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TO ASSESS THE KNOWLEDGE,ATTITUDE AND PRACTICE ABOUT PREHOSPITAL CARE OF TRAUMATIC SPINAL CORD INJURY AMONG EMS STUDENTS, PUNE,INDIA.

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Abstract-

Background- Traumatic Spinal Cord injuries (TSCI**)** are defined as the key factors of mortality and disability. If acute trauma of spinal cord is not recognized and intervened it may cause secondary injury to spinal column. It is therefore very important to create an awareness amongst Emergency medical Services personnel regarding the initial first aid management and transportation of the patients afflicted with spinal cord injuries.

Objective- To assess the Knowledge, Attitude and Practice about Prehospital care of Traumatic Spinal Cord Injury among Emergency Medical Service students

Methods-The KAP study was conducted among 150 Postgraduate students of Emergency Medical Services at SCHS, Pune, India. The questionnaire consisted of 13 items based on 3 parameters -5 testing Knowledge, 5 measuring Attitude and 5 measuring Practice related to out hospital care of Traumatic Spinal Cord Injuries.

Discussion- Majority of the students scored well in items testing the need to take care of maintaining the alignment of head, neck and spine. Majority students were aware of the importance of reassuring a responsive spinal injury patient and asking them not to move there head but a significant percentage of students answered incorrectly on when they should suspect a spinal injury.

Conclusion- EMS students showed encouraging level of KAP with regards to TSCI but there are areas of improvement. Improving KAP of EMS students can significantly impact the outcome in spinal injury patients.

Keywords- Traumatic spinal cord injury, Knowledge, Attitude, Practice

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BACKGROUND-

Trauma is the 3rd largest cause of death in the world by 2020, with majority comprising of Traumatic spinal cord injury[1]. Poly Trauma is the one of the leading causes of death by RTA while spinal cord injuries holds 2.04% as cause of death in sample population.[2]

Approximately 1.5 million people are exposed to TSCI, worldwide and a gradual increase in incidence of RTA contributing further to increase in cases of TSCI in India. Lumbar spinal injury is most common as it holds 51.0% of total spinal injuries whereas thoracic contributes to 30.7% and c-spine injuries only to 18.2%.[3]

A study by R.Singh[4] states that head injuries and fall from height are most common cause of TSCI. If acute trauma of spinal cord is not recognized and intervened it may cause secondary injury to spinal column. Spinal cord injury leads to detoriation of neurologic status leading to lifetime paraplegia. R.Singh further elaborated in his study that secondary complications in TSCI population is high in India as compared with the western world due to lack of infrastructure and dearth of trained medical personnel having basic knowledge about initial immobilization and transportation in rural areas leading to compromise in initial treatment of the patient

It is therefore very important to create an awareness amongst Emergency medical Services personnel regarding the initial first aid management and transportation of the patients afflicted with traumatic spinal cord injuries.

A study by B.L Fransen et al [5]reported that as skull and brain damage incidence is more in RTA spinal injuries should be taken into consideration in all cases of trauma. The signs of TSCI are often difficult to recognize and treat on scene, so it is of utmost importance for EMS (Emergency Medical Services) personnel to get trained and treat it accordingly in pre hospital setup.

Spinal immobilization is one of the indispensable and definitive treatment to prevent further damage to spinal column so every EMS personnel should be trained to perform spinal immobilization in pre hospital care. In India due to lack of knowledge of spinal immobilization and transportation of patients to trauma center there is significant damage to neurological state which can be prevented otherwise.[4]

Objective -.To assess the Knowledge, Attitude and Practice about Pre hospital care of Traumatic Spinal Cord Injury among EMS students.

METHODOLOGY-

The Knowledge, Attitude and Practice (KAP) study was conducted among 150 Postgraduate students of Emergency Medical Services at Symbiosis Center For Health Skills (SCHS), Pune, India. These students have been taught regarding Traumatic Spinal Cord Injury during the International Trauma Life Support sessions of the Post Graduate Diploma in Emergency Medical Services (PGDEMS) course in the previous month. A previously tested and validated KAP questionnaire prepared by Eradah Ali AlMarhoon et.al[6] was utilized for the study. The questionnaire consisted of 13 items based on 3 parameters -5 testing Knowledge, 5 measuring Attitude and 5 measuring Practice related to Pre hospital care of TSCI.

Informed consent was obtained from students. The EMS students were instructed to answer every item on the questionnaire either in YES or NO in front of the respective statement of Knowledge, Attitude and Practice. All items were to be mandatorily filled. The students were given 30 minutes to answer the questionnaire and

to submit it. Only completely filled questionnaire were accepted for data analysis. The data collected was tabulated and statistically analyzed using SPSS version 23.0.

Any queries pertaining to questionnaire was clarified at the time of collection of data.

RESULT-

Evaluation of knowledge about pre hospital care of TSCI among EMS students.

1.	**When the spinal injury is suspected??**	**Percentage % of correct answers**
a.	**In case of head injury with altered level of consciousness**	84.6% (127)
b.	**Patient complains of severe pain at the back**	82%(123)
c.	**The patient is not able to move his neck.**	88.6%(133)
d.	**Rear end collision**	92.6%(139)
e.	**Patient complaining of weakness, numbness or paralysis of extremities, bladder or bowels.**	85%(128)
f.	**Spine is oddly twisted**	76%(114)
g.	**Fall from height**	88%(132)
2.	**Immobilizing the spine is of key importance.**	84.6%(127)
3.	**Injured spinal column not only cause further damage to the spinal cord but also affect the respiratory and systemic functions of the body.**	90%(135)
4.	**Immobilizing the patients' using Log Roll method and applying head blocks.**	93%(140)
5.	**If there is no signs of circulation immediate CPR and Airway management should be done.**	86%(129)

In terms of Knowledge level amongst students' majority knew when to identify a spinal column injury. The lowest score of 76% was obtained for the scenario when neck or back is twisted. 84.6% of the students appreciated the vital importance of immobilizing the injured cervical spine. 90% were aware that spinal injury can further affect the respiratory and systemic functions.

Evaluation of Attitude about prehospital care of Traumatic Spinal Cord Injury-

1.	**If you find a patient unresponsive what will be the next step to be followed??**	**Percentage % of correct answers**
a.	**Check for breathing and simultaneously for the pulse , call for help then start (CPR)**	88.6% (133)
b.	**Directly call for the help.**	3.3% (05)
c.	**Start CPR immediately.**	8%(12)
2.	**Manual c-spine stabilization in unconscious trauma patients should be done**	**83.3% (125)**
3.	**In scenario of visible frank bleeding I apply direct pressure at the site raising the limb above the level of the heart.**	**80% (120)**

In terms of Attitude, only 8% students felt that they should start CPR directly when they find an unresponsive patient. Only 3% students responded that they would call for help directly when encountering a unresponsive patient with spinal injury.

Evaluation of Practice about Pre hospital care of Traumatic Spinal Cord Injury-

S.NO	**Practice pattern among students undergone KAP STUDY**	**Percentage % of correct answers**
1	**Activating EMS asking for help then start first aid management.**	88.6% (133)
2	**Have practiced CPR before**	60.6% (91)
3	**Taken care to maintain manual c-spine stabilization of the cervical spine.**	86% (129)
4	**In unconscious patients, do manual C spine stabilization giving support to the neck and spine in a straight line to prevent twisting movements and also manage ABC. Will apply a cervical collar after neck examination is done.**	91.3% (137)
5	**If patient is responsive: Reassure and advice not to move the head.**	90.6% (136)

The Practice pattern among students showed that 91% students were aware of the manual c- spine stabilization in a case of spinal injury, they also knew to manage ABC and apply cervical collar to prevent further damage.

DISCUSSION-

The study aimed to evaluate the KAP regarding TSCI among EMS responders. Although majority of students scored well in terms of knowledge, a significant percentage of students answered incorrectly on when they should suspect a spinal injury. This result points to the requirement of more training sessions on the

theoretical aspects of TSCI. This will ensure that 100% students who will become future first emergency responders can tackle traumatic spinal cord injury better. Majority students showed a positive Attitude in following the correct steeps on finding an unresponsive patient, taking spinal movement precautions and emergent management of bleeding due to injury. In terms of practice pattern glaringly low 60% students admitted to have practices CPR before. This finding stresses the urgent need to conduct more experiential sessions so that all EMS students get more opportunities of hands on practice in CPR.

Majority of the students scored well in items testing the need to take extreme care at all times to maintain manual c-spine stabilization. Majority students were aware of the importance of reassuring a responsive spinal injury patient and asking him not to move his head.

CONCLUSION-

Thus EMS students showed encouraging level of KAP with regards to TSCI. Although certain areas require urgent intervention, the study is first of its kind in testing KAP of a specific life threatening spinal emergency. The study is limit by the sample size and further study can be designed with a larger sample size to gain greater perspective.

Improving KAP of EMS students can significantly impact the outcome in traumatic spinal cord injury patients.

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