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Original Article

Nursing Strategies on the Prevention of Ocular Complications Among Patients with Altered Level of Consciousness

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Abstract

Background : Ocular trauma is the cause of blindness in more than half a million people worldwide. A lack of attention to the eye or poor eye care can lead to cross infection and may cause damage to the eye. This investigation aimed to determine the effectiveness of nursing strategies on prevention of ocular complications among patients with altered level of consciousness (GCS <8) and associate the occurrence of ocular complications with clinical variables.

Method : The research design adopted for this study was true experimental. A pilot study was initially under taken. Eight samples, four in each group were selected. The main study was conducted for over a period of 4 weeks. A total of 40 samples were selected, 20 in each group. Ocular complication assessment scale developed by the author was used to assess the effectiveness of nursing strategies on prevention of ocular complication.

Results : There was a significant difference in the ocular complication prevention in the study group patients who received planned sequential eye care as compared to that of the control group patients who received the routine eye care.

Discussion : Increasing the frequency of eye care Q4th hourly from routine eye care was found to be effective in reducing the ocular complications among the patients with altered level of consciousness.

Introduction

The eye is the most important sense organ in the human body. Trauma to the eye could be from many sources, one such source is head injury.Traumatic brain injury is caused by a blow or a penetrating head injury that disrupts the function of the brain[1]. Head injury causes hospitalization of 200-300 persons per 100,000 population per year. 25% of these are associated with ocular injuries secondary to head injury that leads to blindness.It is often the leading cause of unilateral loss of vision particularly in developing countries (eye 2005)[2].

An altered level of consciousness results from a variety of factors including alterations in the chemical environment of the brain, insufficient oxygen or blood flow in the brain and excessive pressure within the skull. Paralysed patients are potentially exposed to a number of harmful eye insults (Llyod, 1990)[3].

Current record of annual road accidents in India is over 600,000. Every minute there is a death due to head injury (Mahapatra, 1999)[4]. The number of patients who are getting treatment in the Neuro Intensive Care Unit of Sri Ramachandra Medical Centre per month is 80-100.

Corneal infection is one of the leading causes of ocular morbidity and blindness. Worldwide corneal opacities due to central corneal ulcer leading to monocular blindness in developing countries. One of the causes of corneal blindness in our country is infective corneal ulcer[5].

Patients who are admitted in the Neuro Intensive Care Unit with epidural, subdural, and subarachnoid hemorrhage,

cerebra-vascular accident and other neurological conditions are more prone to have diminished corneal reflex due to trauma and dysfunction of cranial nerves III, IV or VI. Multiple nerve involvement may lead to conjunctival discharge, eye lid encrustation, dryness of the cornea, white discharge on cornea and conjunctiva redness and this leads to diplopia that can in turn reduce the quality of life[6].

There are very few studies that lay emphasis on the need for eye care among patients with altered level of consciousness. Hence the investigator was interested to see the effectiveness of nursing strategies on prevention of ocular complications among neuro patients with altered level of consciousness. The secondary objective is to associate the risk of ocular complications with the clinical variables.

Materials and Methods

The research design adopted for this study was true experimental[7&8].

	Group	Pretest	Intervention	Post test
R	Study	O_1	*X	O_2
	Control	O_1	*	O_2

Keys :

R – Randomization, O_1 – Pretest, X – Intervention, * - Routine care, O_2 – Post test

The study was conducted in neuro intensive care unit of tertiary care centre. The unit is well-equipped with sophisticated technology with 27 beds which admits patient with both neuro medicine and neuro surgery conditions. The average census of the NICU is 80-100 patients per month.

Population

The target population for this study were both men and women who were admitted with Head Injury, Stroke, Aneurysms, Guillain-Barre syndrome, Myasthenia Gravis, patients who have undergone cranial surgeries, trans sphenoidal surgery, coiling and with ventilator support based on the inclusion criteria.

A total of 40 patients both men and women were included, among them 20 samples were assigned to the experimental group and 20 samples were in the control group.

Data collection Procedure

Ethical clearance was given by Nursing Education department and written confirmation was obtained from Medical Director. The main study was then conducted for a period of 4 weeks. Data collection format was formulated and it is comprised of section A: Demographic variables which include age, gender, education, occupation and income. The clinical variables includes diagnosis, surgery, post op day, tracheostomy with number of days, endotracheal intubation with number of days and the condition of eyelids. Section B: the observation checklist which consists of five points such as eyelid encrustation, dryness of the cornea, white discharge on cornea, conjunctival discharge and conjunctival redness. The researcher selected the patients according to the inclusion and the exclusion criteria and they were assigned randomly either to the study group or to the control group depending on the lot selected from the box. The researcher started the intervention at 8am by assessment and interpretation of the condition of the eyes, this was followed by implementation of the nursing strategies every fourth hourly and postestevery fourth hourly till 8pm by following the protocol- hand washing, assess eyelid position, wear gloves, clean the eyes with normal saline from inner canthus to outer canthus, administer eye drops/eye ointment, apply patch if needed in study group. The intervention was carriedout for 3 consecutive days, whereas the control group received the routine care by the nursing personnel in the NICU.

Statistical analyses

Data were collected and then exported into Microsoft Excel for the data analysis. Descriptive and inferential statistics was used to assess the both groups[9].

Findings

Table 1 : Comparison of the level of ocular complication prevention in the pre and posttest among patients with altered level of consciousness in the study and the control group (N=40)

Sl. No	Variables	Pretest 1st day (8am)					Posttest 3rd day (8pm)				
		Study group		Control group		Chi square	Study group		Control group		Chi square
		No.	%	No.	%		No.	%	No.	%	
1.	Eyelids Encrustation										
	a. Yes	15	75	16	80	0.705	0	0	5	25	*
	b. No	5	25	4	20		20	100	15	75	0.017
2.	Cornea is dry										
	a. Yes	2	10	5	25	0.212	0	0	0	0	***
	b. No	18	90	15	75		20	100	20	100	0.000
3.	White discharge on cornea										
	a. yes	1	5	0	0	0.311	0	0	1	5	0.311
	b. No	19	95	20	100		20	100	19	95	(NS)
4.	Conjunctival discharge										
	a. Yes	8	40	12	60	0.206	0	0	7	35	*
	b. No	12	60	8	40		20	100	13	65	0.004
5.	Conjunctival redness										
	a. Yes	1	5	0	0	0.311	1	5	11	55	***
	b. No	19	95	20	100		19	95	9	45	0.001

NS-Non Significant, *P<0.05, **P<0.01, ***P<0.001

Table1 compares the level of ocular complication prevention in the pretest and posttest among patients with altered level of consciousness in the study and the control group. It was noted that there was a significant difference in the eyelid encrustation, corneal dryness, conjunctival discharge and conjunctival redness in both the study and the control group between pre and posttest.

By comparing the study and control group in the posttest on the 3rd day at 8pm, none of them had eyelid encrustation in the study group, whereas 5(25%) had eyelid encrustation in the control group. None of them had corneal dryness in both groups. None of them had white discharge on cornea in the study group, whereas 1(5%) had white discharge on the cornea in the control group. None had conjunctival discharge in the study group, whereas 7(35%) of them had conjunctival discharge. In the study group 1(5%) had conjunctival redness, whereas in the control group 11(55%) had developed conjunctival redness.

This indicated that the Pearson chi square significance in the ocular complication prevention for the study and control group there was a significant difference in eyelid encrustation at P<0.05; corneal dryness at P<0.001; conjunctival discharge at P<0.05; and conjunctival redness at P<0.001.

This shows that there was a significant difference in the ocular complication prevention in the study group patients who received planned sequential eye care as compared to that of the control group patients who received the routine eye care.

Discussion

The study group subjects received sequential eye care q4th hrly, while the control group subjects received only the routine care. This was followed for 3 consecutive days.Both the groups were reassessed after this on the third day at 8pm of care by using the ocular complication prevention scale and the scores were recorded.

The first objective stated was to evaluate the effectiveness of nursing strategies on prevention of ocular complications among patients with altered level of consciousness.

The effectiveness of nursing strategies on the prevention of ocular complication in both the pretest and posttest among the groups were assessed using Pearson chi square. Pre assessment was done on the first day at 8am for both the

groups using ocular complication prevention scale. Following this planned sequential 4th hrly eye care was given for 3 consecutive days, after which post assessment was done on the third day at 8pm using ocular complication prevention scale.

There was a significant difference in the prevention of ocular complication for the study group and the control group in eyelid encrustation at P<0.05; corneal dryness at P<0.001; conjunctival discharge at P<0.05; and conjunctival redness at P<0.001. On comparison of the frequency and percentage in the study group and the control group in posttest, none of the patient had eyelid encrustation in the study group whereas in the control group 5(25%) had eyelid encrustation, none of them had corneal dryness in the study group as well as in the control group, none of them had white discharge in cornea in the study group and 1(5%) had white discharge on cornea in the control group, in the study group none of them had conjunctival discharge and 7(35%) of them had conjunctival discharge in the control group, in the study group 1(5%) had conjunctival redness in the pretest and it was not reduced in the posttest also, in the control group none of them had conjunctival redness in the pretest, but in the posttest 11(55%) had developed conjunctival redness.

This shows that there was a significant difference in the ocular complication prevention in the study group patients who received planned sequential eye care as compared to that of the control group patients who received the routine eye care.

The researcher correlated these findings with the study findings of Holly Cranau et al(2010) Red eye (Conjunctival redness) was the cardinal sign of ocular inflammation which could be managed by the physician[10].

The second objective was to associate the risk of ocular complications with the clinical variables

Pearson chi square test was used to associate the effect of ocular complication prevention with the clinical variables for the study group and the control group. It revealed that there was a significant association between the clinical variables and selected ocular complication prevention component for the subjects in both the study group and the control group.

There was a significant association between the eyelid encrustation and the clinical variables, number of days of endo tracheal intubation at the level of P<0.001.

There was a significant association between the conjunctival discharge and the clinical variables, number of days of endo tracheal intubation at the level of P<0.001 and P<0.05.

There was a significant association between the conjunctival redness and the clinical variables, as in the postop day and in number of days of endo tracheal intubation at the level of P<0.001.

Conclusion

Eye care is the fundamental aspect of nursing care. A lack of attention to the eye or poor eye care can lead to cross infection and may cause damage to the eye. Eye care is given to patients with altered level of consciousness by nurses in order to replace the normal protective actions of the eye that do not occur during illness.

Whilst a variety of eye care techniques are traditionally used, several articles have highlighted the limited research supporting the current practical application of eye care procedures and products, (Lloyd 1990, Farrel&Wray 1993)[3].

Nursing care using an eye care protocol was found to be effective in the prevention of ocular complications among patients with altered level of consciousness. The author insist the Neuro nurses to implement the protocol. The protocol was emphasized to be followed to prevent ocular complications

NICU Eye Care Protocol

- Assessment to be done every 4th hourly.
- All patients to be assessed for encrustation if any concerns complete full assessment to be done.

1. Identify the patient
2. Based on the level of consciousness
3. Wash hands
4. Wear disposable, clean gloves
5. Asses eyelids position, observe the ocular condition
6. Clean with Normal Saline from inner canthus to outer canthus
7. Administer eye drops/eye ointment if necessary
8. Apply patch if needed
9. Remove gloves
10. Wash hands
11. Replace articles
12. Record the intervention
    - Position of the eyelids
    - Corneal dryness / discharge
    - Conjunctival discharge / redness

Reference

1. Aruj Khurana, K. (2007). *Review of Ophthalmology*. (4th ed). New Delhi: New age International (P) limited Publishers.
2. Deborah Dawson. (2005). Development of a new eye care guideline for critically ill patients. *Journal of Intensive and Critical Care Nursing.* 21: 119-122.
3. Lloyd, F. (1990). Eye care for ventilated unconscious patient. *Nursing Times*, *86*(1): 36-37.
4. Mahapatra, A.K and Raj Kamal. (1999). *A Text Book Of Head Injury.* (1st ed). New Delhi: Modern Publishers.
5. Glenn Cockerham, C., Gregory Goodrich, L., LTC Eric Weichel, D., James Orcutt, C., Joseph Rizzo, F., Col Kraig Bower, S., and Ronald Schuchard, A. (2009). Eye and visual function in traumatic brain injury. *Journal of Rehabilitation Research and Revelopment, 46*(6): 811-8.
6. Brunner.,&suddarth. (2004). *Medical Surgical Nursing.* (10th ed). Philadelphia: Lippincot Williams and Wilkins.
7. Basavanthappa, B.T. (2007). *Nursing Research*. (2nd ed). New Delhi: Jaypee Publishers.
8. Suresh Sharma, K., (2011). *Nursing Research and Statistics.* (1st ed). New Delhi: Elsevier Publication.
9. SundarRao, P.S.S. (2006*). Introduction to Biostatistics and Research Method.* (4th ed). New Delhi: Prentice Hall of India private Limited.
10. Holly Cronau, Ramana Reddy, Kankanala, and Thomas Mauger. (2010). Diagnosis and management of red eye in primary care. *Journal of Americian Academy of Family Physicians*, *81*(2): 137-144.