The relationship between neurologic level of injury and symptomatic cardiovascular disease risk in the aging spinal injured

Study objectives: To describe the distribution of clinically apparent cardiovascular disease (CVD) in people with long-term spinal cord injury (SCI) according to neurologic level and severity of injury.
Design: Historical prospective study.
Setting: Two British Spinal Injuries Centers.
Participants: Five hundred and forty-five individuals surviving at least 20 years with SCI were divided into three neurologic categories by level of injury and Frankel/ASIA grade as follows: Tetra ABC, Para ABC, and All D.
Main outcomes measures: Cardiovascular disease outcomes defined by ICD/9 codes 390-448 and obtained through medical record review. Cardiovascular disease outcomes measured included All CVD, coronary heart disease (CHD), hypertension, cerebrovascular disease, valvular disease, and dysrhythmia.
Results: After age-adjustment, the rates of All CVD were 35.2, 29.9, and 21.2 per 1000 SCI person-years in the Tetra ABC, Para ABC, and All D groups, respectively. Rates of All CVD increased with increasing age in all neurologic groups. Tetraplegic level of SCI conferred an excess 16% risk of All CVD (95% Confidence interval [CI], 0.93 – 1.46), a fivefold risk of cerebrovascular disease (relative risk [RR] 5.06; 95% CI, 1.21 – 21.15), and 70% less CHD (RR 0.30; 95% CI, 0.13 – 0.70) when compared with paraplegics. More complete SCI was associated with an excess 44% All CVD risk (95% CI, 1.16 – 1.77).
Conclusions: Risk of All CVD increased with increasing age, rostral level of SCI, and severity of SCI. More rostral level of SCI was associated with cerebrovascular disease, dysrhythmia, and valvular disease. Conversely, there was an inverse relationship between level of SCI and CHD.
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Keywords: spinal cord injury; cardiovascular disease; coronary heart disease

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