IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

"CONSTRUCT AND EVALUATE POSTOPERATIVE CLINICAL PATHWAY FOR PATIENTS UNDERGOING NEUROLOGICAL SURGERIES"

[1]RABEKA JOSEPH, [2]ANNA HIMA THOMAS, [3]DR.VISHWAS SATHE

[1]MSC. NURSES PRACTITIONER IN CRITICAL CARE, MGM NEW BOMBAY COLLEGE OF NURSING , NAVI MUMBAI, INDIA

[2]ASSISSTANT PROFESSOR, MGM NEW BOMBAY COLLEGE OF NURSING , NAVI MUMBAI, INDIA

[3]PROFESSOR, DEPARTMENT OF ANESTHESIOLOGY (CARDIAC UNIT)

Abstract:

Introduction:

In terms of reducing health care resource, complication, length of stay clinical pathway have proven to be simple and effective by evaluating periodically[1].Majority of post craniotomy have complications due to prolonged hospital stay and mechanical ventilation[2].Thirty percent of patients among post craniotomy have at-least one neurological or medical complication[3].

Objective of the study:

To compare the outcome among patients undergone craniotomy with clinical pathway and without the clinical pathway

Methodology

A quasi-experimental design is used in this study with quantitative approach, study is conducted in a selected hospital of Navi Mumbai, included all the patients undergoing craniotomy surgeries and are available during study. 60 samples selected for the study, clinical care pathway was implemented on prospective group(n=30) and not implemented on retrospective group(n=30). Outcome is compared among both the groups.

Results: Analysis and comparison done using in comparison of retrospective (without clinical pathway, n=30) and prospective (with clinical pathway, n=30) using independent t-test. Prospectively there was reduction in length of stay (p=0.008) and duration of definitive airway (p=0.044). Medical complications, Surgical site infection (p=0.043) and pulmonary complication (p=0.016) has significant difference and Neurological complication shows no different, other complications (p=0.022) like bedsore, CLABSI, CAUTI and sepsis was decreased. Readmission(p=0.043) was also significantly reduced in prospective.

Conclusion: Patients outcome after implementation of clinical pathway shows reduction in length of stay, complication, and readmission this will benefit the hospital, patient and staffs. Nursing staffs will gain the knowledge regarding care of post craniotomy patient in critical care unit through this study. Only few parameters were analysed in the study.

Index Terms **-** Clinical care pathway, Neurology surgery, Post craniotomy, Complications of craniotomy

INTRODUCTION

Craniotomy is a neurosurgical procedure done within the intracranial space[4].Care pathways now used in many health care settings with positive outcomes[5].The clinical care pathway (CCP) shortens the duration of the treatment process with faster diagnosis also had a decreased rate of surgical complications[6].

Need of the study: Post craniotomy complications due to prolonged stay in hospital include brain edema, convulsions, post-operative hemorrhages, and surgical site infection.[10]This clinical care pathway will reduce the complication, decrease length of stay and also reduce readmission.

1.2 Population

Target population

All patients undergoing craniotomy surgery in various hospital of Navi Mumbai.

Accessible population

All patients undergoing craniotomy surgery and available during the study in a selected teaching hospital of Navi Mumbai.

Sample: The sample comprises of all the patient undergoing craniotomy surgery during the period of data collection.

Sample size: The calculated sample size is 60 (30 as experimental group for implementing clinical care pathway and 30 as control group without implementing care pathway).

DATA COLLECTION

In this study non-probability, purposive sampling technique was used to select the sample based on inclusion and exclusion criteria.

RESEARCH METHODOLOGY

Quasi experimental design was adopted using quantitative approach to implement a clinical care pathway and observe the outcome among prospective and retrospective group. Using rater inter-rater reliability of tool was done and implemented on 30 samples prospectively. Retrospective data was collected from medical record department. The outcome of prospective and retrospective is done by outcome checklist.

RESULTS AND DISCUSSION

1. Comparison of Prospective and retrospective data based on length of ICU stay and duration of definitive airway

	Prospective		Retrospective					
Parameters	Mean	SD	Mean	SD	t-test	df	p	Significance
Length of stay in ICU	13.6	895.2	17.4	1213.2	2.44.9	58	0.0088	S
Duration of definitive airway	13.2	938.8	15.9	1190.7	1.725	58	0.0448	S

Table 1 shows that the mean length of ICU stay is 13.6 and 17.4 on prospective and retrospective data. The prospective group by using clinical care pathway demonstrated shorter length of stay ($p = <0.05$).

2.Analysis of post craniotomy patients based on general medical complications in retrospective and prospective.

General complication	Prospective n	Prospective %	Retrospective n	Retrospective %	Independent t -test	p	Significance
PONV							
Yes (Present)	2	6.70	2	6.70			
No (Absent)	28	93.30	28	93.30	**0**	**1**	**NS**
Change in MAP							
Yes (Present)	18	60	16	53.30			
No (Absent)	12	40	14	46.70	**-1**	**0.3255**	**NS**
DVT							
Yes (Present)	5	16.70	8	26.70			
No (Absent)	25	83.30	22	73.30	**1.795**	**0.083**	**NS**
SSI							
Yes (Present)	7	23.30	10	33.30			
No (Absent)	23	76.70	20	66.70	**2.112**	**0.0434**	**S**
Pulmonary complication							
Yes (Present)	20	66.70	25	83.30			
No (Absent)	10	33.30	5	16.70	**2.69**	**0.0116**	**S**

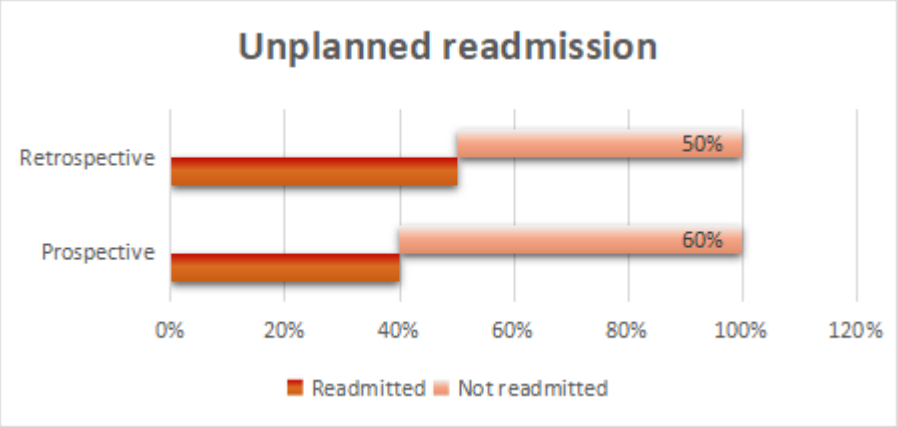
PONV complication is equal in both the group (p=1, NS), Changes in MAP has no significant difference among the groups (p= 0.3255 > 0.05; NS), DVT complication also shows no significant differences. There is significant difference in SSI (p=0.04).

2.Analysis of post craniotomy patients based on neurological complications and readmission in retrospective and prospective.

Neurological complications	Prospective		Retrospective		Independent t -test	p	Significance
	n	%	n	%			
Seizure					**-1**	**0.3255**	**NS**
Yes (Present)	7	23.30	6	20			
No (Absent)	23	76.70	24	80			
CSF leakage					**1**	**0.3255**	**NS**
Yes (Present)	4	13.30	5	16.60			
No (Absent)	26	86.70	25	83.40			
CN dysfunction					**1.795**	**0.8307**	**NS**
Yes (Present)	21	70	23	76.70			
No (Absent)	9	30	7	23.30			
Hemorrhage					**1.4392**	**0.1679**	**NS**
Yes (Present)	4	13.30	6	20			
No (Absent)	26	86.70	24	80			
Hydrocephalus					**-1.4392**	**0.1607**	**NS**
Yes (Present)	2	6.70	4	13.30			
No (Absent)	28	93.30	26	86.70			
Brain herniation / Brain edema					**-1.4392**	**0.1607**	**NS**
Yes (Present)	3	10	1	3.33			
No (Absent)	27	90	29	96.70			
Re-operation within 48 hours					**-1**	**0.325**	**NS**
Yes (Present)	2	6.70	1	3.33			
No (Absent)	30	93.30	29	96.70			
Other complications					**2.4083**	**0.0226**	**S**
Yes (Present)	22	73.30	26	86.70			
No (Absent)	8	26.70	4	13.30			

There is no significant difference in seizure (p=0.32), CSF leakage (p=0.3255), CN dysfunction (p=0.83), hemorrhage (p=0.167), Hydrocephalus (p=0.16), brain herniation (p=0.16), and Re-operation (p=0.325). There is significant difference in other complications (like bed sore, urinary tract infection, CLABSI, CAUTI and sepsis) {p=0.022} and readmission (p=0.04)**.**

Graph 1. Comparison of unplanned readmission among retrospective and prospective group.



40% among prospective and 60 % among retrospective patients got readmitted.

There is significant difference in length of stay, few complications and unplanned readmission within 30 days.

DISSCUSSION

In a study out of 89 patients, complications (infection 15.7%, hydrocephalus 7.9% and subdural effusion 11.2%) developed in 34.8% of patients. After implementing the care pathway it is observed that there is reduction in returning to OT and infection by 12.1%. Length of stay (p=0.008) also reduced after implementing clinical pathway as in another study mean of 8.1 day reduced to 7.3 days after care pathway implementation.

The objective of this study is to reduce the complications, length of stay in intensive care unit and readmission within 30 days' official ethical permission was granted by the authorities. There are many studies which is conducted on development of clinical care pathway for other neurosurgeries but there is no research done exclusively for post craniotomy patients to reduce complications, length of stay and readmission.

CONCLUSION

Clinical pathways should also be designed, implemented, and assessed using validated methodologies, such as best practice standards, according to the research. Many health-care organizations throughout the world have implemented clinical pathways with the goal of improving medical quality. The clinical pathway will be incorporated into a variety of systems that will provide a broader range of support (e.g., at-home care and a mobile hospital), significantly improving medical quality. Clinical pathways benefit hospital systems by decreasing variation in care and providing efficiency-boosting guidelines. Despite the fact that the primary goal of pathways should be to improve patient

REFERENCE

1. Yetzer JG, Pirgousis P, Li Z, Fernandes R. Clinical Pathway Implementation Improves Efficiency of Care in a Maxillofacial Head and Neck Surgery Unit. Journal of Oral and Maxillofacial Surgery.2017 Jan 1;75 (1):190–6.
2. Eelco F. M. Wijdicks. The Practice of Emergency and Critical Care Neurology [Internet]. 2016 [cited 2021 Nov 10]. 629–636 p. Available from: https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Wijdicks%2C+E.%C2%A0%28201604%29.%C2%A0Complications+of+Craniotomy+and+Biopsy.%C2%A0In%C2%A0The+Practice+of+Emergency+and+Critical+Care+Neurology&btnG=
3. Lonjaret L, Guyonnet M, Berard E, Vironneau M, Peres F, Sacrista S, et al. Postoperative complications after craniotomy for brain tumor surgery. Anaesthesia Critical Care & Pain Medicine. 2017 Aug;36(4).
4. José Manuel González-Darder. History of the craniotomy. Neurocirugía [Internet]. 2016 Sep 1 [cited 2021 Nov 10];27(5):245–57. Available from: https://www.sciencedirect.com/science/article/abs/pii/S1130147316000245?via%3Dihub
5. Rotter T, Kinsman L, James EL, Machotta A, Gothe H, Willis J, et al. Clinical pathways: effects on professional practice, patient outcomes, length of stay and hospital costs. Cochrane Database of Systematic Reviews [Internet]. 2010 Mar 17 [cited 2021 Nov 10];(3). Available from: https://doi.wiley.com/10.1002/14651858.CD006632.pub2
6. Schrijvers G. The care pathway: concepts and theories: an introduction. Vol. 12. 2012.