



THE EFFECT OF COMA AROUSAL TECHNIQUE ON SELECTED SENSORY PERCEPTIONS AMONG PATIENTS WITH TRAUMATIC BRAIN INJURY IN SELECTED HOSPITAL.

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ABSTRACT

Background: Traumatic Brain Injury, defined as brain damage caused by externally inflicted trauma to the head that may result in significant impairment of an individual's functioning-physical, cognitive, psychosocial. TBI have a period of complete unconsciousness or coma with no awareness of themselves or their surroundings. TBI can have a lasting impact on quality of life for survivors of all ages like impaired thinking, decision making, reasoning, concentration, memory, movement, and/or sensation (e.g., vision or hearing). Several lines of evidence suggest that Coma Arousal Technique (CAT) is a potential nursing intervention that can improve the outcomes in patients with head injury. **Objective:** 1) To determine the effect of CAT on auditory and visual senses among patients with TBI. 2) To associate the effect of CAT with selected demographic variables of patients with TBI. **Methodology:** A Quasi experimental: Non randomized control group design was used involving 30 patients of TBI with GCS between 5 to 8 admitted not less than 72 hours. After obtaining informed & written consent from the patient relative, samples were randomly allocated into two groups of 15 patients each in experimental and control group. Experimental group received intervention (CAT) for 2 times a day for 10 consecutive days. The patients were evaluated and monitored using the GCS and CRS-R. Data was analysed using paired t-test, two sample t-test and Fishers' exact test. **Results:** The independent two sample t-test was used for 'between the group' data analysis. Repeated measures paired t-test were used for 'within the group' analysis. Experimental group, mean of GCS score in pre-test was 7.0(±1.1), mean of GCS score in post-test was 7.4(±1.3), which showed statistically significant improvement (P<0.05). When compared within the groups, post-test score shows CAT significantly improved the auditory and visual senses. Experimental group, mean of Modified CRS-R score in pre-test was 2.0(±0.7), mean of Modified CRS-R score in post-test was 2.2(±0.8), which showed statistically significant improvement (P<0.05). When compared within the groups, post-test score shows CAT significantly improved the auditory and visual senses. **Conclusion:** This is concluded from the result of this study that coma arousal technique is having significant effect on auditory and visual senses in TBI patients.

KEYWORDS: CAT, TBI, GCS, Modified CRS-R, Coma.

INTRODUCTION OR BACK GROUND

TBI has been referred to as a "silent epidemic" because its complications, such as changes in emotion, thinking, language, or sensation, are not readily apparent.^[1] The most severe TBI causes profound disturbances of consciousness. About 17% of people who survive TBI have a period of complete unconsciousness or coma with no awareness of themselves or their surroundings, defined as brain damage caused by externally inflicted trauma to the head may result in significant impairment

of an individual's functioning-physical, cognitive, psychosocial. CDC (2014) the long-term effects of a severe TBI can affect all aspects of a person's life, including the ability to participate in activities of daily living. According "National Institute of Neurological Disorder" (2013), TBI can result when object pierces the skull and enters brain tissue. TBI can have a lasting impact on quality of life for survivors of all ages – impairing thinking, decision making and reasoning, concentration, memory, movement, and/or sensation

(e.g., vision or hearing), and causing emotional problems (personality changes, impulsivity, anxiety, and depression) and epilepsy.^[2]

The GCS is the most frequently used measure to determine severity of TBI within 48 hr. of injury. Lower GCS scores indicate more severe brain injury. According to the World Health Organization (2012), TBI will be a major health problem and the main reason for disability in 2020. TBI is one of the most common devastating types of injury. It affects all ages.^[3]

TBI results in deaths, injuries and disabilities in all age groups but more in young and productive age group between 25-45 years. Among the 1527 patients with moderate or severe TBI patients with mean age 32.15 ± 16.76 years had severe TBI in level 1 trauma center new Delhi, India. The majority of cases took place in the age group of 25-40 years. TBI is a critical public health and socioeconomic problem throughout the world. The incidence of TBI refers to the number of new cases identified in a specific time period. The incidence of TBI has been increasing annually. According head injury foundation (2014), India is unenviable destination of having the highest rate of TBI's in the world. About

100,000 lives are lost every year with over 1 million suffering from serious TBIs in India.^[4]

MATERIAL AND METHODS

A Quasi Experimental study design with quantitative approach was used, as this study was aimed, the approach was found to be most appropriate. A experimental group received intervention (CAT) for 2 times a day for 10 consecutive days and control group was given no intervention. This study was conducted in selected hospital of Pune city. The selection was based on easy accessibility, cooperation and availability of samples. Total 30 Traumatic Brain Injury patients of selected hospital, Pune city who met the inclusion criteria were selected. Tool used for the collection of data was a GCS (level of consciousness) and Modified CRS-R (assess sensory component auditory and visual).

FINDINGS: The analysis and interpretation of the data collected to determine the Effectiveness of Coma Arousal Technique on selected sensory perceptions among patients with Traumatic Brain Injury is carried out based on objectives set by the researcher taking the level of significance as 0.05.

Table No 1.
n=15, 15

Response	Experimental group (n=15)				Control group (n=15)			
	Pretest		Posttest		Pretest		Posttest	
	n	%	n	%	N	%	n	%
Comatose client response (Score 5-8)	15	100.0	12	80.0	15	100.0	14	93.3
Best response (Score 9-15)	0	0.0	3	20.0	0	0.0	1	6.7

Effect of CAT on auditory and visual senses among patients with TBI based on GCS scale.

Table No 2.
n=15

Experimental Group	Mean	SD	T	df	p-value
Pretest	7.0	1.1	3.1	14	0.004
Posttest	7.4	1.3			

The effect of CAT on auditory and visual senses among patients with TBI based on GCS Scale.

Table No 3.
n=15, 15

Function		Experimental group (n=15)				Control group (n=15)			
		Pretest		Posttest		Pretest		Posttest	
		n	%	N	%	N	%	n	%
Auditory function	Vegetative state	12	80.0	9	60.0	15	100.0	13	86.7
	Minimally Conscious state	3	20.0	6	40.0	0	0.0	2	13.3

Effect of CAT on auditory senses among patients with TBI based on Modified CRS-R.

Table No 4.
n=15

Function	EXP GROUP	Mean	SD	T	Df	p-value
Auditory function	Pretest	2.0	0.7	1.9	14	0.041
	Posttest	2.2	0.8			

The effect of CAT on auditory senses among patients with TBI based on Modified CRS-R.

Table No 5.
n=15, 15

Function		Experimental group (n=15)				Control group (n=15)			
		Pretest		Posttest		Pretest		Posttest	
		n	%	N	%	N	%	n	%
Visual function	Vegetative state	9	60.0	6	40.0	6	40.0	4	26.7
	Minimally Conscious state	6	40.0	9	60.0	9	60.0	11	73.3

Effect of CAT on visual senses among patients with TBI based on Modified CRS-R.

Table No 6.
n=15

Function	EXP GROUP	Mean	SD	T	Df	p-value
Visual function	Pretest	1.5	1.0	2.3	14	0.020
	Posttest	1.7	0.9			

The effect of CAT on visual senses among patients with TBI based on Modified CRS-R.

DISCUSSION

The above finding of the study is supported by a study conducted by, Mandeep (2013), conducted study on "A Quasi experimental study to determine the effect of CAT on coma among patients with TBI." 30 comatose patients with TBI were systematic randomly selected. Both experimental and control group were having 15 patients each. An experimental approach was used; CAT was given to experimental group for 2 weeks. The independent t-test was used between the group data analysis. Repeated measures paired t-test was used in within the group analysis. Experimental group, mean of GCS on 14th day was 8.46(±0.91) and mean of GCS for control group was 5.93(±1.94), which shows significant improvement (P<0.05). Experimental group, mean of CRS on 14th day was 9.66(±1.83) and mean of CRS for control group was 4.73(±2.1), which shows significant improvement (P<0.05). When compared between the group, experimental group show significant improvement. This concluded from the result of this study that CAT is having significant effect on GCS and CRS in TBI patients.^[5]

CONCLUSION

The findings of the study show that there is significant difference between pre-test and post-test score of auditory and visual senses in the experimental group. The finding reveals that the CAT brought a significantly effect on auditory and visual senses.

CONFLICT OF INTEREST: Nil.

SOURCE OF FUNDING: Self.

ETHICAL CLEARANCE: Obtained from Institutional Research Committee of Symbiosis College of Nursing.

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