

EFFECTIVENESS OF SENSORY STIMULATION ON LEVEL OF CONSCIOUSNESS AMONG TRAUMATIC BRAIN INJURY PATIENTS ADMITTED AT SELECTED TERTIARY CARE HOSPITAL, BHUBANESWAR, ODISHA - A RANDOMIZED CONTROLLED CLINICAL TRIAL

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INTRODUCTION

Traumatic brain injury (TBI) is a complicated injury with a broad spectrum of symptoms and disabilities. The impact on an individual and their family will be devastating. A traumatic brain injury (TBI) is outlined as a force to the head or a penetrating cerebrum injury that disrupts the conventional operate of the cerebrum. TBI may result once the head suddenly and violently hits an object or when an object pierces the skull and enters cerebrum. Symptoms of a TBI can be mild, moderate or severe, counting on the extent of injury to the cerebrum. Mild cases might end in a quick amendment in mental state or consciousness, whereas severe cases might end in extended periods of unconsciousness, coma or may be death.

Symptoms counting on the severity of the head injury however could embody “Vomiting” “Lethargy” “Headache” “Confusion” “Paralysis” “Coma” “Loss of consciousness” “Dilated pupils” “Vision changes” Cerebrospinal fluid (CSF) flow from the ears or nose, Dizziness and balance issues, Breathing issues, Slow pulse, Slow respiration rate, elavated blood pressure level, tinitus or hearing issues, Cognitive difficulties, unsuitable emotional state, Speech difficulties (illuminat words), Difficulty swallowing, Body dullness or tingling, Droopy eyelid or facial weakness, Loss of bowel or bladder management

PREVALENCE OF TBI IS INCREASING WORLDWIDE

In the late spring of 2020, the journal, Lancet Neurology, will be publishing a dedicated commissioned issue on 'Traumatic Brain Injury.' The Journal of Neurosurgery is expected to draw attention to the neurosurgical problems prevalent in LMICs and are particularly focusing on care of patients suffering from TBI in a special edition, expected in the first half of this year.

NEED FOR STUDY

Unconsciousness (or) lack of consciousness. The Traumatic Brain Injury is classified in to “mild-moderate-severe” by using the Glassgow Coma Scale (GSC) score. GCS is a universallyused for assessing coma and impaired consciousness. Patient with scores of 8 or less are moderate and scores of 13 to 15 are mild. The incidence of mild 131 cases per 10,000 people, moderate 15 cases per 10,000 people and severe 14 cases per 10,000 people.¹

Traumatic Brain Injury is a contributing factor to 30.5% of all injury related death in the USA. around 75% of TBI that occur every year are conscious (or) other form of mild TBI related hospitalization and death. In the past motor vehicle accidents and fall were the most common causes of Traumatic Brain Injury in both Canada and the United States.⁴

Statistics says that in the year 2001 in India TBI is approximately that nearly 4,50,000 people died due to injury as per official report. As per a recent report entitled “First India Report” estimated that during 2005 nearly 8,50,000 person died and 16.5 million were hospitalized due to injuries in India.⁵

An experimental study was conducted on patients in unconsciousness state in intensive care unit. Unconscious patients had been split in to control and study groups. SSP was directed to 5 sensory technique which include tactile, gustatory, olfactory, auditory and visual. reaction to stimulation was assessed with the help of Glasgow Coma Scale score. Results of the study reveals that the patients in experimental group shown a great difference in improvement of level of consciousness with sensory stimulation programmes. The study suggested that the sensory stimulation given early in the period of unconsciousness gives good results.⁸

RESEARCH PROBLEM

“Effectiveness of sensory stimulation on level of consciousness among traumatic brain injury patients admitted at selected tertiary care hospital, Bhubaneswar, odisha – a randomized controlled clinical trial.”

HYPOTHESIS

H 1 - There will be a significant difference between the pre test and post test interventional scores on consciousness level of Traumatic Brain Injury patients.

OBJECTIVES OF STUDY:

To evaluate the effectiveness of sensory stimulation to improve the level of consciousness among traumatic brain injury patients

ASSUMPTIONS

- 1.Sensory stimuli may enhance the consciousness level among traumatic brain injury patients.
- 2. It is assumed that the effectiveness of the sensory stimuli may differ with the demographic variables among study and control group.

METHODOLOGY:

Research approach: Quantitative approach.

Research design: Randomized controlled clinical trial.

Duration:- 7month

Sample:- TBI patients (GCS 6-10)

Sampling technique: Consecutive Sampling

Sample size: The sample size for the present study is 30 Traumatic Brain Injury patient. (experimental group-15, control group-15).

Study setting: The study will be conducted in neurosurgery ICU, HDU & neuro surgery ward dept of Pradyumna Bal Memorial Hospital, Bhubaneswar.

Method of data collection:- Questioning & Observation

Data collection tool:- Self Structured demographic proforma & GCS Scale

Inclusion criteria:-

- Traumatic Brain Injury patients of both gender.
- The patient with GCS score 6-10 in altered sensory stimuli.
- The patient who are available during the period of study.
- The patient age between 16-60yr

Exclusion criteria:-

- Critically ill patients . (history of old cva, muscular dystrophy, GB syndrome, MS, 7th cranial nerve palsy, epilepsy)
- Patient with restricted limb movement.

DATA COLLECTION METHOD AND TOOL

Selection of tool: Tool is an instrument used by the researcher to collect the data. In this study patient information , GCS scale are used to measure and observe accurately.

Development of tool:

Based on the objectives of the study ,GCS scale & self structured demographic data is prepared to evaluate the consciousness level among traumatic brain injury patient after and before the treatment.

Review of literature (text books, journals, published & unpublished dissertations, internet) pertaining to effect of foot massage and back massage in reducing blood pressure.

Discussion with subject experts , health care personnel.

This provide the researcher relevant information necessary to construct tool to collect information related to study .the tool is composed of section A : demographic data and section B: GCS scale .blue print was prepared prior to the construction of the instruments and items are prepared according to blueprint.

- Development of initial draft of tools was ready .
- formation of content validity .
- Second draft of tool was chosen .
- formation of content validity once more.
- formation of reliability.
- Development of ultimate draft of tool .

This tool consist of two section which are as follows.

SECTION A: DEMOGRAPHIC DATA:

The investigator created this tool to gather the demographic data of the study subjects and to spot the influence of sample characteristic with the improvement of consciousness level. It consist of 5 item , which composed of age, gender, education,

occupation, income.

SECTION B: GLOSOW COMA SCALE:

In this section 3 items are there ,which composed with ;eye opening, verbal response, motor response.

Ethical consideration:

- ◆ The research project & objective are approved by the institutional research committee & iethical committee of KINS under ICMR .
- ◆ A formal consent taken from HOD of Dept.of neurosurgery of PBMH to conduct the study .
- ◆ Confidentiality is ensured . an consent is obtained from the family member of head injury patient.
- ◆ The patient has right to refuse to participate within the study.
- ◆ No harm to patients' physical and psychological state.

Plan for data analysis.

- ◆ Analysis is that the schematic presentation and synthesis of the studies statistics and checking out of the study hypothesis using those data.
- ◆ The information obtained were analysed the use of each descriptive and inferential statistic based on the objectives and hypothesis of the study.

RESULTS:

Section I : Characteristics of socio-demographic data and experimental and control group.

Section II : Difference of level of consciousness between control and experimental group in pretest and posttest .

Section III : Association of pretest score with demographic variable .

FINDINGS RELETED TO CHERACTERISTICS OF SOCIO-DEMOGRAPHIC VARIABLE:

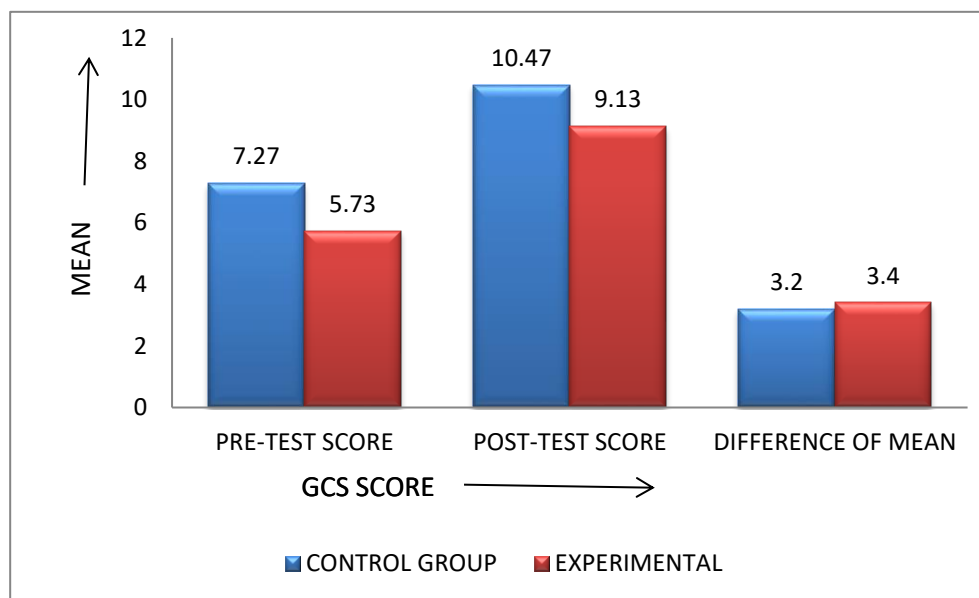
- In the patients's age frequency of the age group of 41-50 years i e 8 (53.3%) and minimum age group were 31-40years i.e 1(6.7%) in experimental and in control group maximum age group 16-30 & 31-40 years i.e 4 (26.7%) and minimum age group were 41-50 years i.e 2(13.3%).
- In the patient's frequency of gender where male between control and experimental group are 11(73.3%) & 12(77.3%) respectively and female between control and experimental group are 4 (26.7%) & 3 (20%) respectively.
- In the patient's frequency and percentage of education of the patients incontrol and experimental group. Maximum of patients are having primery education i.e 6(40%) & 5(53.3%) in control & experimental group respectively and minimum of patients having no formal education in contro group i.e 1(6.7%) & secondary education in experimental group i.e: 0 .
- In the patient's frequency and percentage of occupation of the patients in control and experimental group. Maximum of patients are private/ self employed i.e 9(60%) & 6(40%),daily labour 6(40 %) in control & experimental group respectively and minimum of patients are daily labour & unemployed i.e 1(6.7%) in controle group and unemployed in experimental group is 0% .
- In the patient's frequency and percentage of monthly income of the patients in control and experimental group. Maximum of patients earning 10001-20000 rs/month i.e 9(60%) & 8(53.3%) in control & experimental group respectively and minimum of patients earning 5000-10000rs/ month i.e 0 1(6.7%) in controle group and experimental group respectively.

TO ASSESS THE DIFFERENCE OF LEVEL OF CONSCIOUSNESS BETWEEN CONTROL AND

EXPERIMENTAL GROUP IN PRETEST AND POSTTEST

- The findings of the study revealed that pre test & post test GCS score in control and experimental group. In experimental group pretest score is 5.73 and post test score is 9.13. Difference between mean of pre test and post test is 3.400, which is statistically significant, where in control group pretest score is 7.27 and post test score is 10.47. Difference between pre test and post test mean is 3.200, its also statistically significant.
- Here calculated p value is 0.000 which is statically significant.

Score	Experimental Group (n=15)		Control Group (n=15)	
	Mean	SD	Mean	SD
Pre-Test Score	5.73	1.438	7.27	.961
Post-Test Score	9.13	2.031	10.47	1.685
Difference of Pre-& Post Score	3.400	2.131	3.200	1.656
df	14		14	
p value	0.00		0.00	



ASSOCIATION WITH SOCIO-DEMOGRAPHIC VARIABLES:

- It was inferred that patient's age had significant association with the level of consciousness among TBI patients.
- Other demographic variables had no significant association with consciousness level among TBI patients.

CONCLUSION

Mean score of level of consciousness in TBI patients has been extensively different between pre-assessment and post-assessment in study group than the control group. Hence, it may be inferred that there has been no considerable improvement in consciousness in the control group as in the study group. So, sensory stimulation is effective than routine care for improvement of consciousness among traumatic brain injury patient.

SUMMARY:

The present study focused on improvements of level of consciousness among TBI patients. Literature related to the sensory stimulation on improvement of consciousness among TBI patients. It revealed that 5 types of sensory stimulation for minimum 20-30min for 1week helped to improve the consciousness level of TBI patients. There were many studies tested the effect of sensory stimulation on consciousness level among TBI patients. Hence this study was focused on the improvement of level of consciousness and incorporated these sensory stimulation as an evidenced based nursing practice.

RECOMMENDATIONS:

- ◆ The study can be repeated by giving motor stimulation on improvement of level of consciousness. Training can be provided to the staff nurses regarding sensory stimulation .
- ◆ Structured teaching programme on sensory stimulation can be provided to the TBI patients family member.
- ◆ A similar study can be conducted by comparing the motor stimulation and sensory stimulation on improvement of level of consciousness.
- ◆ The research can be recreate on a large sample to draw generality .
- ◆ Similar research can be administer on all patients of neurology ward admitted in a tertiary care hospital.

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