CERVICAL CORD INJURY

COMPARISSION OF CLINICO-RADIOLOGICAL PICTURE WITH MODE OF INJURY

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“If disease were killing our children in the proportion that accidents are, people would be outraged and demand that this killer be stopped”.

by former US Surgeon General C.Everett Koop

Cause of the disease ?

↓

TRAUMA!

Major public health problem

THINK FIRST

- Spinal cord injury occurs 14000/year in USA
- Most involve cervical spine, include fracture dislocations
- It is a potentially devastating consequence of acute trauma
- 5% of **TOTAL** Roadside accidents (RSA).
- This is a very disastrous and crippling disease
- Cervical cord injury have lasting, neurological deficit & disability

- Cervical cord injury is the leading cause of morbidity and mortality among YOUTHS - All over the world.
- The prognosis of cord injury has direct relation with mode of injury.
- Number of patients may have cervical **spine** injury without cord injury.

If prevention is unavoidable

than

“Best and timely care”

The most common types of ***cord injury*** include

Contusion

Compression

Lacerations, and

Central cord syndrome or

Simple whiplash injury.

NO STUDY TILL DATE WHICH

CORELATES **SEVERITY** OF INJURY

WITH **MODE OF TRAUMA /**

INJURY

Our study design ----

- Retrospective analysis of 37 patients with cervical cord injury .
- We mainly get cervical spine injury patients due to fall from mountains while working or high speed Road side trauma .
- Patients with minor domestic injury were also seen.
- Few suffered FALL of heavy weight on head / Axial loading.

We categorized these patients into four ***Groups-***

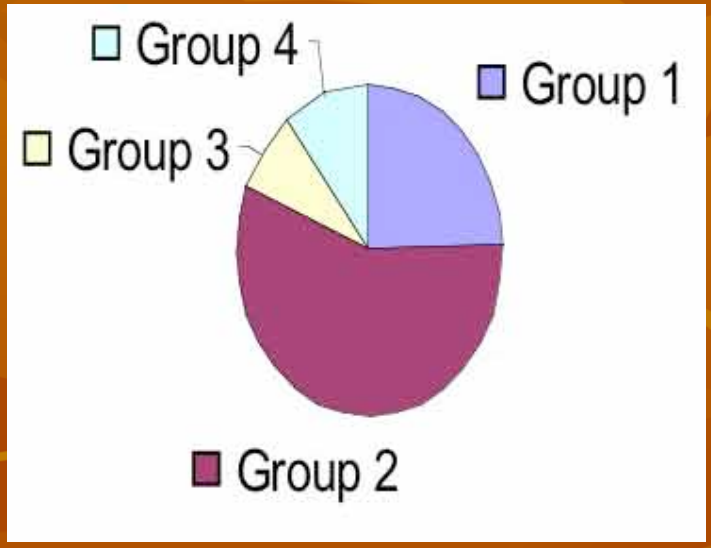
A) Road side accidents, (RSA)

B) Fall from height (FFH),

C) Accidental injury due to carrying heavy weight over head

D) Trivial Trauma in Pre-existing Spondylotic spine

Number of patients in different groups



- Minimum 2-view cervical spine x-rays done in every patient and it is first investigation after entering emergency Department ------ preceded by clinical assessment and starting MPS.
- ONLY Lateral view is most informative in all Cases.
- If required dynamic x-ray Lateral view.
- Followed by MRI of cervical spine.

Patients Profile : - Group 1 – RSA –n =9

Age/Sex	**Duration of Injury**	**Complete / Incomplete**	**Radiology**
20/M	20 Hrs.	Complete	C3-4 Subluxation with canal compression and Haematoma
35/M	10 Hrs	Complete	C5 # & contusion & Haemorrhage
35/M	10 Hrs	Complete	C4-5 dislocation with cord compression
30/M	12 days	Complete	C5-6 Subluxation with cord contusion & cord compression
25/M	5 days	Complete	C 5 # with cord compression
25/M	19 Hrs	Complete	Burst # C6 with Blamuhan # & cord contusion
26/M	11.5Hrs	Complete	C5 # with dislocation with cord contusion
24/M	3 days	Complete	C5-6 Subluxation with multiple PIVD with contusion
48/M	6 days	Complete	Burst # C5 with cord contusion

Group 2 –FFH (n = 21)

Age/Sex	**Duration of Injury**	**Complete / Incomplete**	**Radiology**
58/M	16 days	Incomplete	C5-6 dislocation
75/F	1.5day	Incomplete	Compression # C5
80/M	5 days	Incomplete	C5-6 dislocation
26/F	30 Hrs	*Complete*	Burst # C5
52/M	14 Hrs.	Incomplete	C5-6 dislocation
18/M	10 Hrs.	*Complete*	# C5
55/M	6 Hrs.	*Complete*	# C6
65//F	5 days	*Complete*	C4-5dislocation
65/M	10 Hrs.	Incomplete	SCIWORA

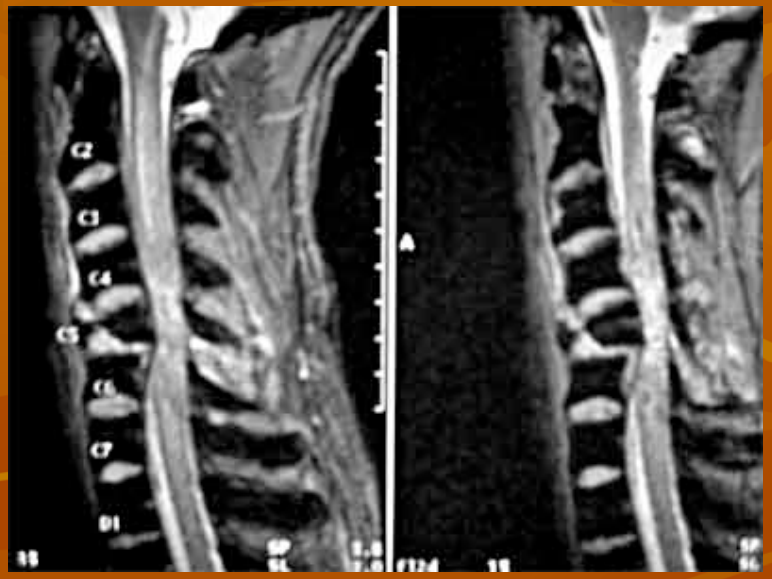
17/M	8 days	Incomplete	C5-6 dislocation
70/M	2 days	Incomplete	# 0f post. arch
25/M	14 days	*Complete*	C5-6 dislocation
48/M	4 hrs.	Incomplete	C4-5dislocation
20/M	1 day	*Complete*	C6 #
37/M	14 hrs.	*Complete*	C6-7 dislocation
22/M	14 hrs.	NO DEFICIT	Whiplash injury
35/F	3 days	*Complete*	C5 #
58/M	20 days	Incomplete	SCIWORA
27/M	1 days	*Complete*	Burst # C5
45/F	26 hrs	Incomplete	C5 #
50/F	6 days	*Complete*	Compression # C5

Group 3 -

60/M	Fall on ground	6 days	Incomplete	C 5-6,6-7 disectomy with C6 corpectonsy with bone graft
34/F	Fall on Ground	10.5 Hrs.	Incomplete	Conservative
55/M	Fall from Chair	27 Hrs.	Incomplete UL 3/5 LL 4/5	Conservative

Group 4 -

19/M	Fall from Cycle	4 days	Incomplete UL 4/5 LL 2/5	Conservative
61/M	Fall over Ground	4 days	Incomplete	**C6 Corpectomy & bone graft**
12/F	Weight fall on head	12 Hrs.	Incomplete	**Conservative**
55/M	FF Buffalo	1 day	Complete	**Conservative**

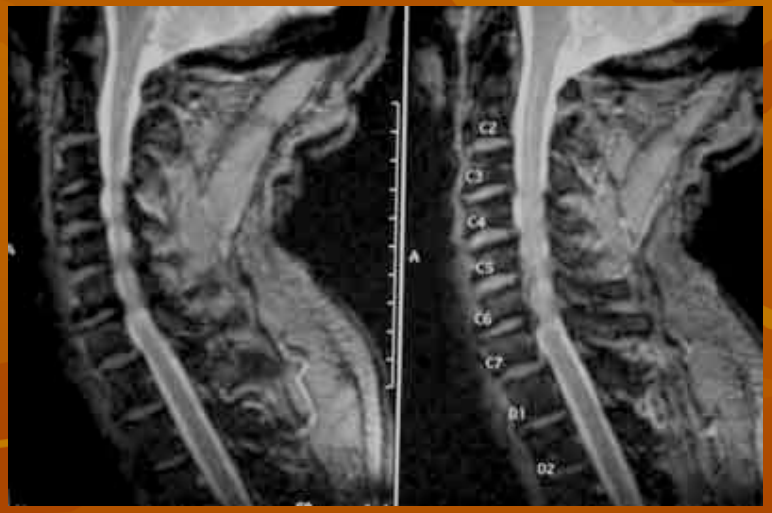

C2
C3
C4
C5
C6
C7
D1
A


MRI Of L.S.Spine


150
4.4
90.0/1
1.36 s
1
MRI Of L.S.Spine


Rt TRANS LAT


C2
C1
D2
D1
SP 0.3
SL 3.0
FoV 239*318
230 *512o
Sag
2200.0
80.0/2
08:29
A
TR 2200.0
TE 80.0/2
TA 08:29


C2
C3
C4
C5
C6
C7
D1
D2
A

Results analysis – Group 1 (RSA)

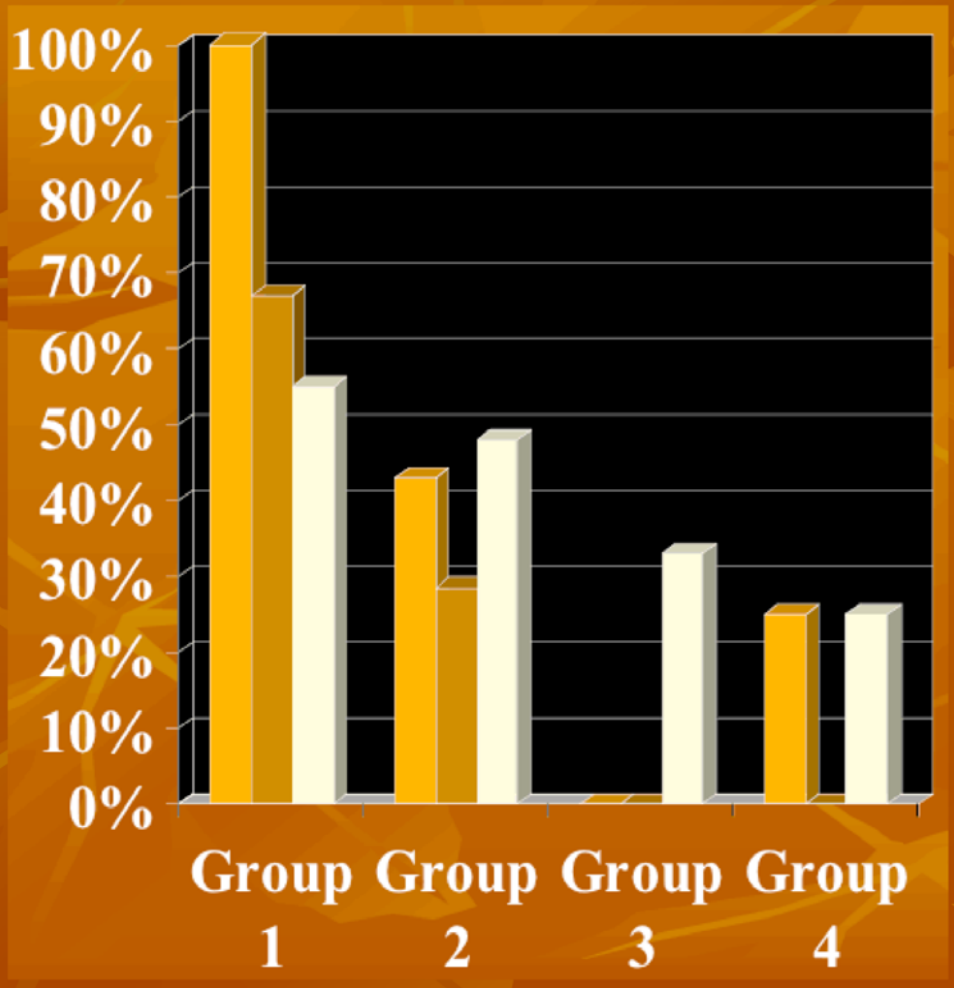
- All patients of this group were YOUNGS, 20-35yr.
- All RSA patients had ***Complete*** type of cord injury.
- 6/9 (67%) of RSA group found to have ***cord contusions*** on MRI.
- 5/9 (55%) patients of this group had ***#*** of one of the cervical vertebrae.
- Almost all arrived ***after 8hrs*** of injury except one.

Results analysis – Group 2 (FFH)

- No predilection for age.
- All came after >8hrs except 2.
- Only 9/21patients had ***Complete*** type of cord injury.
- 6/21found to have ***cord contusions*** on MRI rest others had cord compression.
- 10/21patients of this group had ***# Dislocation***
- 8/21 had sub-luxation of one of the cervical vertebrae rest had ***SCIWORA***.
- C5-6 is the most common site of injury (11/21).
- C4 and above andC6 and below involved in 5cases each.

Results analysis – Group 3 and 4

- All had trivial trauma like fall from bicycle of tripped on floor.
- All had ***INCOMPLETE*** cord injury except one.
- All had pre-existing Spondylotic changes.
- Only 2of these seven had # dislocation.
- None has cord contusion.


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Group 1
Group 2
Group 3
Group 4
Complete injury
Cord Contusion
Vertebral #

Conclusion

- All patients of RSA group were found to have Frankel grade 1 neurological deficit, while less than half patients from FFH group had similar deficit. Rest other patients who belonged to group B, C & D, were had better Frankel scale.

Conclusion.....

- Spinal cord injury is frequently occurring and preventable problem. The severity of which depends upon the mode of injury. High-speed Accidents in RSA leads to complete cord injury type of picture, while in other categories the severity of disability is easily manageable with relatively good outcome.

“ When meditating over a disease, I never think of finding a remedy for it, but instead, a means of preventing it ”

Louis Pasteur

THANK YOU