



ICS 2013 Abstract Form

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Abstract Title:

Self-management of urine flow in long-term urinary catheter users

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Abstract Text:

Hypothesis / aims of study

The study was designed to determine whether a urinary catheter self-management intervention could decrease catheter related problems of urinary tract infection (UTI), blockage, their associated healthcare costs, and improve catheter related quality of life.

Study design, materials and methods

The study was a randomized single blinded experimental design in New York state, US, with repeated measures over a 12 month period to compare 101 individuals receiving the self-management intervention and 101 in the control group receiving usual care. Self-reported data were obtained for both groups on catheter related problems, associated healthcare costs, and quality of life through an initial home visit interview and bimonthly phone call interviews in which patients kept a simple catheter calendar over 12 months of follow-up. At baseline, participants were asked by recall about frequency and details of catheter problems for the previous two months prior to the study commencing. 150 participants completed the full 12 months' study, for a 74% completion rate.

In the self-management intervention group, catheter users were taught to increase awareness and self-monitoring of their own patterns of urine flow and modify self-management behaviour as needed. All three aspects of urinary self-management, i.e., awareness, self-monitoring, and self-management behaviours, are iterative and provide feedback to the patient. The intervention and research plan were informed by Self-Efficacy Theory and findings from the PI's preliminary studies, and modelled on the Stanford Chronic Disease Self-Management Program. The home visits of the intervention were conducted by a trained study nurse in the homes of participants. The intervention was delivered to 98% for the first home visit; 95% for the second home visit; 93% for the follow up phone call two weeks later, and 91% for the booster home visit at 4 months.

Results

The groups were compared at baseline for randomization equivalence and no significant differences were found. The sample ranged in age from 19-96 years, 51% males, with wide racial and medical diagnosis diversity. Urethral catheters were used by 56%, suprapubic 44% for mean of 6 yrs. (SD 7 yrs.). The Katz score of 7.8 for activities of daily living reflects a highly disabled population, and only 5% were employed.

The longitudinal GEE analyses for repeated measures indicated that there were no significant group differences in the 12 months of the study in the primary catheter related problems of UTI or blockage; however, there was a significantly positive ($P=0.0168$) decrease in blockage frequency in the intervention group in the first six months of the study but not for UTI. (See Table 1). The comparisons of between and within group rates at intake, for the first 6 months, second 6 months, and full study of 12 months indicated that the intervention group was significantly lower in blockage rates for the first six months and for the full 12 months' study. UTI rates were lower in the control group in the second six months. Both groups improved over time (Table 2).

There were far more hospitalizations in the intervention group related to UTI (39 in 21 persons vs. 10 in 10 persons), and these were significant differences over time (percentage hospitalized $P=0.0022$, frequency/counts $P=0.0035$, and number of days hospitalized $P=0.0019$). The self-rated UTI severity score indicated that the intervention group rated their UTIs as more severe than the comparison group, with a P value of 0.0392 per GEE analysis. Symptom severity was rated significantly higher *only* in the intervention group for symptoms

of bladder pain, malaise, weakness, fever, and chills. Catheter related quality of life did not differ significantly for group comparisons at baseline, 6, or 12 months' follow up.

Interpretation of results

Both groups appeared to have improved during the study. However, the intervention group might have had more serious UTIs which contributed to excess hospitalizations.

Table 1. GEE analysis of Primary Outcomes (main effects models) with baseline covariates. Control group was reference group.

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Primary Outcomes	Estimates Beta	Standard Error	95% Confidence Interval		P values
Main effects testing for follow up 2-6 months					
Blockage Y/N	-0.7432	0.3433	-1.4160	-0.0704	0.0273
Blockage count	-0.5184	0.3359	-1.1768	0.1400	0.0989
UTI Y/N	-0.1698	0.2661	-0.6915	0.3518	0.5262
UTI count	-0.2384	0.2019	-0.6340	0.1573	0.2453
Main effects testing for follow up 2-12 months					
Blockage Y/N	-0.2340	0.2917	-0.8057	0.3378	0.4259
Blockage count	-0.2703	0.2573	-0.7746	0.2341	0.2847
UTI Y/N	0.1612	0.2225	-0.2748	0.5973	0.4670
UTI count	0.1043	0.1781	-0.2447	0.4533	0.5572

Table 2. Key rates health status outcomes-UTI & blockage, between groups and within groups/1000 catheter days at Intake, First 6 months, Second 6 months, Full 12 months

	Intervention group	Control group	Between Group P values	Change from intake rates: Intervention	Change from intake rates: Control
UTI Rates	Simple Rates (95% CI)			Change in rates P values	
Intake- prior two months	6.93 (5.00, 9.37)	5.50 (3.79, 7.72)	0.32		
First 6 months	4.37 (3.40, 5.53)	4.83 (3.82, 6.03)	0.55	0.0186	0.5334
Second 6 months	5.48 (4.31, 6.87)	3.29 (2.41, 4.39)	0.01	0.2239	0.0243
Full 12 months	4.89 (4.12, 5.75)	4.12 (3.42, 4.91)	0.16	0.0465	0.1392
Blockage Rates					
Intake-prior two months	9.26 (6.98, 12.05)	11.5 (8.95, 14.55)	0.23		
First 6 months	4.28 (3.32, 5.43)	7.41 (6.14, 8.86)	<0.01	<.0001	0.0036
Second 6 months	5.31 (4.15, 6.67)	4.45 (3.41, 5.71)	0.31	<.0001	<.0001
Full 12 months	4.76 (4.00, 5.62)	6.04 (5.20, 6.99)	0.03	<.0001	<.0001

Concluding message

A simple to use catheter problems calendar and the bimonthly interviews might have functioned like a modest form of a self-monitoring intervention for controls. Blockage improvement in the experimental group might have been related to the key fluid intake

component of the intervention, but the effect did not last for the full 12 months of the study. Therefore, more follow up time with an interventionist nurse might be needed to sustain the catheter self-management intervention.