

TABLE 1 Demographic data of women with recurrent UTIs and controls

	Recurrent UTI, N = 49, median (range)	Controls, N = 53, median (range)	P*
Age (years)	28 (18–37)	29 (18–40)	0.8
Parity	1 (0–2)	1 (0–3)	0.7
Body mass index (kg/m ²)	25 (23–29)	25.6 (23–30)	0.6
Total Interstitial Cystitis Symptom Index score†	4 (1–5)	0.5 (0–3)	0.013
Total Interstitial Cystitis Problem Index score‡	2 (1–4)	1 (0–1)	0.3
Total UDI-6 score§	20 (12–30)	16 (10–25)	0.4

*Wilcoxon rank-sum test.

†Range 0–20.

‡Range 0–16.

§Range 0–100.

TABLE 2 Bladder diary values for women with recurrent UTIs and controls

	Recurrent UTI, N = 49, median (range)	Controls, N = 53, median (range)	P
Number of voids in 24 h, n	12 (9–18)	7 (5–10)	0.005
Number of daytime voids, n	11 (9–14)	6.5 (5–9)	0.002
Total night-time voids, n	1 (0–3)	0.5 (0–1)	0.07
24-h fluid intake (mL)	2165 (1535–3355)	1840 (950–3280)	0.08
24-h urine volume (mL)	1860 (1120–2739)	1350 (865–2570)	0.08
Voids per litre of fluid intake, n	6 (4–6)	3.8 (3.1–4.8)	0.004
Maximum voided volume (mL)	385 (300–465)	490 (350–570)	0.3
Average voided volume (mL)	155 (150–220)	195 (170–275)	0.008

*Wilcoxon rank-sum test.

power of 90% to detect a difference of 25% in mean voided volume between women with recurrent UTI and controls.

RESULTS

We screened electronic records of 147 women with recurrent UTI and stress urinary incontinence in the age group 18–40 years. We identified 49 women with recurrent UTI and 53 women with stress urinary incontinence meeting the eligibility criteria of the study. Twelve women (five with recurrent UTI and seven with stress incontinence) were excluded due to missing bladder diary or cystometry data.

There was no significant difference in the median age, parity or body mass index of the two groups (Table 1). Eighty-six per cent of the women were Caucasian. Three women

in the recurrent UTI group (6%) had undergone prior abdominal surgery (tubal ligation, appendectomy or ovarian cystectomy) compared with four (7.5%) in the control group. The median interval between the last documented UTI and the voiding diary was 59 days (range 43–85 days) and the median interval between the last documented UTI and filling cystometry was 63 days (range 46–91 days).

UDI-6

The possible range for total scores for the UDI-6 is 0–100. The median total UDI-6 score was similar for cases and controls (Table 1). Levels of bother on the single stress incontinence item of the UDI-6 are rated on a scale of 0–4. In the case group, only 5% women reported bother of 3 or 4 on the stress item of the UDI-6 while 85%

women in the control group reported the same degree of bother.

INTERSTITIAL CYSTITIS SYMPTOM AND PROBLEM INDEX SCORE

The ranges of possible scores on the Symptom Index and Problem Index are 0–20 and 0–16 respectively. Although the median total Interstitial Cystitis Symptom Index score was significantly higher in women with recurrent UTI than controls, the total Interstitial Cystitis Symptom Index scores were low in both groups (Table 1). The median total Interstitial Cystitis Problem Index scores were also low for both groups and there was no significant difference between cases and controls. Pelvic floor muscle tenderness was recorded in only one woman in the case group.

BLADDER DIARY DATA

The median number of total and daytime voids per day was significantly higher in women with recurrent UTI than controls (Table 2). The median number of night-time voids in the recurrent UTI group was greater than in controls but did not reach significant levels. Median total fluid intake per day was significantly higher in cases than controls. Median number of voids per litre of fluid intake was also significantly higher in women with recurrent UTI than controls. Average voided volume was significantly lower in women with recurrent UTI than controls although there was no significant difference in maximum voided volume between the two groups.

FILLING CYSTOMETRY DATA

On filling cystometry, the first desire to void was lower in women with recurrent UTI than controls but did not reach significant levels (Table 3). Strong desire to void and maximum cystometric capacity were significantly lower in women with recurrent UTI than controls. There was no change in detrusor pressure from the start of filling to cystometric capacity in cases or controls and detrusor overactivity was not demonstrable in any case or control. Stress urinary incontinence was demonstrated during filling cystometry in 80% of control women and in two cases. The correlation of maximum cystometric capacity with maximum voided volume on the bladder diary was 0.65 ($P < 0.01$).