

ACCEPTANCE AND MORBIDITY ASSOCIATED WITH URODYNAMIC STUDIES IN PATIENTS WITH SPINAL CORD INJURY.

Aims of Study

Spinal cord injury (SCI) results in profound alterations to the urinary tract, resulting in significant patient morbidity. Urodynamic studies are important in determining the most favourable treatment strategies in patients with SCI [1]. Several studies have looked at the tolerability [2] and morbidity [3] associated with urodynamic investigation in non-SCI individuals, however little data is available regarding acceptance and complications in patients with SCI. The aim of our study was therefore to investigate acceptance and morbidity related to urodynamic studies in patients with spinal cord injury.

Methods

41 patients who underwent urodynamic testing in our unit were included in the study; the study was completed by 37 (25 male, 12 female). Of these, 19 patients had complete injuries and 18 had incomplete injuries. 19 (51%) principally used intermittent self-catheterisation (ISC) to manage their bladder, 9 (24%) reflex-voided, 6 (16%) used suprapubic catheters (SPC). Other methods of bladder emptying were voiding on urge, strain voiding and sacral anterior root stimulation (one of each). Patients continued their normal medications before and after the study. Dipstick urinalysis was performed prior to urodynamic testing; the sample was sent for microscopy and culture if leucocytes, nitrites or blood were present. Only one patient (with persistent vesico-ureteric reflux) received antibiotic prophylaxis, in accordance with our unit protocol.

Patients were given a short questionnaire to complete 7 days after their examination. 37 patients responded to the study questionnaire; 35 (95%) of questionnaires were completed fully. The areas addressed included patient experience of the investigation, the development of urological symptoms in the 7 days post-testing (that were not their previously), and whether autonomic-dysreflexia symptoms were encountered during testing.

Patients were asked to provide a urine sample in the week following the test if they thought they had developed a urinary tract infection (UTI).

Results

21/41 patients (51%) had abnormal urinalysis prior to urodynamic testing, and 11/21 (27% of all patients) had pyuria and significant bacterial growths. 28 patients (78%) found the test comfortable, 7 (20%) experienced discomfort (6 of whom were incomplete injuries) and 1 patient (who had an incomplete injury) experienced pain. 27 patients (75%) were not embarrassed by the testing, 8 (22%) were slightly embarrassed, and only 1 was very embarrassed. Overall, the majority (22 (61%)) found the test 'as expected', 13 (36%) found it 'better than expected', and only 1 found it 'worse than expected' (see Figure 1).

8 patients experienced symptoms of autonomic dysreflexia during the tests. This represented a third of patients with lesions at T6 and above (who are most susceptible to autonomic dysreflexia). 7 described their symptoms as mild, 1 as moderate and none as severe, and all settled with conservative measures.

New symptoms that developed within a week of urodynamic testing are shown in Figure 2.

4 patients (9%) thought that they had developed a UTI following the test, however only 2 patients provided urine samples for analysis. Of these 2 samples, both were culture-positive, however pyuria was only present in 1. Samples in both patients that were taken prior to the test had grown significant numbers of bacteria, but not contained significant numbers of red or white blood cells.

Figure 1: Patients' experiences of urodynamic testing

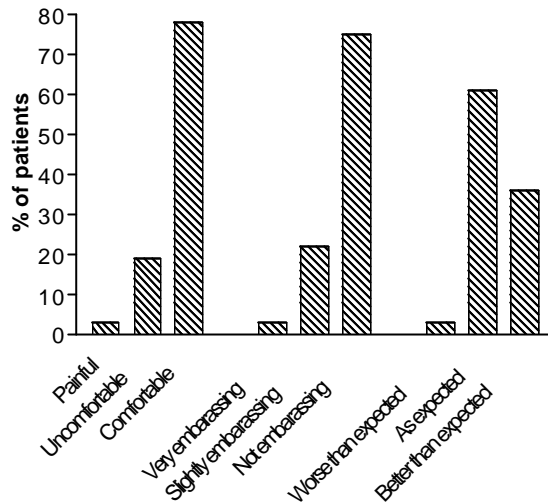
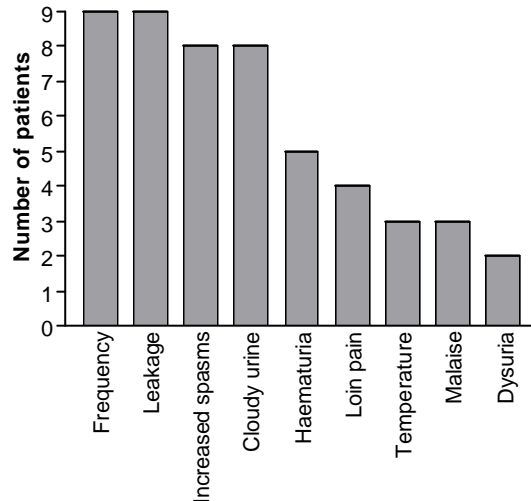


Figure 2: New symptoms following urodynamic testing



Conclusions

Urodynamic studies contribute greatly towards the urological management of spinal cord injured patients [1]. We have established that the examination is acceptable to SCI patients and well tolerated, and meets or exceeds their expectations. Discomfort and pain are more likely to occur in incomplete injuries. Symptoms of autonomic dysreflexia occur in a third of susceptible patients, but are generally mild. This result concurs with previous studies [4]. Patients frequently develop new (albeit mostly transient) symptoms following the study, the commonest of which are increased urinary frequency, increased leakage, increased spasms and cloudy urine. Patients should therefore be informed that they may be symptomatic following urodynamic testing. The cause of new urinary symptoms in non-SCI patients following urodynamic tests are thought to be mainly mechanical, rather than being related to UTI [5]. Whether UTI was the cause of new symptoms in our patient group is unknown. Interpretation is difficult due to the high incidence of asymptomatic UTI (27%) prior to testing. The value of antibiotic prophylaxis in urodynamic testing is still undetermined [6], and should be subject to a larger randomised control trial. We are currently investigating the aetiology of post-urodynamic symptoms.

1. Wyndaele JJ. *Spinal Cord* 1997; 35(4):213-216.
2. Kortmann BB et al. *BJU Int* 1999; 84(4):449-453.
3. Brostrom S et al. *Int Urogynecol J Pelvic Floor Dysfunct* 2002; 13(3):182-184.
4. Giannantoni A et al. *Spinal Cord* 1998; 36(11):756-760.
5. Coptcoat MJ et al. *Br J Urol* 1988; 61(4):302-303.
6. Darouiche RO et al. *J Hosp Infect* 1994; 28(1):57-61.

