

ASSOCIATION BETWEEN CERVICAL SPINE INJURIES AND MAXILLOFACIAL TRAUMA

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Introduction

cervical spine injuries are devastating injuries. Prevention and early detection are mandatory to decrease CSIs complications. Association between CSIs and maxillofacial trauma was reported in many studies across the world. CSIs are classified into upper and sub-axial injuries. Upper cervical injuries involve: occipital condyle fractures, atlanto-occipital dislocation, atlas, axis fractures and atlanto-axial dislocation. Sub-axial cervical spine injuries include fractures and dislocations from C3-C7 vertebrae. Full clinical assessment and neurological assessment using ASIA score are mandatory in management of CSIs. NEXUS criteria and CCR to assess the need for cervical radiology. Management of CSIs includes both surgical versus conservative treatment. Maxillofacial Trauma includes soft and hard tissue injuries. Facial fractures divided into upper, middle and lower face. Upper facial fractures include both frontal bone and naso-orbito-ethmoidal. Middle facial fractures include zygoma, orbit and le forte type 1, 2 and 3. Lower face fractures represent mandibular fractures. CT facial bone is the gold standard for diagnosis of MFT.

Aim of the work

The aim of this study is to identify the incidence, types and clinical presentation of cervical spine injuries in adult patients with maxillofacial trauma.

Patients and Methods

prospective observational study on 186 adult cases of MFT admitted to Emergency Department at AMUH. Ethical approval from ethics committee was taken before conducting this study. All patients were subjected to primary and secondary survey. Primary survey includes ACBD approach and its adjuncts. Secondary survey includes detailed examination, full neurological assessment using ASIA score and its adjuncts. Cervical spine radiology includes X-rays, CT and MRI. CT scan is used in maxillofacial trauma. Qualitative data were described using number and percent. Significance of the obtained results was judged at the 5% level.

Results

Table (1): Distribution of population according to demographic data in all cases and cervical spine injuries cases (n=186)

	Total (n = 186)		Cervical spine injuries				Test of Sig.	p
			No (n = 169)		Yes (n = 17)			
	No.	%	No.	%	No.	%		
Gender								
Male	137	73.7	124	73.4	13	76.5	$\chi^2=$	^{FE} p=
Female	49	26.3	45	26.6	4	23.5	0.076	0.03
Age (years)								
Min. – Max.	18.0 – 58.0		18.0 – 58.0		18.0 – 51.0		t=	0.001
Mean ± SD.	29.25 ± 8.66		29.03 ± 8.48		31.41 ± 10.32			
Median (IQR)	27.0 (23.0 – 34.0)		27.0 (23.0 – 34.0)		29.0 (23.0 – 39.0)			

Table (2) Distribution of cervical spine injuries according to type maxillofacial trauma (n=186)

	Cervical spine injuries						FET	p
	No (n = 169)		Upper (n = 3)		Sub axial (n = 14)			
	No.	%	No.	%	No.	%		
Soft tissue injuries	76	45.0	0	0.0	3	21.4	10.443	0.03
Temporo-mandibular joint dislocation	3	1.8	0	0.0	0	0.0		
Upper face	38	22.5	1	33.3	5	35.7		
Middle face	25	14.8	2	66.7	3	21.4		
Lower face	27	16.0	0	0.0	3	21.4		

Table (3) Comparison between the three studied groups according to ASIA and type of injury (n=17)

	Cervical spine injuries				FET	p
	Upper (n = 3)		Sub axial (n = 14)			
	No.	%	No.	%		
ASIA						
Not assessed	1	33.3	1	7.1	79.813*	<0.001*
A = Complete	0	0.0	5	35.7		
B = Sensory incomplete	0	0.0	0	0.0		
C = Motor incomplete	0	0.0	1	7.1		
D = Motor incomplete	1	33.3	2	14.3		
E = Normal	1	33.3	5	35.7		

Conclusion

cervical spine injuries usually occur in young males than other age groups. Statistically significant association between maxillofacial trauma and CSIs Incidence of CSIs is higher in RTAs followed by falls than other modes of trauma. Sub-axial CSIs are encountered more than upper cervical spine injuries. There was no specific predilection of certain type of CSIs to a specific level of maxillofacial fractures. ASIA scale was useful tool in assessing neurological function and help surgical decision.



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