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Prolonged indwelling lower urinary tract catheters among males attending outpatient urologic clinic: indications, cost implications, complications and quality of life burden

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Abstract

Context: Elimination of urine is a basic human function that can be deranged by illness, trauma, and other conditions. Urethral or suprapubic catheterization is used to ensure elimination of urine in patients who are unable to void naturally as a result of disorder of the lower urinary tract. Indwelling lower urinary tract catheter is termed prolonged when it remains in place for more than 14 days. This study aimed to identify the indications for unduly prolonged lower urinary tract catheterization among patients attending the urology clinic, the complications associated with such and the cost implication of this practice.
Methods: This was a descriptive cross sectional study conducted over a period of 3 months at the urology unit of Alex-Ekwueme Federal Universty Teaching Hospital Abakaliki, Ebonyi State, Nigeria. One hundred and eighteen patients presenting to the outpatient clinic were recruited using a consecutive sampling technique .Statistical analysis was performed using IBM statistical package for social Science for windows, version 21.0.
Results: The mean age of participants was years, 65.31±14.31 while the mean duration of urethral catheterization was 22.42±32.58 months. The median cost of catheter change was 2800 Naira (interquartile range 1850-4000). The indications for catheter use were benign prostatic hyperplasia (BPH), urethral stricture disease (USD) and carcinoma of the prostate (CaP) in 54.2%, 28.0%, and 17.8% respectively. In one hundred and one (85.6%) patients the reason for prolonged catheterization was lack of funds, nine patients (7.6%) were afraid of surgical therapy and declined consent while eight patients (6.8%) were not fit for surgery. Pain was the most common complication occurring in 15(12.7%) patients. With respect to the quality of life 93 (78.8%) patients expressed sadness, 23 (19.5%) were indifferent while 2% reported they were happy.
Conclusion: Unduly prolonged indwelling urethral catheter is still common among patients attending our out-patients clinic and is commonly due to urinary retention from benign prostatic hyperplasia, urethral stricture disease and cancer of the prostate.

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Introduction:

Elimination of urine is a basic human function that can be deranged by illness, trauma, and other conditions. Urethral or suprapubic catheterization is used to ensure elimination of urine in patients who are unable to void naturally as a result of disorder of the lower urinary tract.[1] Lower urinary tract

catheterization is not without adverse effect, therefore whenever possible this procedure should be avoided.[2] Catheterization of the lower urinary tract can be through the urethra or the suprapubic route.

The indication for suprapubic catheterization is urinary retention with failure of urethral catheter placement.[3,4] This will include benign prostatic hyperplasia, urethral disruption from trauma, urethral stricture, bladder neck contracture, genital malignancy and morbid obesity.[3,4] Urethral catheterization can be indwelling or intermittent. In condition where prolonged catheterization is anticipated, such as in spinal cord injured patients intermittent catheterization is the gold standard.[5] In intermittent drainage, the catheter is removed after the bladder is emptied while in indwelling catheterization, the catheter is anchored in place for a given period of time before it is changed at intervals. The indications for indwelling urethral catheterization can be short or long-term.[2]

Indwelling lower urinary tract catheter is termed prolonged when it remains in place for more than 14 days.[6] In Africa, the most common indication for urethral catheterization is acute urinary retention secondary to prostate-related pathologies.[7] Due to the peculiarities of practice in this subregion including inadequate number of trained urologists and lack of funds for definitive therapy, the burden of prolonged use of indwelling lower urinary tract catheters is high.[8,9]

Prolonged urinary catheterization is associated with complications. Possible complication of this procedure include urinary tract infections, catheter blockage, stone formation, painful bladder spasms, peri-catheter urine leakage, undue pain during catheterization, urethral bleeding and pain.[10,11,12,13,14,15]

In addition to these complications, prolonged indwelling catheter also adversely affect the patient's quality of life (QoL).[12,13]

A study done 17 years ago in Lagos Nigeria identified a mean catheter use time of 23 months before definite treatment.[16] While we have observed prolonged use of indwelling lower urinary tract catheters among our patients, the mean catheter use time among them remains unknown.

This study therefore, aimed to identify the indications for unduly prolonged use of indwelling lower urinary tract catheter among patients attending our outpatient urology clinic, the complications associated with such and the cost implication of this practice.

Materials and Methods

Study design and setting

This was a descriptive cross sectional study conducted over a period of 3 months at the urology unit of Alex-Ekwueme Federal Universty Teaching Hospital Abakaliki, Ebonyi State, Nigeria.

Study population and Eligibility criteria

The study population included adult men presenting at the urology clinic with prolonged indwelling lower urinary tract catheters which has been in place for 14 days or more requiring continuation or reinsertion of the catheters. All eligible patients meeting the inclusion criteria were recruited into the study over a period of 3 months. Those with indwelling catheters less than 2 weeks or who declined to give consent to participate were excluded from the study.

Data collection

Data collection was done with a structured validated questionnaire. Content validation was conducted with three Urologists from Urology unit of Alex-Ekwueme Federal Universty Teaching Hospital Abakaliki, Ebonyi State. The questionnaire was pre-tested among 15 patients at the out-patient clinic of the same institution, to ensure clarity and appropriate flow of response. This was administered to consenting men by the researchers at the end of the clinic consultation just before the patient leaves consulting the room. Each participant's folder was marked at the end of the interview to avoid duplication of entries into the study. Information obtained included the patients' biodata, clinical diagnoses, duration of catheter use, the indications and complications of prolonged indwelling catheter, the estimated cost of change of catheter and the patients' perceived quality of life(QoL). The cost of catheter change was determined by summing up the cost of procurement of all the materials needed for the catheter change, the cost of drugs prescribed in relation to the catheter change and the cost of transportation to and from the hospital as well as the service charge by health facility for the procedure. With respect to the patients' perceived QoL, we

adopted the concept used by Ikuerowo et al in their study.[16] In their study, the question "How do you feel about your life regarding the need to use an indwelling catheter while awaiting operation?" was asked and the responses were "sad", "indifferent", or"happy".

Data analysis

The data from this study was entered into a database and statistical analysis performed using IBM SPSS (statistical package for social Science) for windows, version 21.0 (IBM Corp., Armonk, New York). Continuous variables were summarized as means and standard deviation if normally distributed or as median (interquartile range) if not normally distributed.

Ethical considerations

Ethical approval for this study was obtained from Research ethics committee of Ebonyi State University with approval number EBSU/DRIC/UREC/Vol.06/031. All participants gave consent and voluntarily filled the questionnaire.

Results

A total of 118 participants were involved in the study. The mean age was 65.31±14.31 years with a range of 21-90 years.(Table 1). The median duration of lower urinary tract catheterization (in months) was 9 (3.0-33.0). The median cost of catheter change in Naira was N2,800 (3.64United States Dollars). (Table 2). Seventy-four patients (62.7%) had urethral catheter while 44 patients (37.3%) were on supra-pubic catheter.

The common indications for prolonged indwelling catheter use were acute urinary retention (AUR) from benign prostatic hyperplasia (BPH), urethral stricture disease (USD) and carcinoma of the prostate (CaP) in 54.2%, 28.0%, and 17.8% respectively (Table 3). The catheter material in 55.1% of patients was silicone while in 44.9% of the patients, the catheter material was latex. The factors responsible for prolonged catheterization are as shown on Table 4. In one hundred and one (85.6%) patients, the reason was lack of funds for surgery. Nine patients (7.6%) were afraid of surgical therapy and declined consent while eight patients (6.8%) were not fit for surgery.

The complications associated with prolonged indwelling catheterization are as listed in Table 5. Pain was the most common occurring in 15 (12.7%) patients, followed by combination of pain and loss of self-esteem occurring in 14 (11.9%) patients.With respect to the quality of life, 93 (78.8%) patients expressed sadness, 23 (19.5%) were indifferent while 2 reported they were happy (Table 6).

Table 1: Age of Respondents

Variable	N	Minimum	Maximum	Mean	Standard deviation
Age (years	118	21.00	90.00	65.31	14.31

Table 2: Median duration of catheter and cost of catheter change

Variable	Median	Interquartile range
Duration of catheter (months)	9.00	3.00 – 33.00
Cost of catheter change (naira)	2800	1850 – 4000

Table 3: Indications for indwelling Catheter

Variable	Frequency	Percent
BPH	64.00	55.10
CAP	21.00	16.90
Urethral stricture	33.00	28.00

Table 4: Factors responsible for prolonged Catheterization

Variable	Frequency	Percent
Lack of funds	101.00	85.60
Fear of surgery	9.00	7.60
Not fit for surgery	8.00	6.80

Table 5: Complications associated with prolonged indwelling catheterization

Variable	Frequency	Percent
Urethral pain	15.00	12.70
Loss of self esteem	9.00	7.60
Lack of sexual intercourse	12.00	10.20
Pericatheter leakage	8.00	6.80
Recurrent UTI	3.00	2.50
Urethral pain and traumatic catherization	3.00	2.50
Urethral pain and loss of self esteem	14.00	11.90
Urethral pain and loss of job	1.00	0.80
Urethral pain and lack of sex	12.00	10.20
Urethral pain and pericatheter leak	3.00	2.50
Emotional trauma and loss of esteem	1.00	0.80
Loss of self esteem and lack of sex	3.00	2.50
Loss of esteem and pericatheter leak	3.00	2.50
Loss of job and lack of sex	5.00	4.20
Urethral pain, loss of self esteem and job loss	4.00	3.40
Urethral pain, lack of sex and pericatheter leak	1.00	0.80
Loss of self esteem, UTI and lack of sex	1.00	0.80

Table 6: Qualityoflife of patients

Variable	Frequency	Percent
Happy	2	1.70
Sad	93	78.80
Indifferent	23	19.50

Discussion

In resource-poor economies, it is not uncommon to see patients remain on indwelling catheter for prolonged duration on account of surgically correctable conditions like BPH and USD.[17,18] The indications for catheterization in this study were acute or chronic urinary retention from benign prostatic hyperplasia (BPH) in 54.2%, urethral stricture (USD) in 28% and carcinoma of the prostate in 17.8% of cases. This finding is similar to the results of earlier studies conducted in Enugu, Nigeria[19] and another in Tanzania.[20] In the Enugu study, the leading indications for prolonged indwelling catheterization were BPH (66.7%), USD (17.6%) and cancer of the prostate in 13.9%. Again in the study done in Tanzania the leading causes of prolonged indwelling catheter were BPH and USD accounting for 63.9% and 16.8% respectively.

This study found a mean duration of indwelling catheters of 22.42 months. This pattern of prolonged indwelling catheters among urologic patients has not changed in our environment. An earlier study conducted in Lagos Southwest Nigeria 15years ago, documented prolonged mean indwelling catheter duration of 23months before definitive treatment.[16]

This study has identified three major reasons for prolonged indwelling catheter among our patients. These include lack of funds for surgery, fear of surgical therapy and lack of fitness for surgery. This observation mirrors an earlier study in North-central Nigeria which listed the inability to pay for surgeryand long waiting lists as the two leading reasons for prolonged use of indwelling urinary catheters among the men studied.[18] In contrast to our finding, a study done in Tanzania identified endless clinic visits (50%) as the commonest reason for prolonged indwelling catheter.[20] Owing to the fact that out-of-pocket expenses is the main source of financing health care cost and most do not have money for surgery, these patients resorted to the cheaper alternative of monthly catheter changes which cost averagely 2800 Naira(3.64 United States Dollars). When compared to the cost of definite surgery which is estimated at about 300,000 naira (389.61 USD) in the study area, it is not surprising why these patients choose monthly catheter changes. The cost of surgery, (300,000Naira) is about 10 times the monthly minimum wage in Nigeria which is about N30,000 and this is a huge burden on the patients' house hold. Those who were afraid to have surgery claimed they were told by sources within their community that death occurred in 50% of patients who undergo surgical therapy. This claim has no scientific basis. For example, previous studies that reviewed the complications associated with transurethral resection of the prostate and open prostatectomy in our region reported zero and 0.7% mortality respectively.[21,22] Therefore, it is important to make evidence based information concerning the causes and treatment of bladder outlet obstruction available to those living in the communities. Similar to the finding by Ndoma et al[20], lack of fitness for surgery contributed to prolonged IUC in 6.8% of study participants. This is not surprising as these patients are mostly elderly (mean age of participants in this study is 65years) and are therefore prone to comorbidities.

Prolonged indwelling urethral catheter is associated with complications.[10-15] In this study, more than three quarters of the participants (83.05%) reported complication arising from catheter use. Other authors reported a higher but similar complication rate of 98.7% and 95% respectively in men with prolonged indwelling urinary catheter.[16,23] Urethral pain and lack of sexual intercourse were the most common complications occurring in 12.7% and 10.2% of the study participants respectively. Some patients experienced more than one complication. For example 11.9% of the participants had urethral pain and loss of self-esteem while 10.2% had pain and lack of sexual intercourse. These patients attributed their inability to have sexual intercourse and the fact they feel ashamed to void through the catheter around other individuals as the main cause of loss of self-esteem. Majority (78.8%) of the participants in this study were sad with respect to prolonged IUC.

Considering the high incidence of complications and poor quality of life of these patients (83.05% and 78.8% respectively) efforts should be made to reduce the duration of IUC before definite surgery. There is therefore, urgent need by policy makers to

expand the coverage of National Health Insurance Authority (NHIA) to include individuals from the formal and informal sectors as well as the rural dwellers. It is estimated that only about 3% of the population is covered by the NHIS, and this include only those in the formal sector.[24,25] The voluntary Contributor social health insurance program (VCSHIP) of the NHIA has the potential to eliminate the catastrophic out of pocket expenses on households. This scheme has an annual subscription rate of 15,000 Naira (19 United States Dollars) and allows the enrollee to enjoy all the benefits of NHIA. However, it has been reported that there is poor awareness of the VCSHIP not only in the general populations but also among nurses.[26]

From the discussion so far, uptake of VCSHIP will reduce the cost of definite surgery from 300,000 Naira to 45,000 Naira (15,000 annual subscription plus 30,000 [10% 0f 300,000]).[26] We therefore, call on relevant stake holders such as ministry of health, ministry of communication and teaching hospital staffs to actively disseminate information about VCSHIP to the populace. Again Urologists in our environment who manage these patients should be at the forefront of informing patients of the availability of VCSHIP. Finally Urologists need to provide patients with information concerning the nature of prostate diseases, treatment options and outcomes. This will help deal with misinformation, allay patients' fear and encourage acceptance of surgical treatment.

Conclusion

Unduly prolonged indwelling urethral catheter is still common among patients attending our out-patients clinic and is commonly due to urinary retention from benign prostatic hyperplasia, urethral stricture disease and cancer of the prostate. Lack of funds and fear of surgery are the main factors responsible for this trend. We therefore recommend Universal health insurance coverage, the voluntary contributor health insurance programme (VCSHIP) and patient education on the outcome of treatments to reverse this trend.

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Conflicts of interests
There are no conflicts of interest.

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