

## Spinal Cord Injury

Spinal cord injury affects more than 2,5 million people worldwide, with more than 130 000 new injuries reported annually. SCI is the result of aggression on the spinal cord, which totally or partially compromises its functions (motor, sensory, vegetative, reflex). SCI ends in 15% of cases with the victim's death before reaching the hospital. Also, mortality of about 5% is registered at the level of specialized assistance centers capable of providing qualified, multidisciplinary assistance, while in non-specialized centers the mortality can be between 25-40%. As soon as a severe bonny spine lesion – with affecting the inner content represented by the spinal cord – occurs, the spinal cord usually enters a state of diminished/ abolished excitability, status consisting of altered reflex activity or even spinal shock. Transient inhibition of segments located caudally to the lesion is due to the sudden disappearance of the predominantly facilitating or excitatory influence of supraspinal centers, and at the same time to the local occurring damage mechanisms, thus clinically appearing (tetra-/ para-) paresis and/or flaccid paralysis. The duration of the spinal shock varies, a minimal activity – including with pathological patterns – may emerge within 3-4 days or only after 6-8 weeks (or never), with an average duration of 3-4 weeks, after which there are installed sequelae of the medullary lesion, while remaining local neurons below the lesion level become autonomous to the influences of the upper points.

The degree of neurological injury and consequent deficit is determined by the extent and severity of the of above briefly mentioned factors' action. Pain in patients with SCI dresses almost all possible variants: from acute pain, related to tissue trauma, to colic pain, caused by the presence of lithiasis, respectively to various types of headache, and especially neuropathic pain. The comprehensive, balanced, rehabilitation endeavors and related steps, comprises the application, for prophylactic and curative purposes of a variety of interventions, of: rehabilitation nursing, pharmacological and – very important – of physical/ kinesiological (also balneary – in the chronical stage), types.

In this special issue of Signa Vitae, dedicated to Spinal Cord Injury, we intend to underline general, of intimate level pathological and respectively, treatment mechanisms/ paradigms to undergo the current and future approaches in this domain, and particularly clinical and post research translational aspects, prone to improve the management of this lesions category, to better understand its emergency – including in the chronic/ rehabilitation period – requirements and needs for better practices.

### Key words:

Spinal cord injury (SCI), Damage mechanisms, Primary and secondary medullary lesions, Neurorehabilitation, Neurorestoration

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