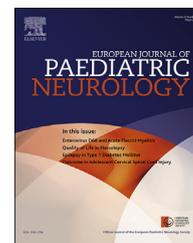




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## Editorial

# Functional outcome after traumatic cervical spinal cord injury: Can adolescents be truly compared to adults?



We read the study “Functional outcome after traumatic cervical spine cord injury is superior in adolescents compared to adults” by Geuther et al.<sup>1</sup> with great interest.

The authors retrospectively reviewed 32 adolescent patients (aged 13–17 years) with cervical spinal cord injury (SCI) from the European Multi-center study about SCI (EMSCI) and compared their neurological and functional outcome to a 1:2 matched cohort of adult patients (aged 18 years and older) with similar injuries. The primary neurological outcome measure was the American Spinal Injury Impairment Association (ASIA) Impairment Scale while functional outcome was assessed using the Spinal Cord Independence Measure (SCIM III). The two groups did not differ in baseline characteristics except for higher total SCIM III scores in adolescents. After a follow-up of 6 months, significantly higher SCIM III scores were identified in the adolescent patients compared to their adult matches. This may be an indicator that adolescent patients cope with functional restrictions better.

The study addressed an important, yet missing topic in the current literature: As adolescents are often included in either the pediatric or the adult age group, specific data on the neurological and functional outcome after SCI in this subgroup is scarce. Several pediatric studies state that the incidence of neurologic recovery after SCI is higher in children than in adults.<sup>2</sup> Interestingly, the authors of the current study could not confirm this finding comparing adolescent and adult groups, which could be explained by their convergence in osseoligamentous maturation. Yet, their results showed a higher functional gain in the adolescent group.

The matching process as it was conducted here has to be seen as controversial. Along with gender, age is usually considered the most important variable to match for in any comparative study. As such, may adolescent patients and their recovery after SCI ever be reliably assessed with adults serving as their reference? Results for both neurological and functional outcomes may have also been affected by the high number of older adults (nearly two-thirds were 40 years and older).

The main limitations of the present study are missing data on individual patient treatment such as surgical management, timing of surgery, blood pressure management, and

possibly the administration of steroids. Information on these aspects would facilitate comparison to the current literature. Also, a match accounting for the treatment regimen could have possibly changed the outcomes of the study. A systemic review conducted by Wilson et al.<sup>3</sup> in 2017 showed that early ( $\leq 24$  h) decompression improved neurological recovery among cervical SCI patients compared to late ( $\geq 24$  h) decompression. Grassner et al.<sup>4</sup> concluded that patients with ultra early decompression ( $\leq 8$  h) after traumatic cervical SCI could benefit in terms of neurological and functional outcome. As those important parameters and predictors are not recorded in the EMSCI registry, we strongly encourage to collect and add at least some of those variables.

For individuals affected and their families, traumatic SCI results in a complete change in their way of living. Studies like the present one and future prospective studies including additional patient and treatment characteristics are needed in order to understand and treat cervical SCI better at every stage of life.

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