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Prolonged use of indwelling urinary catheter following acute urinary retention in a tertiary care centre in sub-Saharan Africa: Causes, costs and concerns

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KEYWORDS

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Abstract

Objectives: To evaluate the causes, estimate out-of-pocket payments and assess concerns associated with prolonged use of urinary catheters following acute urinary retention secondary to benign prostate enlargement (BPE) and urethral stricture disease (USD) in men attending the urology out-patient clinic of a tertiary referral centre in North-central Nigeria.

Patients and methods: This was a cross-sectional survey of men attending urology clinic and who are using indwelling urinary catheter for >3 months following acute urinary retention due to BPE or USD. The study was conducted over a six-month period (1st March 2012 to 31st August 2012) at a tertiary hospital in North-central Nigeria using interviewer administered questionnaires.

Results: Of seventy-six men, 36/76 (47.4%) had BPE and 40/76 (52.6%) had USD. Median age, median duration of catheter use and median out-of-pocket payment per catheter change was 65 years (range 20–90 years), 12 months (range 3–120 months) and US\$9.31 (range \$3.63–18.75) respectively. There was no significant difference in the duration of catheter use and out-of-pocket payments between men with BPE and USD; however, men with USD were significantly younger than those with BPE.

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One-fifth and half of the men with BPE and USD, respectively attributed inability to pay for surgery as the reason for prolonged use of catheters. The second common reason was long waiting list for surgery. Men with BPE had their sexual relationships disrupted significantly more than those with USD and unexpectedly, we found that men using catheters for less than 6 months describe themselves as unhappy significantly more than those using the catheters for longer periods ($p=0.033$). **Conclusions**

Inability to pay for definitive surgery and long waiting lists are the leading causes of prolonged use of indwelling urinary catheters in men with BPE and USD in our sub-Saharan setting. Prolonged catheter use adversely affected quality of life disrupting sexual relationships especially of men with BPE. Recommendations made to reduce out-of-pocket payments and shorten waiting times may help to improve access to urologic surgical care for these men.

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Introduction

Acute urinary retention (AUR) is sudden inability to pass urine. This painful and distressing clinical situation is often managed by immediate urethral or suprapubic catheterization and may occur in men with bladder outlet obstruction (BOO) secondary to benign prostate enlargement (BPE) or urethral stricture disease (USD). Subsequent treatment following the relief of acute urinary retention secondary to BPE and USD is guided by evidence based guidelines and also the local urology department or hospital policy [1]. Men catheterized following AUR secondary to BPE will often require a trial of voiding without catheter (TWOC) following commencement of medical therapy with alpha-blockers [2]; definitive surgery is indicated for those who fail TWOC [1]. In parts of the developed world, the surgery (Prostatectomy) for those who fail TWOC will typically take place within 3 months [1]. Similarly, men with USD will often require definitive elective surgery after the relief of AUR; the surgical options for USD are varied and include urethral dilatations, endoscopic urethrotomy and open surgery (urethroplasty). These procedures are often scheduled following completion of patient evaluation and as soon as waiting lists would allow. A delay of open surgery for USD (urethroplasty) for up to 3 months may, however, be appropriate for those who may have had recent failed urethral manipulations (dilatations or endoscopic urethrotomy) or complicated USD [3].

Indwelling urinary catheters can be used as a temporizing measure, especially when urinary retention is refractory, in men awaiting definitive therapy for either BPE or USD. We have observed a growing number with these conditions (BPE and USD) attending our urology clinics with indwelling urinary catheters which they have been using for unusually prolonged periods. This study was designed to determine the causes of the prolonged urinary catheter use, the cost burden of catheter placements and changes, and the empirical concerns expressed by men with regards to their prolonged use of the indwelling urinary catheters. We also propose recommendations to resolve this unsatisfactory situation and improve the urological care of the men.

Patients and methods

Study population

All men attending the urology surgical out-patient clinic at the University of Ilorin Teaching Hospital, Nigeria with BOO secondary to BPE or USD; and using indwelling urinary catheters for prolonged

periods (>3 months) due to refractory AUR. Patients on indwelling urinary catheter for other conditions other than refractory AUR secondary to BPE or USD were excluded from the study.

Study design

This was a cross-sectional survey; the men were interviewed by authors (B.J.O., U.F.A., O.A.O. and O.M.O.) during their clinic appointments over a six-month period (1st March 2012 to 31st August 2012).

Data collection

The instrument of data collection was a structured non-validated questionnaire (Appendix 1); administered to consenting men by the interviewers. The interview was conducted at the end of clinic consultation before the patient leaves the consulting room. Hospital identification numbers were taken down to avoid re-interviewing the patients more than once during the study period. Information on patient's demographic details, duration of catheter use, out-of-pocket payments per catheter change and reasons for prolonged catheter use was collected. Additionally, three questions aimed at measuring the effect of prolonged use of urinary catheters on quality of life were also included.

Statistical analysis

The data were analyzed using SPSS 16.0 software. Medians of continuous variables were compared using Mann–Whitney *U* test after grouping by disease condition (BPE and USD). Mann–Whitney *U* test was used as it is less likely than the student's *t*-test to spuriously indicate significance because of the presence of outliers. Categorical variables were analyzed by Chi-square tests and Fisher's exact tests as appropriate; the grouping of the categorical variables was by disease condition and duration of catheter use (grouped into two categories: 3–6 months and >6 months). Statistical significance was put at $p < 0.05$.

Results

A total of 76 men were evaluated. Of these men, 36/76 (47.4%) had BPE and all were on indwelling urethral catheters while the remaining 40/76 (52.6%) had USD and all were on indwelling suprapubic catheters. No patient used clean intermittent catheterization. Median age of all the men was 65 years (range 20–90 years), median duration of catheter use for all men was 12 months (range 3–120

Table 1 Background continuous variables in men with BPE and USD using indwelling urinary catheters for prolonged periods.

	BPE	USD	<i>p</i> -Value ^a
Median age (years)	68	62.5	0.024
Median out-of-pocket payments (\$US)	9.31	8.75	0.463
Median duration of use of catheters (months)	12	12	1.000

^a Mann–Whitney *U* test.

months) and the median out-of-pocket payments made by each man for a single catheter change was US\$9.31 (range \$3.63–18.75). Three-quarters of all the men change their catheters every 4 weeks (58/76, 76.3%).

There was no significant difference in the duration of catheter use and out-of-pocket payments between men with BPE and those with USD; when age was similarly compared, men with USD were significantly younger than those with BPE (Table 1).

Table 2 lists the reasons for prolonged use of the indwelling urinary catheters as described by the patients; half of the men with USD attributed their inability to pay for surgery as the reason for prolonged use of catheters while one-fifth of men with BPE gave a similar reason. About a quarter and one-fifth of men with BPE and USD respectively said they were on urinary catheters for prolonged periods because they were still on waiting list for surgery. There was no significant difference in the reasons for prolonged catheter use when men with BPE and USD were compared (Table 2).

Table 3 depicts the responses of the men to three questions aimed at measuring the effect of prolonged use of indwelling catheters on quality of life. The men with BPE had their sexual relationship disrupted significantly more than men with USD ($p=0.037$); also men using catheters for less than 6 months describe themselves as unhappy significantly more than those using the catheters for longer periods ($p=0.033$).

Discussion

The growing number of men with surgical correctable bladder outlet obstruction from BPE and USD using indwelling urinary catheters for prolonged periods is a cause of worry for urologists in resource-limited settings [4,5]. The median duration of indwelling catheter in this study is 12 months. This compares favourably with two recent reports from Ibadan and Lagos, Nigeria that showed prolonged use of indwelling urinary catheters for bladder outlet obstruction (mean duration of 8 and 23 months respectively) in patient populations similar to this study [4,5]. The duration of use of indwelling catheters of 12 months found in this study is four times longer than that described for men with similar clinical condition in the United Kingdom [1]. This difference is not surprising as the health systems in the two countries are very dissimilar; out-of-pocket spending is the commonest form of health payment in this region with low health insurance coverage, which is very much different from the developed world [6].

The out-of-pocket payments made by these men per change of catheter is \$9.31 (\$111.72 annually), this is staggering representing almost half (44.7%) of the average annual income of an adult in the study region of \$250 [7]; this however pales in comparison

to the out-of-pocket costs for definitive surgery (prostatectomy or urethroplasty) which averages \$800 in the study region. This level of health expenditure by individuals and households can result in financial catastrophe sinking these individuals and their families further into poverty, the men thus decides for the probably cheaper (in the short-term) stop-gap option of the indwelling catheter. The World Health Organization has proposed that health expenditures equal to or in excess of 40% of household's non-subsistence income be viewed as catastrophic and suggests prepayment systems that protect against such spending [8].

This study identified that the inability to pay for definitive surgery and long waiting lists are the top two reasons for prolonged use of indwelling urinary catheters in the men studied. This may be the consequence of the steep out-of-pocket payments required for the definitive treatments described above and also the near lack of health insurance safety net in the study region. Out-of-pocket payment is the major health-care financing strategy in Nigeria and accounts for more than three-quarters of total health-care expenditures [9]. While some use their savings, others cope by borrowing money, sale of household assets or land as the health financing system in Nigeria and many countries in Africa is too weak to protect their populations from health shocks [9,10]. One-fifth of the study population was on waiting lists for surgery and represents the second leading cause of prolonged use of indwelling catheter; this may be the result of the few and overstretched urologists available in the study region estimated to be 1 urologist for every 3.8 million people [11].

Unexpectedly, we found that men using catheters for less than 6 months were unhappier about their new reality of dependence on indwelling urinary catheters when compared to those who have used it for longer periods. This may be because the latter has had a longer time to cope with and accept this new reality and the former is in despair having just experienced distressing acute urinary retention and newly informed of their diagnosis. Coping with new health realities requires time and time fosters hope [12]; this may explain why men using catheters for longer periods appear happier than those who have used it for a relatively shorter period. We also found, not surprisingly, that sexual functioning was significantly more disrupted in men with BPE than those with USD. The reasons for this may be multiple and may include the use of urethral catheters in BPE patients and suprapubic catheters in men with USD; also men with USD are relatively younger than those with BPE and are at lesser risk of male sexual dysfunction. Suprapubic catheters have been advocated for use following acute urinary retention over urethral catheters because of this and other known benefits including easier catheter changes and a reduced risk of infection [13].

Based on our findings in this study, we described two goals and made five recommendations aimed at reducing the use of prolonged

Table 2 Reasons for prolonged use of indwelling urinary catheters.

Reasons for prolonged use of urinary catheters	BPE (<i>n</i> = 35) ^a	USD (<i>n</i> = 40)	<i>p</i> -Value (Fisher's exact test)
I am still undergoing clinical evaluation	6 (17.1)	5 (12.5)	0.139
My choice	4 (11.4)	5 (12.5)	
I have no funds for surgery	7 (20.0)	20 (50.0)	
I am afraid of surgery	2 (5.7)	0 (0.0)	
I am on waiting list for surgery	10 (28.6)	7 (17.5)	
I had surgery and still cannot void	2 (5.7)	1 (2.5)	
I have severe co-morbid clinical condition(s) and it prevents me from having surgery	1 (2.9)	0 (0.0)	
Others (e.g. experimenting with alternative/herbal therapy)	3 (8.6)	2 (5.0)	

^a One man with BPE gave no reason for his prolonged use of indwelling urinary catheter.

Table 3 The responses to three QoL questions by type and duration of use of catheter.

Questions	Responses	Diagnosis		<i>p</i> -Value	Duration use of Catheter		Total	<i>p</i> -Value
		BPE	USD		<6 months	>6 months		
Does the prolonged use of urinary catheter prevent you from socializing, meeting friends and or acquaintances?	Yes all the time	8 (22.2)	11 (27.5)	0.622	10 (35.7)	9 (18.8)	19 (25.0)	0.240
	Only sometimes	5 (13.9)	3 (7.5)		3 (10.7)	5 (10.4)	8 (10.5)	
	No	23 (63.9)	26 (65.0)		15 (53.6)	34 (70.8)	49 (64.5)	
	<i>Total</i>	36	40		28	48	76	
Does the prolonged use of catheter make you feel unhappy?	Yes all the time	9 (26.5)	12 (30.0)	0.830	11 (42.3)	10 (20.8)	21 (28.4)	0.033
	Only sometimes	16 (40.0)	16 (40.0)		12 (46.2)	20 (41.7)	32 (43.2)	
	No	9 (26.5)	12 (30.0)		3 (11.5)	18 (37.5)	21 (28.4)	
	<i>Total</i>	34	40		26	48	74 ^a	
Has the prolonged use of catheter disrupted your sexual relationship with your partner?	Yes completely	26 (76.5)	24 (63.2)	0.037	19 (73.1)	31 (67.4)	50 (69.4)	0.870
	Only partially	1 (2.9)	9 (23.7)		3 (11.5)	7 (15.2)	10 (13.9)	
	No	7 (20.6)	5 (13.2)		4 (15.4)	8 (17.4)	12 (16.7)	
	<i>Total</i>	34	38		26	46	72 ^b	

^a Two men with BPE did not respond to this question.

^b Four of the men studied were not sexually active and did not respond to this question.

indwelling urinary catheters among men with similar conditions attending our clinic. These goals and recommendations are outlined below.

Goal 1: Improve knowledge of and increase the take up of health insurance schemes thus reducing the requirements for out-of-pocket payments.

Goal 2: Reduce the waiting times for surgery for correction of bladder outlet obstruction.

Recommendation 1: Improve awareness of Health insurance schemes. Enrolment staffs of health insurance schemes should be allowed regular visits to the out-patient clinics to educate the men on how to enrol into the scheme and explain its benefits when compared with the potential catastrophic effects of out-of-pocket payments.

Recommendation 2: Enlist Social welfare departments. There should be early home visits by social welfare departmental staffs especially for un-insured men to help mitigate social and economic issues.

Recommendation 3: Timely and effective intervention for established prolonged catheter users. Intervention for those found to be using catheters for prolonged periods (>3 months) may include fee waivers (from a hospital fee waiver authority). Prioritization and moving up the men on surgery waiting lists will also reduce further the duration of use of the catheters.

Recommendation 4: Advocacy by beneficiaries. Those who have benefited from expedited treatments and had shortened their duration of use of urinary catheter should be recruited to form advocacy groups to educate new patients.

Recommendation 5: Research, monitoring and evaluation. Research provides evidence on the effects of our interventions on the men studied. Continuous monitoring also allows proper evaluation of the progress (or otherwise) being made.

These recommendations are to be implemented by the clinical providers (urologists and allied medical practitioners) and the hospital policy makers (hospital management).

Conclusions

Inability to pay for definitive surgery and long waiting lists are the leading reasons for prolonged use of indwelling urinary catheters in men with BPE and USD in our sub-Saharan setting. Prolonged catheter use adversely affects quality of life disrupting sexual relationship especially of men with BPE. The men studied also appear to cope better with increasing duration of catheter use. The recommendations made to reduce out-of-pocket payments and shorten waiting times may help to improve access to urologic surgical care for these men thus averting the distressing effects of prolonged catheter use.

Appendix 1.

SERIAL No..... AGE..... SEX (a) Male (b) Female

1. What type of urinary catheter are you using? (a) Urethral (b) Suprapubic
(c) Both
2. How much out of pocket expense do you incur on the average for each catheter change?
3. How long have you been using urinary catheter? (Months).....
4. How often do you change your catheter on average? (a) monthly (b) every 3 weeks (c) every 2 weeks (d) every week (e) others-Please state.....
5. Why have you been using urinary catheters for so long?
 - (a) I am still undergoing clinical investigations/evaluation
 - (b) My choice
 - (c) I have no funds for Surgery
 - (d) I am afraid of Surgery
 - (e) I am on waiting list for Surgery
 - (f) I have had surgery and can't still void
 - (g) I have severe co-morbid clinical condition(s) and it prevents me from having definitive Surgery
 - (h) Others (Please state).....

THE FOLLOWING SECTION RELATES TO HOW THE PROLONGED USE OF URINARY CATHETERS HAS AFFECTED YOU QUALITY OF LIFE

6. Does the prolonged use of urinary catheters prevent you from Socializing, meeting friends and/or acquaintances?
 - (a) Yes all the time
 - (b) Only Sometimes
 - (c) No
7. Does the prolonged use of urinary catheters make you feel Unhappy?
 - (a) Yes all the time
 - (b) Only Sometimes
 - (c) No
8. Has the prolonged use of urinary catheters disrupted (negatively affected) your sexual relationship with your partner? (respond if you are currently sexually active or if you were active previously)
 - (a) Yes completely
 - (b) Only Partially
 - (c) No

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