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Title of presentation: Invisible Impact of Spinal Cord Injury: Impaired Cardiovascular Blood Pressure Control

Abstract

Spinal cord injuries (SCI) are well known to impair movement and sensation, but also may affect spinal cardiovascular nerves, resulting in impaired control of the heart and blood pressure. However, current clinical assessments of SCI do not quantify its effect on cardiovascular control. In addition, it is unclear whether these cardiovascular problems occur immediately after an injury or evolve with time. We recorded blood pressure and heart rate from 63 individuals with SCI at five time points in the first year post-injury. We used this data to evaluate nervous control of blood pressure and heart rate. We showed that, compared to historical data in healthy controls ($14.0 \pm 1.9 \text{ ms} \cdot \text{mmHg}^{-1}$), blood pressure reflex responses were impaired in individuals with SCI ($7.4 \pm 1.4 \text{ ms} \cdot \text{mmHg}^{-1}$) with no improvement over time ($6.6 \pm 0.8 \text{ ms} \cdot \text{mmHg}^{-1}$). These highlight the cardiovascular effects of SCI and may inform diagnosis and treatment for individuals living with the devastating secondary complications of SCI.