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Bryant C[1], Fairbrother G[1], Lloyd M[1]
1. Prince of Wales Hospital & Community Health

FLUID REDUCTION BEHAVIOUR AMONG ADULTS PRESENTING FOR TREATMENT WITH URINARY INCONTINENCE/OVERACTIVE BLADDER SYMPTOMS AND A MATCHED SAMPLE OF CONTROLS

Hypothesis / aims of study
It is a widely held view among continence practitioners that the majority of people with urinary incontinence reduce their fluid intake in order to reduce their urinary symptoms[1]. There is however little empirical data about fluid intake amounts and behaviour among people with bladder problems. This study aims to compare 24hr fluid intake, fluid intake change and behaviour, and types of fluids consumed, between people with urinary symptoms presenting to a continence clinic and control subjects matched on age and sex from the local population.

Study design, materials and methods
A questionnaire seeking self report on current fluid intake (last 24 hours), five-year fluid change history, personal demographics and quality of life questionnaire (SF362), were administered to consecutive adult patients presenting with urinary incontinence and/or overactive bladder symptoms at community health/hospital continence clinics (n=356). A sample of control subjects drawn from the local community matched on age and sex was surveyed using the same questionnaire (n=353).

Results
Results are presented for three sample groups derived from the study population:
Group 1: People presenting for bladder treatment (n=356);
The Control subjects were divided into two groups for analysis: *Group 2*, who reported nil bladder problems (n=207); and *Group 3*, who reported bladder problem(s) and were not under current treatment (n=146).
Comparisons on key descriptive measures of subject characteristics and fluid intake appear in Tables 1 and 2 below:

Table 1: Subject characteristics

	Group1 n= 356	Group 2 n=207	Group 3 n= 146	Difference
Gender *F %*	75	72	73	NS
Age *mean*	68	62	71	F=12.0 P<0.0001
Ethnicity (*non english speaking background*) *%*	15	16	16	NS
BMI *mean*	26	26	26	NS
SF36 - Physical function[2] *mean*	51	72	60	F=25.9; P<0.0001
SF36 - Role physical[2] *mean*	57	81	68	F=21.2; P<0.0001
Self reported bladder problems Overactive bladder symptoms Stress incontinence symptoms Mixed incontinence symptoms Incontinence - not defined	55% 195 12% 12 19% 66 15% 52	nil	65% 95 16% 24 5% 7 14% 20	

Table 2: Fluid intake and intake change behaviour measures

	Group 1 n= 356	Group 2 n=207	Group 3 n= 146	Difference
Total fluid intake - 24hrs *mean ml* (range - ml)	2195 (500-8100)	2666 (800-7800)	2522 (450-9000)	F=11.9; P<0.0001
Total fluid intake - day *mean*	1630ml	1954ml	1874ml	F=10.0; P<0.0001
Total fluid - evening *mean*	478ml	622ml	515ml	F=5.2; P=0.006
Total fluid - overnight *mean*	82ml	89ml	118ml	NS
Total caffeine - 24hrs *mean*	896ml	1075ml	977ml	F=5.1; P=0.007
Total water - 24hrs *mean*	809ml	1118ml	943ml	F=9.4; P<0.0001
Total alcohol - 24 hrs *mean*	145ml	182ml	233ml	F=3.3; P=0.04

Changed fluids				
% reduced	34	7	20	X^2=84.5;
% increased	8	24	30	P<0.0001
% no change	58	69	49	

Among those subjects who reported a fluid intake reduction, open ended responses were sought as to why and how the reduction was made and who advised it. These were content analysed and prominent response categories appear as Table 3:

Table 3: Fluid reduction behaviours

	Group 1 (N=118)	Group 2 (N=14)	Group 3 (n=29)
Prominent reason for reduction (why?)	Urinary symptoms – 89%	Issues with caffeine and/or alcohol – 69%	Urinary symptoms – 72%
Prominent method of reduction (how?)	Reduced fluids in evening or before going out - 36%	Reduced caffeine and/or alcohol – 93%	Reduced fluids in evening or before going out – 38%
Self directed decision? Yes%	79	57	72
If given direction, prominent advisor of reduction (who?)	Medical – 64% (n=25)	Medical – 83% (n=6)	Medical – 75% (n=8)

Regression procedures were conducted to assess the relative value of key subject characteristic and change variables as predictors of fluid reduction (yes/no) and total fluid intake (mls/24hrs).

Logistic regression identified membership of Gp1 (patients) (P<0.0001) and Gp3 (controls with bladder problem) (P<0.0001) as sole significant predictors of fluid reduction (Nagelkerke r^2=0.13, P<0.0001).

Multiple regression identified increasing age (P<0.0001), membership of Gp1 (P<0.0001), non-English speaking background (P<0.0001), female gender (P=0.008) and decreasing BMI (P=0.01) as significant predictors of lower total 24 hr fluid intake (adjusted r2=0.13, P<0.0001).

Interpretation of results
One in three people attending for treatment (Gp1) and one in five people with a problem but not in treatment (Gp3) reported using fluid manipulation to manage their symptoms. Decision making regarding reduction in the two groups with a bladder problem was prominently reported as self-directed. The prominent method of reduction for both of the bladder problem groups was to reduce in the evening or before going out.

Subjects with a bladder problem (whether patients or controls) were more likely to reduce their fluids than people without a problem. This relationship was noted as larger for the patient group. Controls with a bladder problem were significantly more likely to report a fluid increase than either of the other groups.

Among those in Group 1 who reported a fluid decrease, only small numbers had decreased to below the recommended intake of 1500 ml/day and significant numbers reported moderate (2000-3000 ml) and high (>3000 ml) intake levels, suggesting that intake levels among people with continence-related dysfunction are typically quite high.

Concluding message
The findings from this audit are somewhat surprising as they counter some widely held beliefs among practitioners in the field. Fluid reduction was not commonplace in any of the groups studied. Whilst status as a patient was most predictive of reduction, the fact remains that only one in three patients reduced – the majority reported their fluid intake as unchanged in the past five years. Also in most cases, overall fluid intake levels (regardless of group or whether a reduction was reported or not) were above 2 litres/day and a significant minority reported very high fluid intake levels up to 9 litres/day.

1. (1996) *Nursing for Continence.* Beaconsfield: Beaconsfield Publishers 98-99
2. (1993) *SF-36 Health Survey – Manual and Interpretation Guide* The Health Institute, Boston