

RESEARCH ARTICLE

Assessment of nurse's knowledge about care of children treated with Ventricular Peritoneal Shunt

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ABSTRACT

Background: Hydrocephalus in children can be treated medically or surgically, mostly surgical treatment is preferred, usually by an opening of the obstructive lesion carried out by ventriculostomy or a shunt (ventriculoatrial, ventriculoperitoneal) insertion. The most common procedure is the insertion of a ventricular peritoneal VP shunt in neurosurgical intervention preferred treatment for hydrocephalus, which is an effective procedure for drainage of the CSF from the brain ventricles into the peritoneal cavity.

Aim: assessment of nurse's knowledge toward care of children treated with ventricular peritoneal shunt. Construct and apply an interventional program for nurses according to their need assessment.

Methods: A pre-experimental design that performed to the interventional program at Mosul Teaching Hospitals. from 3rd of December / 2021 till 30th of March / 2022. The sample of the study was chosen purposively (non-probability). The participant was (30) nurses from morning and evening shift. The format of questionnaire consists of two parts (demographic data, knowledge questionnaire).

Results: the total nurses' knowledge about care for children treatment with ventricular peritoneal shunt, that 53.3% (16) of the sample at Poor Knowledge level with mean (1.53) and standard deviation (0.629) of knowledge in assessment result.

Conclusions: Most nurses in age between (20-29 years) and bachelor level of education. The years of work in hospital was between (1-5 years). The nurses have less than five years of experience in neurosurgery unit. And two thirds of nurses did not receive training courses about VP shunt. The result of total nurse's knowledge during assessment was poor.

Keywords: nurses, knowledge, ventricular peritoneal shunt.



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INTRODUCTION

Hydrocephalus in children can be treated medically or surgically, mostly surgical treatment is 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).

The most common procedure is the insertion of a ventricular peritoneal VP shunt in neurosurgical intervention preferred treatment for hydrocephalus, which is an effective procedure for drainage of CSF from the brain ventricles into the peritoneal cavity (Hasanain et al., 2019; Dakurah et al., 2016; Jernigan et al., 2014; Ali et al., 2013).

According to the National Institute of Neurological Disorders and Stroke, stated that 1 - 2 small children out of 1,000 were born with hydrocephalus annually. It is estimated that 750,000 children in the world diagnosed with hydrocephalus, and 160,000 have VP shunts procedure each year. (Jea et al., 2017; Kahle et al., 2016). Many complications after operation can be a result of different causes; insufficient nursing care can be one of them that could be an effect on the child's physical and neurological function or required surgical revision.

Nursing management of children with a ventricular shunt requires adequate knowledge to provide care and maintain hand hygiene, observe for any deviations from typical behavioural and physical state while lying just on unaffected side or on back with the head raised at 15° to 30°. In addition to check the VP shunt's appropriate functioning by clamping down on the valve in a specified reservoir section, checking the skin for redness at the shunt placement on bony prominences, as well as taking note of hydration and fluid intake (Smith et al., 2016; Martin, 2017; Joseph, et al., 2017; Abd El Aziz, 2017; Vacca, 2018).

Objectives of the study Assessment of nurse's knowledge toward care of children treated with ventricular peritoneal shunt.

METHOD

A quantitative design "descriptive" study that was performed at Mosul Teaching Hospitals from 3rd of December / 2021 till 30th of March / 2022. The sample of the study was chosen purposively (non-probability). The participants were (30) nurses from morning and evening shift.

The format of the questionnaire consists of two parts (demographic data, knowledge

questionnaire), knowledge questionnaire consists of three domains: First domain (general knowledge which belongs to hydrocephalus) this section consists of (5 items), Second domain (general knowledge which belongs to VP shunt) this section consists of (5 items), Third domain (knowledge that belongs to complication of VP shunt) this section consists of (3 items). The gathered information was from the period of 17/ January/2022 up to the 17th up to 25 / January / 2022.

The questionnaire was reviewed by (15) proficient in various medical and nursing domains, and the reliability confirmed by using the Cronbach's Alpha was (0.802) for knowledge questionnaire.

Statistical analysis

The collected data were compiled and analyzed using percentages, means and standard deviation, Alpha Cronbach. This investigation's data was dissected using the Social Science Statistical Package (SPSS) version 25.

RESULTS

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, 60.0% (18) of the sample was female gender, 46.7% (14) of them was bachelor in nursing of educational level, 76.7% (23) of the sample at (1- less than 6) years of work in hospital, 80.0% (24) of the sample at (1- less than 6) years of experience in unit, also 66.7% (20) of the sample not having training courses, finally 66.7% (20) of the sample not having number of training courses.

The table (2) presents the statistical differences result for nurses' knowledge about care for children treatment with ventricular peritoneal shunt, that the general knowledge which belongs to hydrocephalus was 46.7% (14) of the sample at Poor Knowledge level with mean (1.63) and standard deviation (0.669) of knowledge in result. General knowledge which belongs to ventricular peritoneal shunt was 56.7% (17) of the sample at acceptable Knowledge level with mean (2.03) and standard deviation (0.669) of knowledge in result. Knowledge that belongs to complication of ventricular peritoneal shunt was 50.0% (15) of the sample at Poor Knowledge level with mean (1.60) and standard deviation (0.675) of knowledge in result. While the total nurses' knowledge about care for children treatment with ventricular peritoneal shunt, that 53.3% (16) of the sample at Poor Knowledge level with mean (1.53) and standard deviation (0.629) of knowledge in result.

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

Demographic Variables	Items	Freq.	%
1. Age	20-29	22	73.3
	30-39	6	20.0
	40-49	2	6.7
2. Gender	Male	12	40.0
	Female	18	60.0
3. Level of Education	Preparatory Nursing	5	16.7
	Nursing Institute	11	36.7
	Bachelor of Nursing	14	46.6
4. Years of work in hospital	1-less than 6	23	76.6
	6- less than 11	5	16.7
	11-15	2	6.7
5. Years of Experience in unit	1-less than 6	24	80.0
	6- less than 11	4	13.3
	11-15	2	6.7
6. Training Courses	No	20	66.7
	Yes	10	33.3
7. Number of Training Courses	0	20	66.7
	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' Knowledge about care for children treatment with ventricular peritoneal shunt

Knowledge domains	Estimate	Result			
		Freq.	%	M.	St.D.
General knowledge which belongs to hydrocephalus	Poor Knowledge	14	46.7	1.63	0.669
	Accepted Knowledge	13	43.3		
	Good Knowledge	3	10.0		
General knowledge which belongs to VP shunt	Poor Knowledge	6	20.0	2.03	0.669
	Accepted Knowledge	17	56.7		
	Good Knowledge	7	23.3		
Knowledge that belongs to complication of VP shunt	Poor Knowledge	15	50.0	1.60	0.675
	Accepted Knowledge	12	40.0		
	Good Knowledge	3	10.0		
Total nurses knowledge	Poor Knowledge	16	53.3	1.53	0.629
	Accepted Knowledge	12	40.0		
	Good Knowledge	2	6.7		
Total		30	100.0		

Table (3) shows there was non-significant correlations between the all demographic variables with all parts of total nurses' knowledge except the posttest1 with Educational Level at p. value (0.023) only.

DISCUSSION

Regarding demographic characteristics in table (1), shows that more than two thirds of sample at age (20-29) years. This finding approve with researcher Baewy and Aziz (2020) which indicated the majority of nurses age between (20-29) was 79%. Regarding to the gender in table (1) shows that nearly two third participant of the sample was female gender. These findings are approving with researcher Nasser and Hassoun (2020), stated his research in Baghdad city (Nurses' Practices toward Chemotherapy-

Induced Peripheral Neuropathy for Children) that nearly two third of participant in the study was female. On the other hand, regarding to the educational level in table (1) shows that less than half of participant of the sample were from bachelor degree. These findings are approving with researcher NA, A et al., (2021) her research in Egypt about "Nurses Performance Regarding External Ventricular Drain among Children", that more than half studied nurses held bachelor of nursing. Concerning the years' work in hospital that shows in table (1), shows more than three quarters of the sample between (1- less than 6) years of work. While there are no nurses have years of comparable to or more than 16 years' work in hospital.

Regarding years of experiences in neurosurgical care unit were shows in table (1), shows that the majority percentage of the sample at (1- less than 6) years of experience in unit. Also, were no nurses with experience in unit that was

comparison to or more than 16 years. Then this result approves with researcher Ahmed and Radha (2020) his study in Mosul City about (Oxygen Administration Methods at Pediatric Teaching Hospitals) stated that more than three quarters percent years of work of sample in hospital between (1- less than 6) years, correspondence the majority percent years of experience in unit were between (1- less than 6) years. About the training courses and number of training courses in table (1), shows that two third percent of the sample not having training courses, this refers that most of the sample not having number of training courses. the study in contrast with the results present, which done by Baewy and Aziz (2020) according to the finding of the study that the highest percent of nurses have attended training sessions and courses for caring for babies with hydrocephalus. The result of table (2) are supported by researcher Elbilgahy and Mohammed (2019) in her research in Egypt which explains that nurses' information was low during assessment of nurse's knowledge.

CONCLUSIONS

Most nurses in age between (20-29 years) and bachelor level of education. The years of work in hospital was between (1-5 years). The nurses have less than five years of experience in neurosurgery unit. And two thirds of nurses did not receive training courses about VP shunt. The result of total nurse's knowledge in the result was poor during assessment.

ETHICAL CONSIDERATIONS COMPLIANCE WITH ETHICAL GUIDELINES

This study was completed following obtaining consent from the University of Baghdad and Ninawah Health Department.

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AUTHOR'S CONTRIBUTIONS

Study concept; Writing the original draft; Data collection; Data analysis and Reviewing the final edition by all authors.

DISCLOSURE STATEMENT:

The authors report no conflict of interest.

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REFERENCES

- Ahmed, M., & Radha, A. (2020). Nurses' Knowledge and Skills regarding Oxygen Administration Methods at Pediatric Teaching Hospitals in Mosul City. *Iraqi National Journal of Nursing Specialties*, 33(2), 40-50.
- Ali, M., Usman, M., Khan, Z., Khan, K. M., Hussain, R., & Khanzada, K. (2013). Endoscopic third ventriculostomy for obstructive hydrocephalus. *J Coll Physicians Surg Pak*, 23(5), 338-41.
- Baewy, S. H., & Aziz, A. R. (2020). Effectiveness of Health Education Program on Nurse's Practices toward Hydrocephalus Neonatal Baby Care at Intensive Care Unit at Medical City Complex in Baghdad City. *Indian Journal of Public Health Research & Development*, 11(4).
- Dakurah TK, Adams F, Iddrissu M, Wepeba GK, Akoto H, Bankah
effectiveness of ventricular shunt placement versus endoscopic
- Elbilgahy, A. A., & Mohammed, B. A. (2019). Improving the quality of nursing care provided for children undergoing ventriculoperitoneal shunt. *Academic Journal of Nursing and Health Education*, 8(2).
- Hasanain, A. A., Abdullah, A., Alsawy, M. F., Soliman, M. A., Ghaleb, A. A., Elwy, R., ... & El Refaee, E. A. (2019). Incidence of and causes for ventriculoperitoneal shunt failure in children younger than 2 years: A systematic review. *Journal of Neurological Surgery Part A: Central European Neurosurgery*, 80(01), 026-033.
- infants. *J Neurosurg Pediatr* 2014;13(03):295-300.
- Jea A, Kulkarni AV, Constantini S (2017). Epidemiology of hydrocephalus in children. Available at: <http://ispn.guide/book/>. *European Geriatric Medicine*.
- Jernigan SC, Berry JG, Graham DA, Goumnerova L. The comparative
- Kahle, K. T., Kulkarni, A. V., Limbrick Jr, D. D., & Warf, B. C. (2016). Hydrocephalus in children. *The lancet*, 387(10020), PP 788-799.
- Marcadante, K. J., & Kliegman, R. M. (2019). *Nelson Essentials of Pediatrics*. 8th ed. Philadelphia, PA: Elsevier.
- NA, A., SS, A. R., SE, H., & AE, A. H. (2021). Assessment of Nurses Performance Regarding External Ventricular Drain among Children with Brain Tumor. *Egyptian Journal of Health Care*, 12(3), 945-955.
- Nasser, J. A., & Hassoun, S. (2020). Effectiveness of Health Educational Program on Nurses' Practices toward Chemotherapy-Induced Peripheral Neuropathy for Children at Hematology Center in Baghdad City. *Iraqi National Journal of Nursing Specialties*, 33(2), 1-12.

Nelson,S.L., 2016. Hydrocephalus, Published article. WebMD LLC., <https://emedicine.medscape.com/article/1135286-overview>.

P, Ametefe M, Kasu PW (2016) Management of hydrocephalus

Shahi, M. V., Noorbakhsh, S., Ashouri, S., Tahernia, L., & Derakhshani, M. R. (2018). The Complication for Ventricular Shunt Based on Different Etiologies: A Prospective Study in Tehran, Iran. The Open Neurology Journal, 12(1). third ventriculostomy for initial treatment of hydrocephalus in

with ventriculoperitoneal shunts: review of 109 cases of children.

World Neurosurg 96:129-135.

<https://doi.org/10.1016/j.wneu.2016.06.111>.

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