

Spasticity in patients with disorders of consciousness

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January 30, 2013



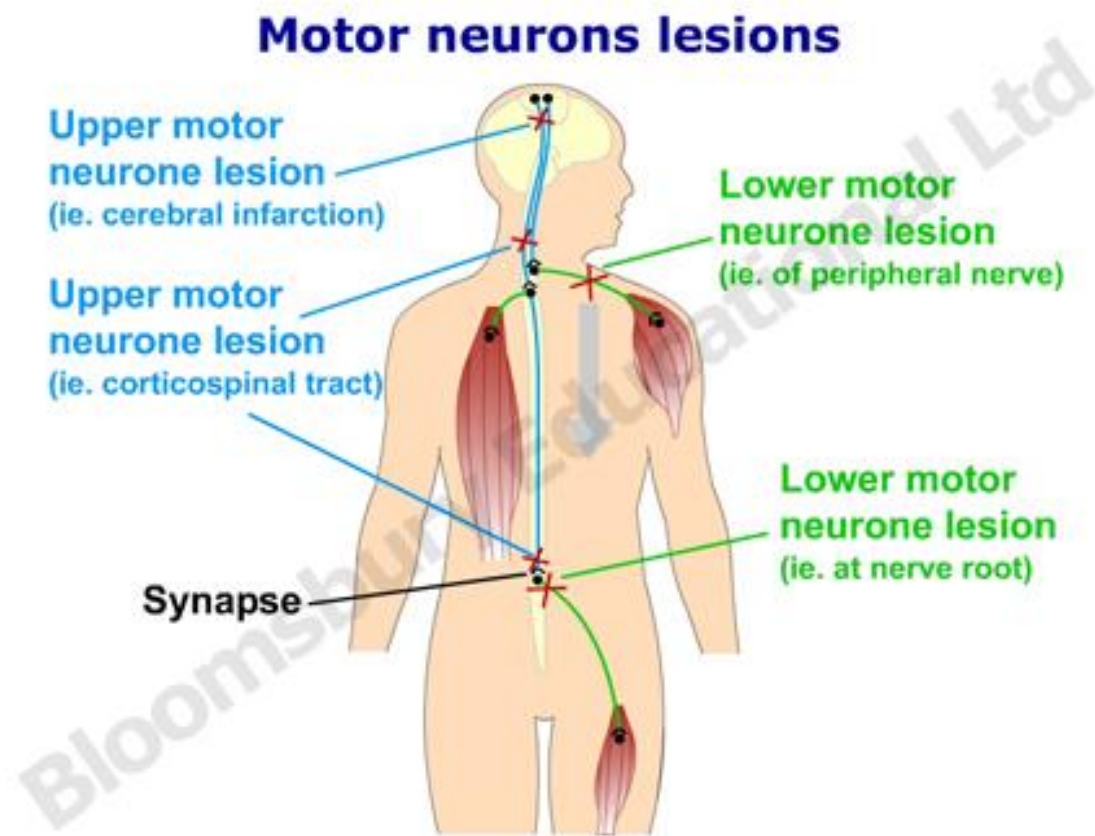
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Introduction



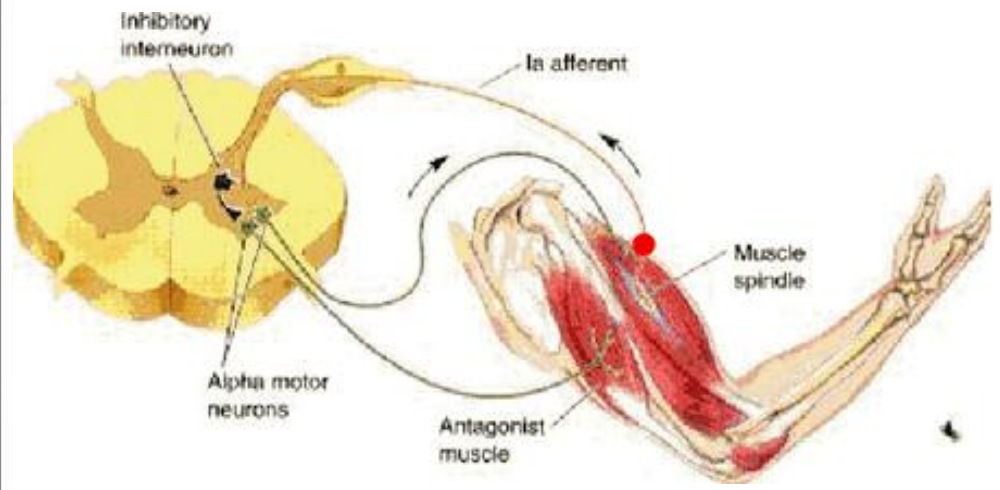
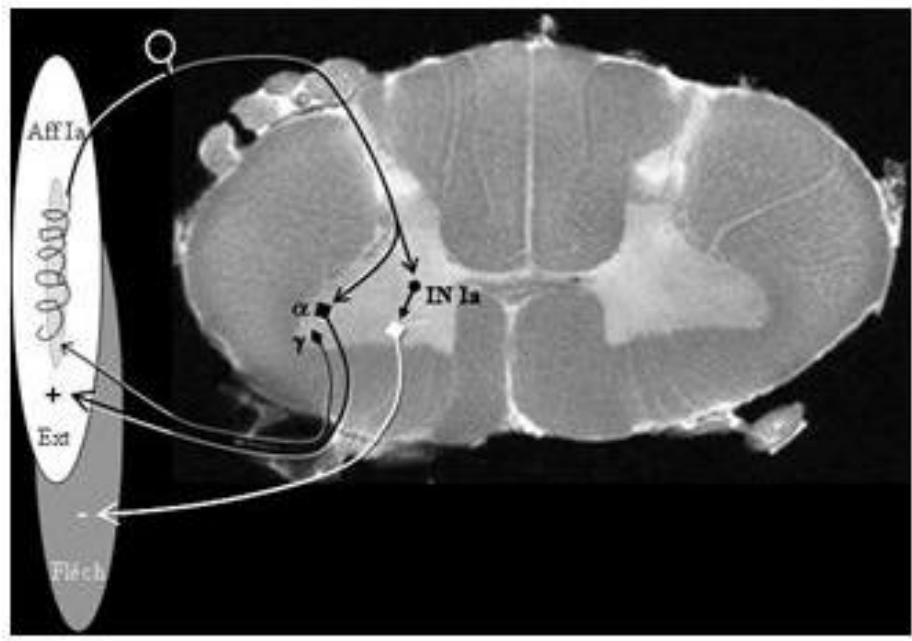
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Motoneuron lesion



Pascalis Spyrou

Stretch reflex



⇒ Protection

Monosynaptic reflex
Control from CNS

Trouble

Definition: Exaggeration of myotatic reflex leading to an involuntary muscle contraction after muscle stretching or a permanent muscle contraction

Causes: alteration of 1st motoneuron (CNS) in the spinal cord or in the brain

Aggravating factors: Velocity of stretching
Fatigue and stress

Complication

Spastic hypertonia

- Muscle retraction (decreased number of sarcomeres)
- Irreversible stiffness of joints
- Vicious positions and pain



Muscles involved

Upper limb:

- Shoulder: rot intern
adductor
- Elbow: flexor
- Wrist: flexor
pronator
- Fingers: intrinsic muscles



Lower limb:

- Hip: adductor
internal rot
- Knee: extensor
- Ankle: plantar flexor
inversor
=equinus varus



Spasticity in DOC



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Aim

Assessing spasticity in VS/UWS and MCS patients

- Diagnosis
- Treatment
- Time since insult
- Pain (*Nociception Coma Scale Revised* - NCS-R)

Method

- 57 patients (37 ± 15 ans)
- 36 traumatic / 21 non-traumatic
- 22 VS/UWS
- 35 MCS

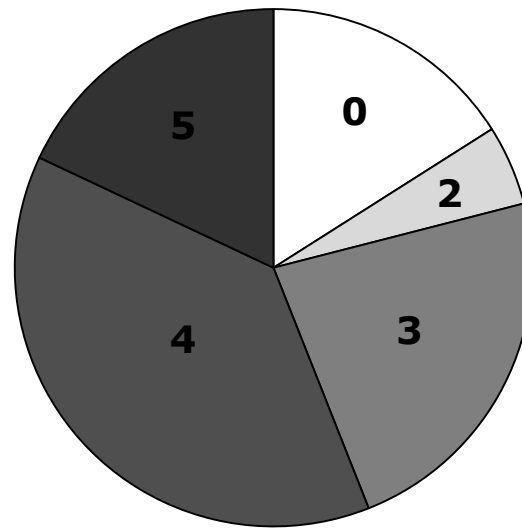
Scale: Modified Asworth Scale (MAS)

⇒ Biceps (most impaired limb)

Nociception: Nociception Coma Scale-Revised
(NCS-R)

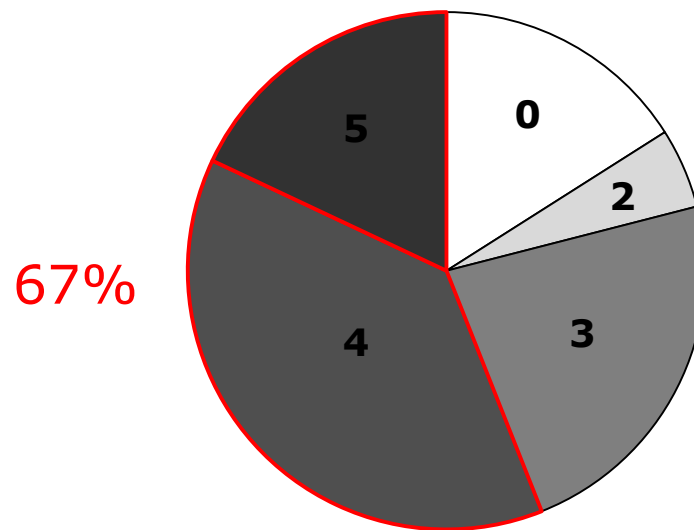
Results

- 84% of DOC patients are spastic (n=48; MAS ≥ 1)



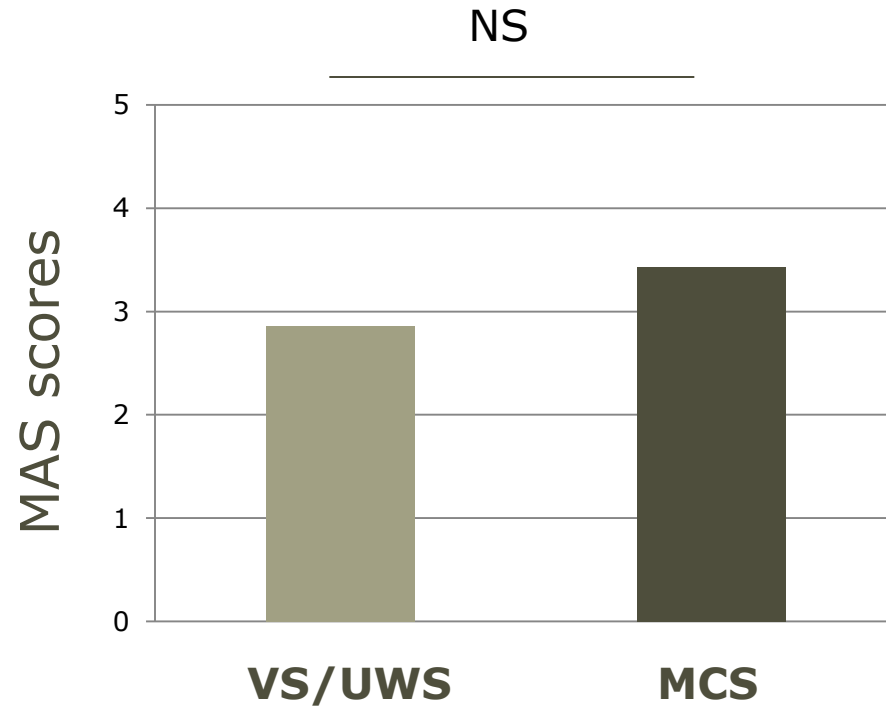
Results

- 84% of DOC patients are spastic (n=48; MAS ≥ 1)
- 67% suffer from severe spasticity (n=32; MAS ≥ 3)



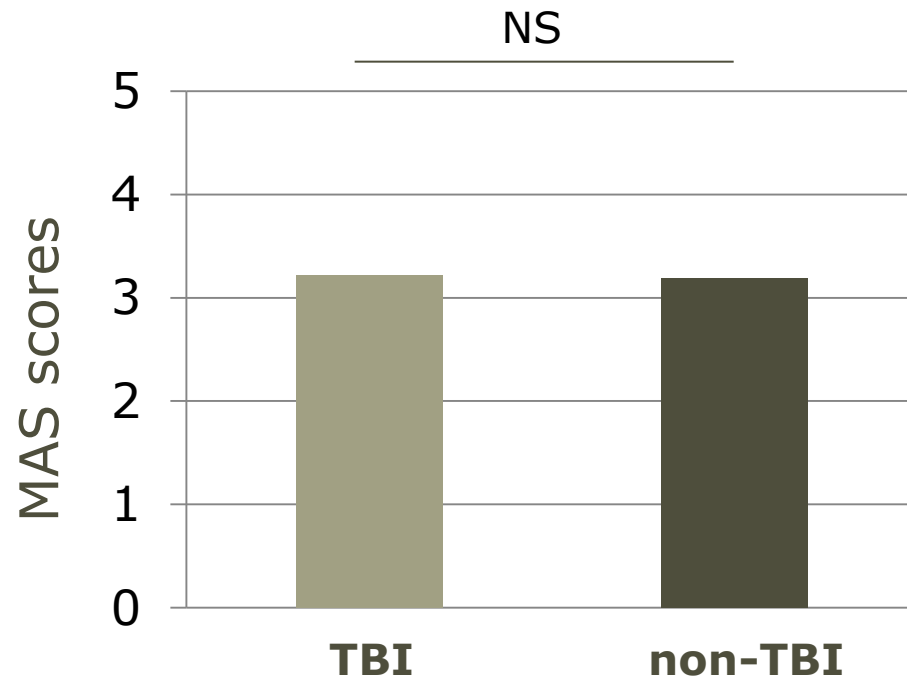
Diagnostic

No \neq between
VS/UWS and MCS
(Modified
Ashworth Scale)



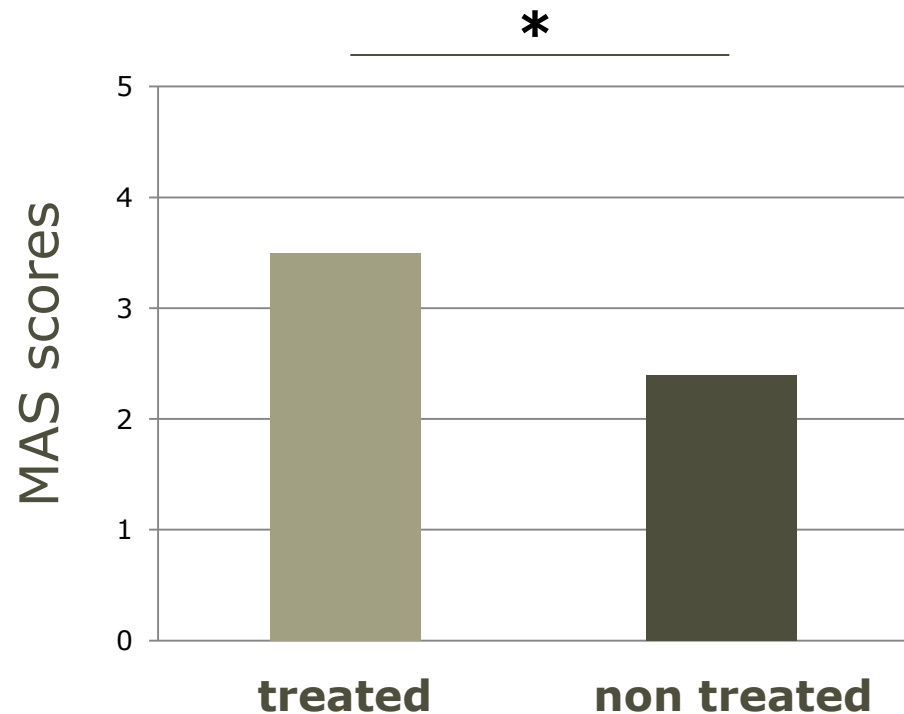
Etiology

No \neq difference between TBI and non-TBI patients (Modified Ashworth Scale)



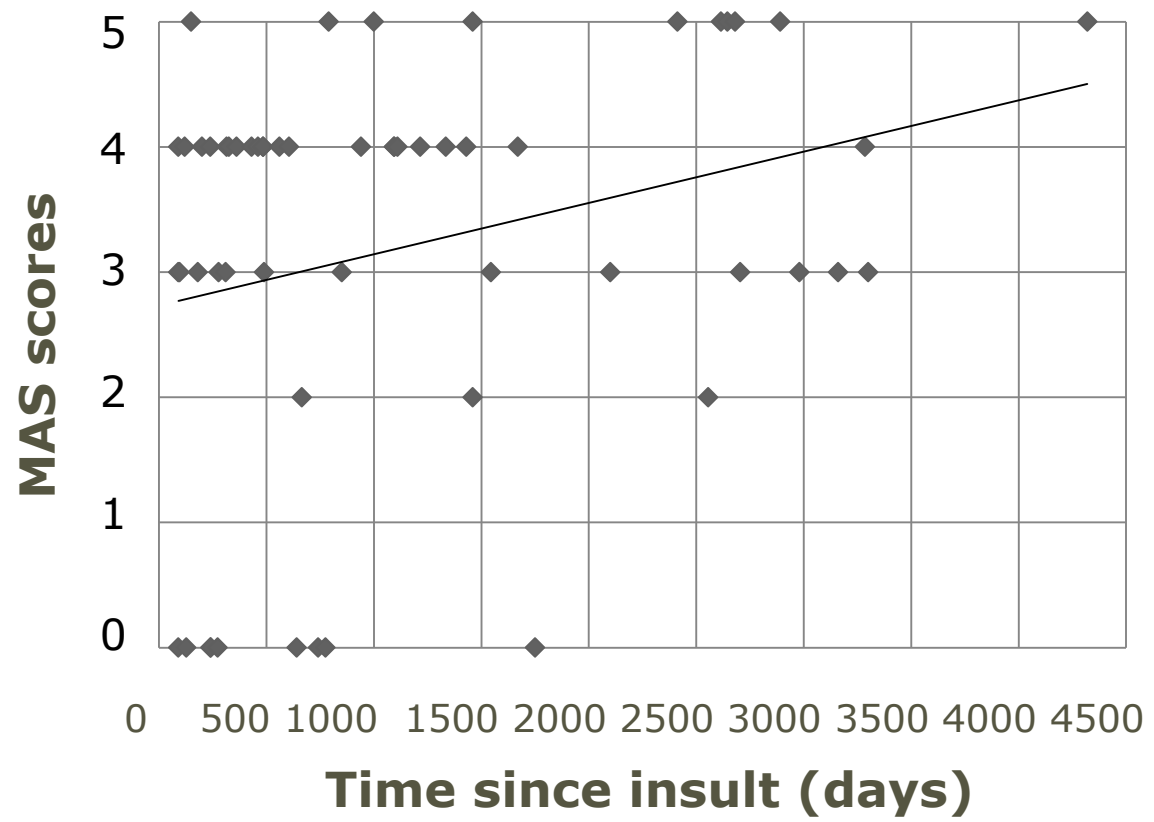
Treatment

Significant \neq
between treated
and non-treated
patients
(Modified
Ashworth Scale)



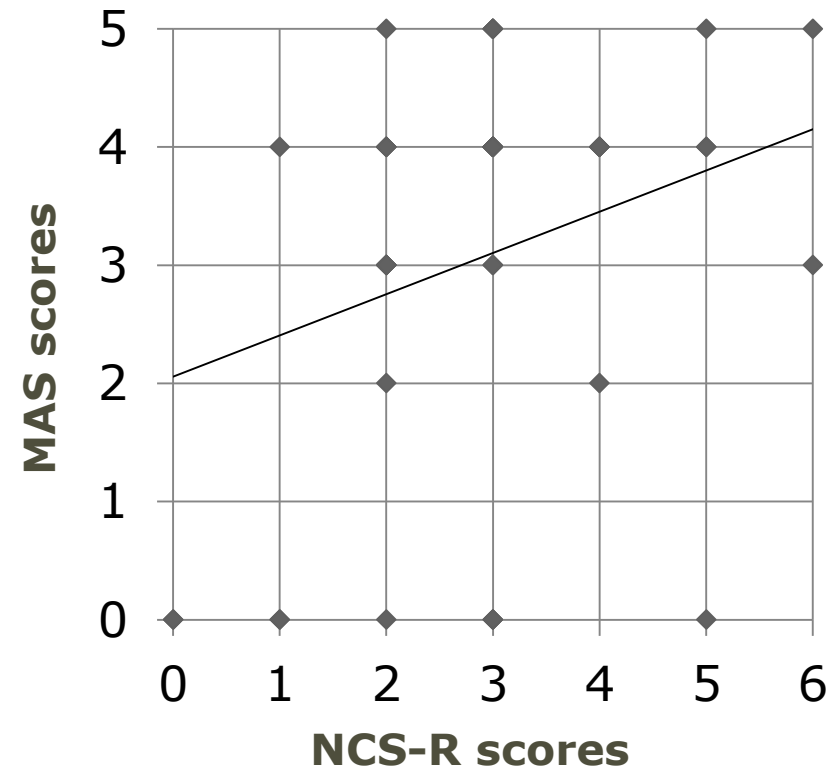
Time since insult

Positive correlation between time since insult and spasticity (Modified Ashworth Scale; $p=0,05$)



Nociception

Positive correlation between spasticity (Modified Ashworth Scale) and nociception (Nociception Coma Scale-Revised; $p=0,03$)



Conclusion



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Conclusion

1. Patients with antispastic treatment + spastic than patients who are not treated

⇒ spasticity is not entirely treated

2. Correlation between spasticity (MAS) and pain (NCS-R)

⇒ Spasticity lead to pain \Rightarrow ↓ comfort & quality of life

3. Correlation between time since insult and spasticity (MAS)

⇒ Spasticity (& after effect) could ↗ with time

Conclusion

Spasticity is frequent in patients with disorders of consciousness (67%)

Actual treatment are not sufficient to treat entirely spasticity

Spasticity could increase pain, especially during mobilizations

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