Clinical manifestations of autonomic dysfunction in active patients with spinal cord injury

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Introduction and aim

Spinal cord injury (SCI) with a lesion at T6 or higher, interrupts autonomic pathways that may lead to disturbed cardiovascular regulation. This may have a considerable impact in these patients ability to be physical active. We present three patients with spinal cord injury (SCI) who all experienced activity triggered drop in blood pressure and heart rate, due to autonomic dysfunction caused by the injury.

Methods

We aimed to investigate autonomic dysfunction in patients with SCI using non-invasive blood pressure technique (Finometer-Midi®) in a clinical setting, to objectively identify specific changes and disturbances the autonomic pathways during exercise, in patients with SCI.

Results

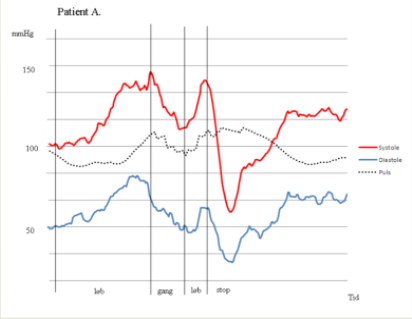
Case 1: A 23-year old man with an incomplete SCI at C3, experienced dizziness and nausea after physical activity, and abstained from training with high intensity. While walking and running on a treadmill he got pale and nauseous and BP dropped from 141/65mmHg to 65/32mmHg.

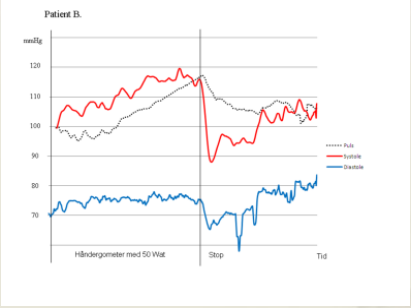
Case 2: A 29-year old man with a complete traumatic SCI in C6 was seen 6 years post injury. He attended high level disability sport, and experienced nausea and dizziness associated with exercise. When he reached 70 watts he stopped, and BP dropped to 77/50mmHg.

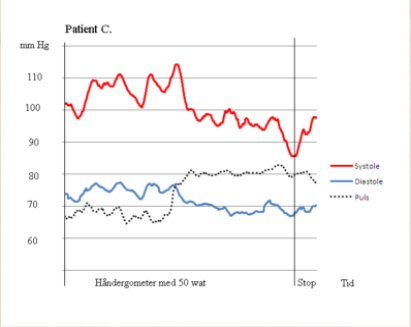
Case 3: A 43-year old man with a complete traumatic SCI at T3 AIS D. During cardio pulmonary load, he experienced an increasingly severe tiredness and dizziness. BP dropped throughout the experiment until he stopped due to severe tiredness, dizziness and a drop in BP. BP was normalized after 4-5 minutes.

Conclusion

These three cases illustrate exercise induced hypotension and post exercise hypotension. It is important to diagnose and to prevent these phenomena, when creating suitable exercise programs for high level spinal cord injured patients.







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