



# ***CONTROVERSIES IN SURGERY 2017***

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**100**  
1908 - 2008



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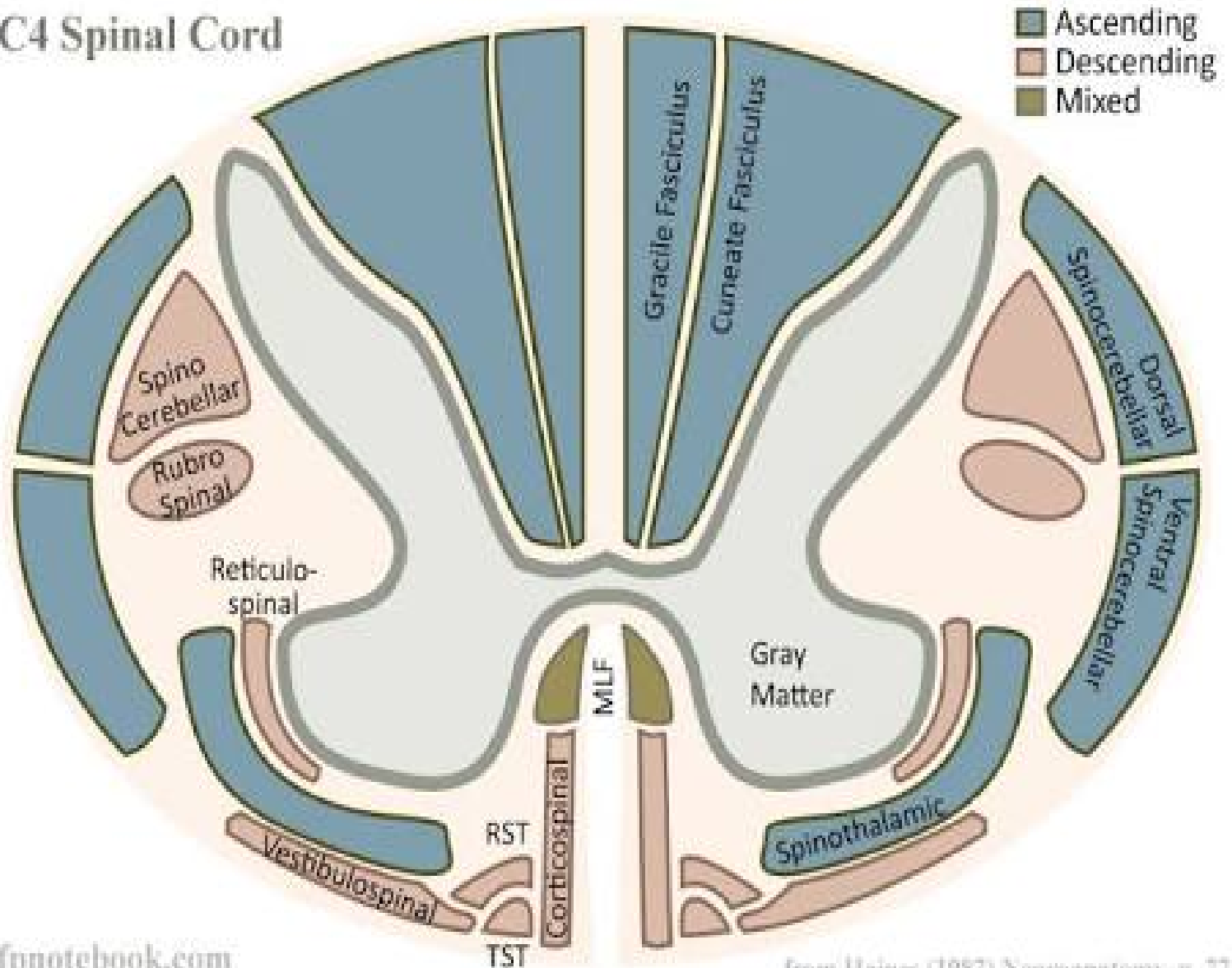


# ***CHALLENGES IN MANAGING CERVICAL SPINE TRAUMA WITH QUADRIPLEGIA***

- **(A) THE INJURY**
- **(B) THE PATHOPHYSIOLOGY**
- **(C) THE CLINICAL PROBLEM**
- **(D) THE MANAGEMENT**
- **(E) THE CONTROVERSIES**



## C4 Spinal Cord



## (A) THE INJURY (B) PATHOPHYSIO

- Quadriplegia:

- corticospinal tracts damaged

### Cardiovascular instability:

- sympathetic nervous system down

### Respiratory instability:

- phrenic nerve C3/C4/C5
- intercostals paralysed



## (C) THE CLINICAL PROBLEM

Cardiovascular instability

BP↓, HR↓: vasc dil, vagal predominance

Respiratory changes

Central drive, TV, FRC, TLC: failure

Neuromuscular

Flaccid quadriplegia early (neurog shock)

Spastic quadriplegia later



## (D) THE MANAGEMENT

- Careful intubation and ventilation
- Spinal stabilisation e.g. Cone calipers traction
- *Patient positioning* : bed flat, legs level or up

$$BP = CO \times TPR$$

$$= SV \times HR \times TPR$$

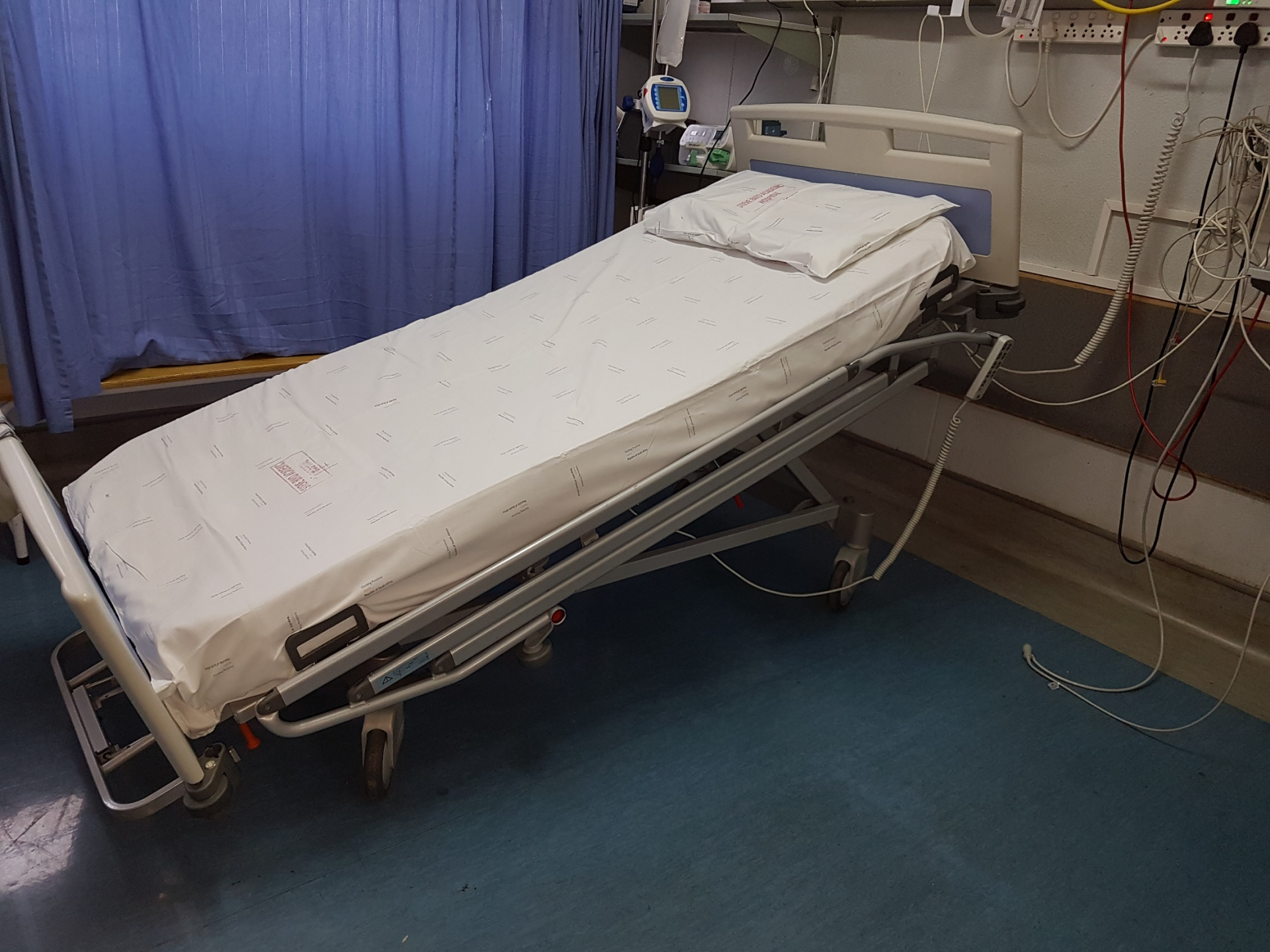
SV depends on VR (venous return)

- *Cardiovascular management (further...)*

HR increase to  $>80$  p m (Atropine)

Increase volume (Ringers Lactate)











## (D) THE MANAGEMENT...

*The respiratory management (Vent strategies)*

- SIMV + pressure support (rate 12, not more)
- Pressure support to selected TV
- PEEP from 5cm water,..increase as needed
- ABGs to be kept normal at minimum FIO<sub>2</sub>
- Gradual reduction of vent resp rate, incr p.s.
- Follow guidelines on daily nutritional needs
- Tracheostomy to be done as early as possible for the advantages over the long tube



## (E) CONTROVERSIES

- *Should we resuscitate a high spinal quad who needs intubation and ventilation?*
- *The case for role of surgical management in SCI?*
- *The case for conservative management in SCI?*
- *The use of steroids in SCI (NASCIS 2,3; CRASH)*
- *Repair of SCI by transplantation of olfactory ensheathing cells*
- *Autonomic dysreflexia*
- *Life expectancy should be normal in SCI*



## ***REFERENCES***

- *Kate A J Saman: Clinical Medicine Vol 6 No 2 2006*
- *James S Harrop et al: Neurosurgery; Vol 80, 3, 2017*
- *Jnl Neurosurgery; 1988; Vol 68, No 1*



# Questions?



