infant with CHD usually requires long-term follow-up at the hospital until skeletal maturity is reached to normal hip development. **Aim of the study:** was to evaluate the Nursing intervention provided to infants with Congenital Hip Dislocation at Zagazig City, Egypt **Subjects & Methods: Research Design:** A descriptive study was used. **Setting:** The orthopedics department settings at: Zagazig University hospital, Zagazig general hospital and El-Ahrar hospital. **Subjects:** It included 50 infants and their mothers as well as 50 nurses provided direct nursing care for the infants. **Tools of data collection:** Two tools were used to collect the necessary data. Structured Questionnaire about infants' and nurses' characteristics and an observational checklist for nurses' performance to evaluate nursing intervention provided to the infants with CHD. **Results:** Results of the present study illustrated that 88% of studied nurses had satisfactory practice score regarding follow up of health status of the infant. **Conclusion:** There was a statistical significant relation between nurse's total practice score and their characteristics, Nursing care to infants with CHD by studied nurses was satisfactory. **Recommendations:** Included Educational programs should be provided about suitable nursing interventions for children with CHD.

**Keywords:** Congenital, Hip Dislocation, Developmental Dysplasia of the Hip, Nursing intervention

### Introduction :

Congenital Hip Dislocation (CHD) is one of the most common and important subjects in the field of pediatric orthopedics. At birth, the femoral head is deeply placed in the acetabulum and is held there by the

surface tension of the synovial fluid. In dysplastic hip, the tight fit between the femoral head and acetabulum is lost and femoral head can be easily displaced from the acetabulum, usually in posterior-superior direction.<sup>(1)</sup>

CHD is manifested by several signs including limitation of hip abduction, abnormal gait, trendlenberg sign and leg length discrepancy x ray is done to confirm the diagnosis<sup>(2)</sup>

There are some predisposing factors to CHD. Females are more commonly affected than males. Hereditary factors may also play role. Moreover, Neonates with breech presentation and neonates of primigravida mothers especially in cases with Oligohydramnios are also

more affected. In addition, maternal hormones during pregnancy as estrogens and progesterone can play role in causes of CHD<sup>(3)</sup>.

Orthopedic intervention for CHD should be done as quickly as possible. The conservative treatment includes an adductor tenotomy under general anesthesia to allow abduction of the hip and let the femoral head to slip in to the acetabulum. This stage is followed by attraction period Which ranges from 2-7 weeks. hip spica cast is then applied starting with frog position and then followed by total period of plaster ranging from 8-11 months including human and batheolar position<sup>(4)</sup>.

#### Guideline for CHD Treatment:

1-6 months: Place in Pavlic harness for six weeks after hip reduction. 6-18 month: Traction; closed reduction. If successful, place in cast for three months. If failed, perform open reduction. Open reduction is performed by a medial approach in children less than 12 months old and by antrolateral approach in children more than 12 months old. 18-24 months. Salter osteotomy may or may not be part of the procedure. 24 months- 6 years: Perform primary open reduction (antrolateral approach) and femoral shortening, with or without a Salter osteotomy<sup>(5)</sup>.

Nurses play an important role in identifying signs of CHD and other congenital defects in new born. The earlier the defect is identified and treated, the better is the chances for favorable out come. The primary goals in caring for a child at the hospital pre & post-operative care is followed by caring for a child in a corrective device or cast to maintain the position of the hip joint. Moreover, prevent complications and provide stimulation necessary for the developing infant or

Child. As early as possible, involve parents in caring for their baby to build confidence in their ability. To provide care at home provide general guidelines for the nursing interventions for a child in a corrective device or cast<sup>(6)</sup>.

#### Significance of the study:

The child with CHD usually remains along period restrained by cast ranging from 8-11 months, so he may save a lot of nursing problem as infection, impaired physical motility as well as impaired skin integrity and retarded growth and development. Hypostatic pneumonia as well as constipation could also occur. So he needs a competent nurse who having adequate ability to perform her tasks. The nurse should have knowledge and skills to meets the child needs and prevent the complication that might occur

#### Aim of the study:

The present study aimed to evaluate the nursing intervention provided to infants with Congenital Hip Dislocation at Zagazig City .

#### Research Questions:

1-Is the nursing intervention provided to the infant with Congenital Hip Dislocation sufficient or not?

#### Subjects and methods :

##### Research design:

Descriptive research design was used in the present study.

##### Study setting :

The study was conducted at orthopedics department at Zagazig university hospital, Zagazig general hospital and El-Ahrar hospital.

##### Study subjects:

The study included: All infants attended at the previous setting with Congenital Hip Dislocation during a period of 6 months from of the study beginning and all nurses who provide direct nursing care at previously mentioned setting and they were 50 nurses.

### **Tools of data collection**

Two tools were used to collect the necessary data :

#### **Tool 1: A structured interview questionnaire sheet:**

A structured interview questionnaire sheet included the following parts:

**Part I:** Characteristics of infants and mothers:

(1) Infants' characteristics such as name, age, sex, birth order and crowding index as well as diagnosis.

(2) Mothers' characteristics such as age of mother, education, occupation as well as pregnancy history and type of delivery.

**Part II:** Characteristics of studied nurses such as age, level of education, as well as any previous training program about CHD.

#### **Tool II: Observational checklist:**

Observational checklist to evaluate the immediate nursing intervention provided to the infant with CHD and it includes:

1- Nursing assessment to the infant's general condition on admission such

as general appearance, respiratory condition, gastrointestinal tract and circulation.

2- Nursing intervention provided to the infants e.g. maintain vital signs, pain relief, skin care as well as Cast and traction care etc.....

### **Content Validity and reliability:**

It was established for content validity by a panel of five experts in the field of orthopedic nursing who revised the tools for implementation and according to their opinion minor modifications was applied. A reliability test was done and acceptable consistency was found with Cronbach's Alpha 0.791.

### **Field work:**

The aim of the study was simply explained to all nurses and mothers who agreed to participate in the study before collecting any data. The duration of data collection was 6 months starting from January 2015 till June 2015.

### **Pilot study**

Pilot study was carried out on about 5 nurses and 5 children totaled from total sample size to test the applicability and clarity of the tools used and any necessary modifications were done.

### **Administrative and Ethical considerations:**

The aim of the study was simply explained to all nurses and mothers who agreed to participate in the study before collecting any data. The duration of data collection was 6 months starting from January 2015 till June 2015. An official permission was obtained by submission of an official letter issued from the Dean of Faculty of Nursing to hospital administrator

using proper channels of communications prior to the study.

**Statistical analysis** :After data collection, it was revised, coded and fed to statistical software IBM SPSS version 20. Data was expressed as numbers and percentages for categorical variables. Less than or equal to 0.05 was considered to be statistically significant. two tailed tests and alpha error of 0.05. P value P value less than or equal to 0.05 was considered to be statistically significant. The following statistical tests were used:

- 1- Descriptive statistics
- 2- Analysis of numeric data (One-Sample Kolmogorov-Smirnov Test- One Way ANOVA)
- 3- Correlation analysis:

#### Results:

**Table (1)** shows the characteristic of studied children. Regarding to the child's gender, it was found that 82.0% of studied children were females and 40.0% of studied sample were at the age group 3-4 years with mean age 2.5 + 0.8 years. The same table also showed that 40.0% of studied children were the first child and 64.0 % weighed more than 3 kg at birth.

**Table (2)** shows the medical history of the studied children. It was found that 84.0% of the studied infants had unstable movement signs as observed by their mothers. Regarding the type of treatment it was found that 94.0% of studied infants reported slap after open reduction. It was also found that 72.0% of the studied infants had CS delivery, In addition, 74% of studied children presentations during pregnancy were breech.

**Table (3)** shows the characteristics of the studied nurses. It is revealed from the table that 72% of

studied nurses were in the age group of more than 30 years with mean age 32.8+10.9. It was also found that 98% of studied nurses were females. Concerning settings of work, it was found that 78% of the studied nurses worked at Zagazig university hospital. 86% of the studied nurses were married. In relation to nurses' qualifications, 78% had nursing diploma. Regarding years of experience in orthopedic department, 70% of the studied nurses had 7 years of experience or more .

**Table (4)** shows the nurse's practice regarding pre-operative care and protection of operated joint post-operative. It was found that all of studied nurses had measured and recorded temperature every 4 hours, respiratory rate, administered IV fluids as prescribed and put on correct identification band as well as didn't give the children anything by mouth. Concerning post-operative protection of operated joint, all of the studied nurses gave the child analgesics for pain as prescribed, and 94% of them supported the casted limbs.

**Table (5)** shows nurses practice about immediate post-operative care. By observation, it was found that all of studied nurses monitored and recorded vital signs hourly counted respiratory rate and measured temperature. Moreover, they gave IV fluids, administered antibiotics and analgesics as prescribed, followed by 96.0% of the studied nurses observed the casted limp post operation .

**Table (6)** shows that Nurses total practice scores regarding care provided to the child with CHD. It was found that 96.0% of studied nurses had good practice score regarding environment for examination, post-operative care and protection of operated joint as well as 74.0% had

good practice score regarding assessment of the child. Regarding skin care, 86.0% had good practice score, 94.0% had good practice regarding cast care, and 88.0% regarding feeding and total CHD care. The same table portrays that 66.0% had good practice score regarding protection from infection, as well as all nurses (100%) had good practice regarding parents' teaching.

**Table (7)** shows the relation between nurse's total practice score and their characteristics. It was found that there was a statistical significant relation between nurse's total practice score and their place of work [3.2 (0.048)]

### Discussion:

Hip dislocation is part of a range of hip problems found in an infant or young child, usually called Developmental Dysplasia of the Hip (DDH). This is the condition where the ball part of the hip joint, (femoral head), is not held firmly in the hip socket (acetabulum). A child with DDH usually requires long-term follow-up at the hospital until skeletal maturity is reached to normal hip development Arti et al<sup>(7)</sup>.

The results of the present study showed that slightly less than half of studied children were at the age group (3-4 years). This result is matched with Engeseater <sup>(8)</sup> who conducted a study at Haukelanity University hospitals at Norway, and reported that most of newborns were at the same age. The result of the present study due to The diagnosis of DDH was discovered later in most patients. On the contrary, Shipman <sup>(9)</sup> who conducted a study in the United States, found that diagnosis of DDH was at the age group of day-3 months.

Laborie <sup>(10)</sup> reported that more than three quarters of the studied

subjects were female in a study conducted to investigate radiological, clinical and epidemiological aspects related to hip dysplasia and Femoral acetabular impingement (FAI) at the University of Bergen. This goes in line with the findings of the present study in which more than three quarters of studied infants were females. Similarly Viveki <sup>(11)</sup> found in his study the same results of the present study. This is may be due to females are more susceptible to the maternal hormone relaxin which may contribute to ligamentous laxity and instability of the hip White et al <sup>(12)</sup>.

The present study also showed that slightly less than half of the studied infants were the first born infant to their families. This agrees with Moosa et al <sup>(13)</sup> who conducted his study at Dubai hospital to provide a database on the incidence of developmental dysplasia of hip (DDH) among newborns in Dubai, United Arab Emirates (UAE) and they found nearly the same results of the present study. This similarity may be due to that the first born infant was more affected because of the mother's uterus and abdominal wall might be tight Nicoletta et al <sup>(14)</sup>.

As regards birth weight, the results of the present study showed that more than half of the studied infants were more than 3 Kg at delivery. This result is in the same line with Mustafa and Jasim <sup>(15)</sup> who conducted a study to determine the causes and to find the rate of occurrence of developmental dysplasia of the hip (DDH) among newborn and found that DDH was more common among high birth weight (more than 3,5 Kg). The result of the present study might be due to minimal movement of the infant in the uterus .

As regards to signs observed by mothers, the result of the present study showed that more than three quarters of mothers observed a child movement. The result of the present study was in line with Tiroyan<sup>(16)</sup> who carried out a study to explore knowledge and attitude of pediatricians/FDs, neonatologists, and mothers' regarding DDH at American University of Armenia and found that the majority of doctors did not see infants with this disorder, and could not correctly mention causes of DDH, while most of mothers discovered this problem among their infants. The result of the present study may be due to that these signs are obvious to mothers to be observed.

The present study also showed that most of the infants were treated with Slap after open reduction. This finding of the present study was in line with Ameen<sup>(17)</sup> who conducted a study at Al-wasity hospitals, Iraq and found nearly the result of the present study. This result might be due to late diagnosis or failure of close reduction led to open reduction.

As regards to fetal presentation, the result of the current study showed that nearly three quarters of studied fetal's presentation during pregnancy were breech. The result of the present study may be affected on the infant because of breech presentation leads to hip flexion and decrease movement, As reported by Wenstien &

### **Conclusion:**

Based on the results of the study, the majority of the studied nurses had good practice score.

### **Recommendations:**

On the basis of the current study findings, the following recommendations are suggested:

Buckwalter<sup>(18)</sup>. He also stated that infants with frank breech position are at highest risk of DDH because of prominent hip adduction and hyperextension of the knees.

The vital role of the professional nurse is to assess the child condition to identify his needs. It is essential to check vital signs and compare it with the normal to detect any abnormalities. Wang et al<sup>(19)</sup> supported the present study which revealed that the majority of nurses had good practice score regarding measuring vital signs and assessment of the studied infants. This result might be due to that nurses know that this is their main role to maintain infant's body temperature to restore his stability and prevent crises that may occur.

Jackson et al<sup>(20)</sup> stated that infection control and prevention of healthcare associated infections are an essential part of healthcare and the nurse had a vital role in protection from infection and should be aware from all aspects of this problem. This result matched with the result of the present study where the majority of them had good practice score.

Armstrong<sup>(21)</sup> who conducted a study to improve the quality of care provided to patient with cast, found that the nursing care provided was good. This finding agrees with the result of the current study which showed that most of the studied nurses had good practice score.

1- In-service education for nurses may refresh their knowledge regarding DDH and nursing management of the orthopedic children.

2- Designing suitable booklet about proper care, follow up and complication of DDH.

3- Suitable posters with attractive figures about assessment of DDH

and protocol of DDH care should be available at orthopedic department.

**Table (1):** Characteristics of studied children. (50)

Child data	No	%
<b>Gender</b>		
• Male	9	18.0
• Female	41	82.0
<b>Child age (Years)</b>		
• 1-	12	24.0
• 2-	18	36.0
• 3-4	20	40.0
• Range		1.4 - 4.0
• Mean $\pm$ SD		2.5 $\pm$ 0.8
<b>Child order</b>		
• 1	20	40.0
• 2	17	34.0
• 3	11	22.0
• 4+	2	4.0
<b>Birth weight</b>		
• <3 kg	18	36.0
• >3 kg	32	64.0

**Table (2):** Medical history of the studied children(50 nurses)

<b>Medical data</b>	<b>No</b>	<b>%</b>
<b>Signs observed by mothers</b>		
• Unequal limbs	36	72.0
• More skin folds at affected side	10	20.0
• A child movement	42	84.0
<b>Type of treatment</b>		
• Slap after closed reduction	3	6.0
• Slap after open reduction	47	94.0
<b>Mode of delivery</b>		
• Normal delivery	14	28.0
• C. S	36	72.0
<b>Fetal presentation</b>		
• Breech presentation	37	74.0
• Head presentation	13	26.0



**Table (3):** Characteristics of the Studied Nurses (50 Nurses).

<b>Nurse Data</b>	<b>No(50)</b>	<b>%</b>
<b>Nurse age (years)</b>		
• 20-	4	8.0
• 25-	10	20.0
• 30&more	36	72.0
<b>Mean age</b>	32.8+10.9	
<b>Nurse gender</b>		
• Male	1	2.0
• Female	49	98.0
<b>Hospital</b>		
• Zagazig University Hospital	39	78.0
• Al-Ahrar Hospital	8	16.0
• Zagazig public Hospital	3	6.0
<b>Marital status</b>		
• Single	2	4.0
• Married	43	86.0
• Divorced	5	10.0
<b>Qualification</b>		
• Nursing diploma	39	78.0
• Nursing Institute	2	4.0
• Bachelor	9	18.0
<b>Experience (years)</b>		
• <3	5	10.0
• 3-	4	8.0
• 6-	6	12.0
• 9& more	35	70.0

**Table (4):** Nurses Practice regarding Pre-Operative Care and Protect Operated

Nurses practice	Done correctly		Done incorrectly		Not done	
	No	%	No	%	No	%
<b>Pre- operative Care</b>						
• Measurement and record temperature every 4 hour.	50	100.0%	0	0%	0	0%
• Respiratory rate.	50	100.0%	0	0%	0	0%
• Blood pressure.	31	62.0%	1	2.0%	18	36.0%
• Pulse.	50	100.0%	1	2.0%	49	98.0%
• Iv fluids as prescribed.	50	100.0%	0	0%	0	0%
• Correct identification band.	50	100.0%	0	0%	0	0%
• Nothing per mouth.	50	100.0%	0	0%	0	0%
<b>Protect operated joint</b>						
• Maintain the correct position of the hip.	50	100.0%	5	10.0%	45	90.0%
• Support the casted limp.	47	94.0%	2	4.0%	1	2.0%
• Give analgesics for pain.	50	100.0%	0	0%	0	0%

**Table (5)** Nurses Practice regarding immediate Post-Operative Care

Nurses practice	Done correctly		Done incorrectly		Not done	
	No	%	No	%	No	%
• Monitor and record vital signs hourly.	50	100.0%	0	0%	0	0%
• Count respiratory rate.	50	100.0%	0	0%	0	0%
• Measure blood pressure.	20	40.0%	0	0%	30	60.0%
• Assess temperature.	50	100.0%	0	0%	0	0%
• Administer IV fluids as prescribed.	50	100.0%	0	0%	0	0%
• Administer antibiotic as prescribed.	50	100.0%	0	0%	0	0%
• Observe the limp.	48	96.0%	0	0%	2	4.0%
• Give analgesics as prescribed	50	100.0%	0	0%	0	0%
• Protect the cast from brake especially at first 12 hour.	45	90.0%	4	8.0%	1	2.0%
• Elevate upper part of the body.	40	80.0%	7	14.0%	3	6.0%

**Table (6): Nurses Total practice Scores Regarding care provided to the child with CHD.**

Practice items	Good		Sufficient		Insufficient	
	No	%	No	%	No	%
• Environment For Examination	48	96.0	2	4.0	0	0.0
• Assessment of the child	37	74.0	12	24.0	1	2.0
• Post-operative care	48	96.0	2	4.0	0	0.0
• Protect operated joint	48	96.0	2	4.0	0	0.0
• Skin Care	43	86.0	7	14.0	0	0.0
• Cast care	47	94.0	3	6.0	0	0.0
• Feeding	44	88.0	6	12.0	0	0.0
• Protection from infection	33	66.0	17	34.0	0	0.0
• Pain relief	27	54.0	14	28.0	9	18.0
• Parent instruction	50	100.0	0	0.0	0	0.0
• Total practice score	44	88.0	6	12.0	0	0.0

**Table (7):** The Relation between nurse's Total practice score and their characteristics

Nurse data	Practice total		F (P)
	Mean	SD	
<b>Nurse age (years)</b>			
• 20-	154.8	6.4	0.11 (0.895)
• 25-	152.0	16.2	
• 30+	151.0	15.9	
<b>Hospital</b>			
• Zagazig University Hospital	153.0	14.6	3.2 (0.048)*
• Al-Ahrar Hospital	151.6	12.4	
• Zagazig Hospital	131.3	21.5	
<b>Marital status</b>			
• Single	154.0	0.0	0.04 (0.957)
• Married	151.3	15.6	
• Divorced	152.6	17.1	
<b>Qualification</b>			
• Nursing diplome	150.7	14.5	1.1 (0.344)
• Nursing Institute	141.5	34.6	
• Bachelor	157.1	14.8	
<b>Experience (years)</b>			
• <3	160.0	5.7	1.2 (0.367)
• 3-	158.5	8.5	
• 6-	153.0	10.9	
• 9+	149.2	16.9	

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