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ORIGINAL ARTICLE

Application of program for nurse's management about care of children treated with Ventricular Peritoneal Shunt

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ABSTRACT

Background: Hydrocephalus management present as a significant challenge for child, parents, and multidisciplinary health care team. Despite the advancements in shunt technology and neurosurgery treatment techniques, many children with hydrocephalus reported high rates of shunt failure and require shunt revision or replacement. Infants are more susceptible than older children to die as a result of shunt failure, which caused by variety of reasons such as prematurity, low birth weight, infection.

Material and Method: The sample of the study was chosen purposive (non-probability). Which consist of (30) nurses from morning and evening shift. The sample of the study was collected from Ibn Sina Teaching Hospital, who provides nursing care service for children with Ventricular Peritoneal Shunt, collected from the places (intensive care unit and wards of neurosurgery in hospital).

Results: The results showed that the nurses sample in the study, that 73.3% (22) of the sample at age (20-29) years with mean (1.33) and standard deviation (0.606), 60.0% (18) of the sample was female gender with mean (1.60) and standard deviation (0.498), 46.7% (14) of them was bachelor in nursing of educational level with mean (2.30) and standard deviation (0.750).

Conclusion: The study concluded that the nurses' practice about care for children treatment with ventricular peritoneal shunt was acceptance.

Keywords: Application, nurse, Ventricular Peritoneal Shunt

INTRODUCTION

Hydrocephalus is a common type of cerebral malformation in early childhood, it characterized by accumulation of cerebrospinal fluid (CSF) in the ventricular of the brain, result of an imbalance between absorption and synthesis of CSF and elevation in intraventricular pressure (National Institute of Neurological Disorders and Stroke, 2018; Wright et al., 2016; Smith et al., 2013; Oreskovic´ & Klarica, 2011).

The onset of hydrocephalus might be sudden and last for hours or days; it could also be persistent for months or years. Hydrocephalus can caused by acquired or congenital reasons or associated with different anomalies (Ebrahim et al., 2019; cartwright & Wallace, 2017).

Hydrocephalus in children can treated medically or surgically, mostly surgical treatment managed preferred, usually by an opening of the obstructive lesion carried out by ventriculostomy or a shunt (ventriculoatrial, ventriculoperitoneal) insertion (Marcdante and Kliegman, 2019; shahi et al., 2018).

Hydrocephalus management present as a significant challenges for child, parents, and multidisciplinary health care team (Smith et al., 2013). Despite the advancements in shunt technology and neurosurgery treatment techniques, many children with hydrocephalus reported high rates of shunt failure and require shunt revision or replacement. Infants are more susceptible than older children to die as a result of shunt failure, which caused by variety of reasons such as prematurity, low birth weight, infection (Hasanain et al., 2019).

Nursing practice that based on scientific concepts for early detection of potential health problems and formulate activities for saving child`s quality of life. Nursing with technical and scientific preparation to care of hydrocephalic patients, which necessitates knowledge of neuroanatomy, neurophysiology, neurological clinical images, neurodiagnoses, and nursing assessments, as well as critical care and admission units (Cestari, et al., 2013).

MATERIAL AND METHOD

The sample of the study was chosen purposive (non-probability). Which consist of (30) nurses from morning and evening shift. The sample of the study was collected from Ibn Sina Teaching Hospital, who provides nursing care service for children with Ventricular Peritoneal Shunt, collected from the places (intensive care unit and wards of neurosurgery in hospital). The population of the study was the nurses who works in the neurosurgical wards and intensive care unit in Ibn Sina Teaching hospital, the study conducted in Mosul city.

The design of an application program based on assessment need outcome and reviewing of literature as well as expert's opinions and researcher experience based on nurses need to further information regarding ventricular peritoneal shunt. Two tools were used for data collection, Part 1:- The demographic data of nurses includes, gender, age, level of education, years of experience in nursing, years of working in hospital, years of experience in neurosurgery unit, participation in training courses in VP shunt care. Part 3:- Observational checklist for nurses practice about care of children treated with VP shunt. This tool was taken from one of researches with consent of the researcher who developed it based upon relevant guidelines and literature (Elbilgahy & Mohammed, 2019). Accordingly, we developed the tool according to the opinions and experiences of experts from different field of nursing with physicians of neurosurgery.

The Data Collection gathered information was done from selected teaching hospitals in Mosul City. They were Ibn Sina Teaching Hospital, from the period of 17/ January/2022 up to the 30 of March/ 2022.The Data Analysis Methods this investigation's data was dissected using the Social Science Statistical Package (SPSS) version 25. As a result, the following statistical procedures were employed to analyze the data and assess the outcomes:(Frequencies and percentages are used to describe demographic characteristics and to approximate the data value, the means and standard deviation are rummaged through).

RESULTS

Table 1: The Demographic Characteristics of the Nurses Sample in the Study

	Demographic Variables	Items	Freq.	%	Mean	St. D.
1.	Age	20-29	22	73.3	1.33	0.606
		30-39	6	20.0		
		40-49	2	6.7		

2.	Gender	Male	12	40.0	1.60	0.498
		Female	18	60.0		
3.	Level of Education	Preparatory Nursing	5	16.7	2.30	0.750
		Nursing Institute	11	36.7		
		Bachelor of Nursing	14	46.7		
4.	Years of work in hospital	1-5	23	76.7	1.30	0.596
		6-10	5	16.7		
		11-15	2	6.7		
5.	Years of experience in neurosurgical unit	1-5	24	80.0	1.27	0.583
		6-10	4	13.3		
		11-15	2	6.7		
6.	Training Courses	No	20	66.7	0.33	0.479
		Yes	10	33.3		
7.	Number of Training Courses	0	20	66.7	1.00	1.762
		1-2	4	13.3		
		3-4	3	10.0		
		5-6	3	10		
	Total		30	100.0		

Table 2: Statistical Differences Result for Nurses' Practice about care for children treatment with ventricular peritoneal shunt

Practice Items	Estimate	Pre-Test		Post-Test 1		Post-Test 2	
		Freq.	%	Freq.	%	Freq.	%
Hand hygiene before procedure	Always	0	0.0	22	73.3	15	50.0
	Sometime	4	13.3	7	23.3	14	46.7
	Never	26	86.7	1	3.3	1	3.3
Hand hygiene after procedure	Always	0	0.0	21	70.0	19	63.3
	Sometime	14	46.7	9	30.0	11	36.7
	Never	16	53.3	0	0.0	0	0.0
Use personal protective equipment during the procedure	Always	5	16.7	19	63.3	17	56.7
	Sometime	17	56.7	10	33.3	11	36.7
	Never	8	26.7	1	3.3	2	6.7
Assessing vital sings every 4 hours	Always	10	33.3	22	73.3	17	56.7
	Sometime	16	53.3	7	23.3	12	40.0
	Never	4	13.3	1	3.3	1	3.3
Assessing head circumference	Always	0	0.0	24	80.0	13	43.3
	Sometime	0	0.0	6	20.0	12	40.0
	Never	30	100.0	0	0.0	5	16.7
Assess fontanel	Always	0	0.0	21	70.0	16	53.3
	Sometime	2	6.7	8	26.7	11	36.7
	Never	28	93.3	1	3.3	3	10.0
Assess level of consciousness according to Glasgow coma scale	Always	1	3.3	21	70.0	15	50.0
	Sometime	14	46.7	9	30.0	14	46.7
	Never	15	50.0	0	0.0	1	3.3
Assess signs and symptom of seizures	Always	0	0.0	17	56.7	15	50.0
	Sometime	3	10.0	13	43.3	13	43.3
	Never	27	90.0	0	0.0	2	6.7
Assess infant eye for any nystagmus	Always	0	0.0	18	60.0	9	30.0
	Sometime	0	0.0	9	30.0	13	43.3
	Never	30	100.0	3	10.0	8	26.7
Assess vomiting	Always	1	3.3	20	66.7	16	53.3
	Sometime	22	73.3	10	33.3	12	40.0
	Never	7	23.3	0	0.0	2	6.7
Assess hydration status (skin turgor, dryness of mouth, absence of tears)	Always	1	3.3	18	60.0	16	53.3
	Sometime	16	53.3	11	36.7	11	36.7
	Never	13	43.3	1	3.3	3	10.0
Check input and out put	Always	2	6.7	22	73.3	15	50.0
	Sometime	19	63.3	8	26.7	14	46.7
	Never	9	30.0	0	0.0	1	3.3
Assess abdominal girth	Always	0	0.0	16	53.3	13	43.3
	Sometime	0	0.0	10	33.3	14	46.7
	Never	30	100.0	4	13.3	3	10.0
Assess times of defecation	Always	2	6.7	18	60.0	17	56.7
	Sometime	18	60.0	12	40.0	11	36.7
	Never	10	33.3	0	0.0	2	6.7
Check VP shunt function	Always	0	0.0	21	70.0	16	53.3
	Sometime	0	0.0	9	30.0	14	46.7
	Never	30	100.0	0	0.0	30	100.0
Put the child on the unaffected side of surgery	Always	5	16.7	29	96.7	29	96.7
	Sometime	13	43.3	1	3.3	1	3.3
	Never	12	40.0	0	0.0	0	0.0
Position the child on the back with head elevated at 15 °to 30 °	Always	0	0.0	27	90.0	27	90.0
	Sometime	1	3.3	3	10.0	3	10.0
	Never	29	96.7	0	0.0	0	0.0
Asses the incision site for any signs of bleeding or infection	Always	8	26.7	30	100.0	30	100.0
	Sometime	21	70.0	0	0.0	0	0.0

	Never	1	3.3	0	0.0	0	0.0
Giving medication and analgesia as described	Always	30	100.0	30	100.0	30	100.0
	Sometime	0	0.0	0	0.0	0	0.0
	Never	0	0.0	0	0.0	0	0.0
Change dressing every 48_72 hours	Always	30	100.0	30	100.0	30	100.0
	Sometime	0	0.0	0	0.0	0	0.0
	Never	0	0.0	0	0.0	0	0.0
Total Practice	Always	0	0.0	29	32.2	23	25.6
	Sometime	18	20.0	1	1.1	7	7.8
	Never	12	13.3	0	0.0	0	0.0
		30	100.0	30	100.0	30	100.0

Freq.= Frequency, %= percentage

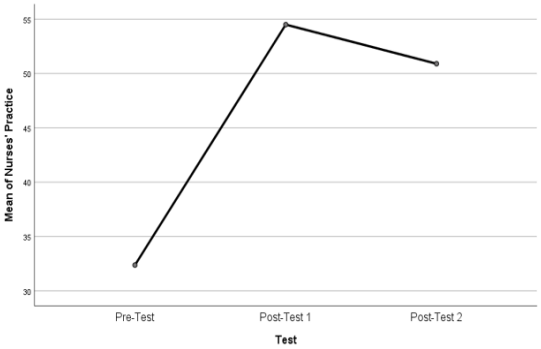

Figure 1: The Means Plots Distributions of Nurses' Practice Results (pre-test, post-test1, post-test 2) for Sample

Table 3: The Statistical Correlations between effect of an Intervention Program for Nurses' Practice Results with the Demographic Variables

Demographic Variables	Total Sample Practice					
	Pre-Test		Post-Test 1		Post-Test 2	
Age	0.548	NS	0.244	NS	0.585	NS
Gender	0.767	NS	0.109	NS	0.456	NS
Educational Level	0.846	NS	0.117	NS	0.691	NS
Years of Work in Nursing	0.901	NS	0.335	NS	0.650	NS
Years of Experince in Unit	0.247	NS	0.581	NS	0.795	NS
Training Courses	0.067	NS	0.568	NS	0.456	NS

Correlation is significant at P.value ≤ 0.05 level

DISCUSSION

The table (1) shows the demographic characteristics of the nurses sample in the study, that 73.3% (22) of the sample at age (20-29) years with mean (1.33) and standard deviation (0.606), 60.0% (18) of the sample was female gender with mean (1.60) and standard deviation (0.498), 46.7% (14) of them was bachelor in nursing of educational level with mean (2.30) and standard deviation (0.750), 76.7% (23) of the sample at (1-5) years of work in hospital with mean (1.30) and standard deviation (0.596), 80.0% (24) of the sample at (1-5) years of experience in unit with mean (1.27) and standard deviation (0.583), 66.7% (20) of the sample not having training courses with mean (0.33) and standard deviation (0.479), finally 66.7% (20) of the sample not having number of training courses with mean (1.00) and standard deviation (1.762). The table (2) shows statistical differences result for nurses' practice about care for children treated with ventricular peritoneal shunt (pretest, posttest1, and posttest 2). That most of the sample practice in pretest at never level, but in posttest1 and posttest2 that most of the sample practice at always level. The figure (1) shows the Means of nurses' practice about care of children treated with ventricular peritoneal shunt, that was lowest in the pre-test (33), while in the post-test1 that was highest (54), the decrease in the post-test2 (51). The table (3) presents the statistical correlations between effect of an application program for nurses' practice results with the demographic variables, There was non-significant correlations between the all demographic variables with all parts of nurses' practice at pretest, posttest 1, and posttest 2 at p. value ≤ 0.05.

CONCLUSION

The study concluded that the nurses' practice about care for children treated with ventricular peritoneal shunt was acceptance.

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