

Urodynamics in spinal cord injury patients: Be aware of autonomic dysreflexia

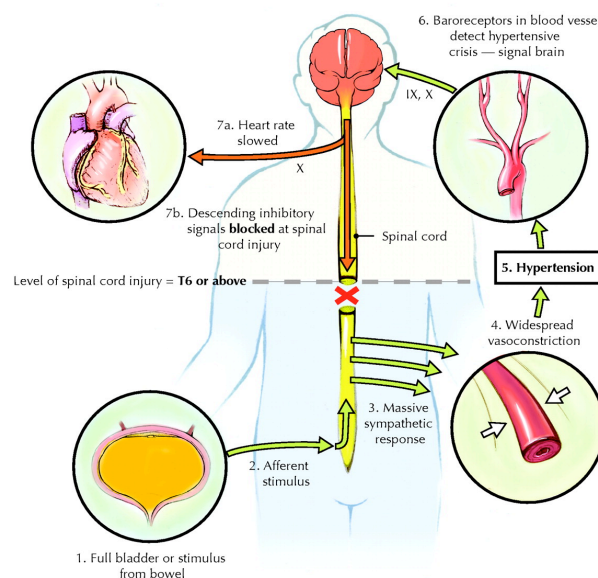
Objectives

To investigate the incidence of autonomic dysreflexia (AD, figure 1) during urodynamic investigation (UDI) in patients with neurogenic lower urinary tract dysfunction (NLUTD) due to spinal cord injury (SCI).

Patients & Methods

In a prospective study, a consecutive series of 192 patients (53 females, 139 males, mean age 54±17 years) with SCI underwent continuous non-invasive cardiovascular monitoring during UDI at our university SCI centre. Systolic (SBP), diastolic blood pressure (DBP) and heart rate (HR) were recorded continuously during UDI. We defined AD according to the joint committee of the American Spinal Injury Association and the International Spinal Cord Society (Krassioukov A. et al., JRRD 2007).

Figure 1: Pathophysiology of AD (Blackmer J., CMAJ 2003)



Results

The overall incidence of AD during UDI was 58% (111/192, 30 females, 81 males). Further details are shown in table 1.

Conclusions

The study shows a high incidence of AD in SCI patients with NLUTD where approximately a fifth were symptomatic. Sudden hypertension can occur with or without clinical symptoms. Considering the significant risks involved with sudden hypertension, we highly recommend continuous cardiovascular monitoring during UDI in all SCI patients. If AD occurs during the examination, stop the UDI and empty the bladder immediately to avoid significant complications such as seizures, strokes, retinal bleeding or even death.

Table 1: Changes (Δ) from baseline during UDI

Changes (Δ)	AD (n=111)	No AD (n=81)	p-value	Symptomatic AD (n=24)	Asymptomatic AD (n=87)	p-value	At / above T6 (n=61)	Below T6 (n=50)	p-value	AIS A (n=33)	AIS B-D (n=78)	p-value
SBP (mmHg)	46±24	10±7	<0.001	72±23	39±20	<0.001	54±26	37±19	0.008	54±28	42±22	0.09
DBP (mmHg)	20±13	5±9	<0.001	31±15	17±11	<0.001	23±15	16±10	0.009	24±14	18±12	0.03
HR (beats/min)	-5±14	-0±9	0.01	-23±10	0±11	<0.001	-9±15	-0±11	0.007	-13±17	-2±11	0.004