

Burden of Prolonged Urinary Catheter Use after Urinary Retention in a Tertiary Hospital, South-South Nigeria

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DOI: [10.36348/sjimps.2022.v08i12.002](https://doi.org/10.36348/sjimps.2022.v08i12.002)

| Received: 08.09.2022 | Accepted: 15.10.2022 | Published: 02.12.2022

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Abstract

Background: Urinary retention is a worldwide health problem mostly noted in elderly men who may have benign prostatic hyperplasia (BPH), cancer of the prostate (Cap), urethral stricture disease or bladder tumour. It has a negative impact on the quality of life (QOL) of the sufferer as well as national or global economy. Urethral catheterization is used to relieve the retention and suprapubic cystostomy where the urethral route fails or it's contraindicated. Complications have been reported especially when catheters are worn for prolonged periods of time. The aim of this work was to study the burden of prolonged use of catheters after urinary retention. **Patients and Method:** The study was conducted in March 2021 and lasted for four (4) weeks to prevent data duplication since our patients change their catheters once in 4 weeks. A questionnaire was designed and completed by all patients after informed consent was obtained. Data collected were analyzed using statistical package for social science (SPSS) version 20.0 and results used for discussion. **Results:** Eighty two (82) patients with a mean age of 63.12±14.67 years were studied. Aetiology of urinary retention was BPH, Cap, and Urethral stricture in 58.5%, 19.5% and 23.0% respectively. More patients were in their 7th and 8th decades of life. Most patients had indwelling urethral catheter (65.9%), average duration of catheter use was 21.26 months. There was no statistical significant difference in the mean duration between those who used SPC and Urethral catheter (P=.411). Ninety-eight (98.7%) of patients had complications and 22% of them reported more than five (5) complications. Qol correlated poorly with those who had sexual issues due to prolonged catheter use. The estimated annual cost for catheter change was between ₦1.5million and ₦2.0 million in our facility. **Conclusion:** Prolonged catheter use is a source of concern to patients and poses serious health-related and financial burden to them.

Keywords: Burden, Prolonged, urinary catheter use, Urinary retention.

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INTRODUCTION

Urinary retention is defined as inability to empty the bladder despite being distended with urine¹. It may be acute where there is sudden inability to pass urine despite the urge to urinate or chronic where there is inability to completely empty the bladder during voiding with painless bladder distension [1]. It has been noted to be one of the commonest urologic emergencies worldwide [2, 3] and even in West African sub-region, many researchers had made same inferences [4, 5]. It may be caused by resistance to the flow of urine by either mechanical or dynamic factors or both at the bladder neck and beyond [6]. It is usually a complication of BPH, Cap, Urethral stricture and other pathologies of the bladder and urethra. Patients usually present in painful distress in acute retention and many atimes with features of renal insufficiency in chronic retention.

Immediate resuscitation includes bladder decompression with a urethral catheter or a suprapubic cystostomy when the urethral is contra-indicated or fails [7]. Subsequent management is indicated by the cause of obstruction. The condition is usually very distressing to patients and caregivers as it relates to health-related quality of life (HRQoL) especially when the procedure is complicated and or when the catheter is worn for prolonged periods of time. Economic wise, it takes a toll on the income of the patient and even the government in countries where healthcare cost is subsidized. In our country, the National Health Insurance Scheme (NHIS) is in place but very few people are beneficiaries leaving the whole burden of healthcare costs on the patients. In this study, more than 90% of the patients are not registered with the scheme and this contributes to the financial strain observed among our patients. In some centres, people remain on

a long waiting list for definitive surgery on account of large patients load and fewer hands to handle [8, 9]. In our centre, this is not the case. Most of our patients carry urinary catheter for long periods due to financial constraints. This applies to about 80% of them who have definitive diagnosis and are not ready for definitive surgery, 15% who are ready for surgery and are listed and about 5% who are unable to complete diagnostic details of their condition. The latter group may eventually join the long list of those awaiting definitive managements for the same reason.

This study is a far cry to the government to incorporate every citizen in the NHIS for better health for all. In this work, we set out to evaluate the health and economic related burden of our patients with prolonged catheter use due to urinary retention.

PATIENTS AND METHODS

This is a prospective study of 82 consecutive patients who presented to our urology clinic for catheter change over a period of 4 weeks (March 2021). Informed consent was obtained from all the patients after thorough explanation of the objective of the work. Our patients with indwelling catheter come for a change after 4 weeks while waiting for definitive diagnosis and or definitive treatments. Based on this, the study was limited to 4 weeks to avoid duplication of data. A questionnaire was designed and was completed by all patients in the study with the help of the house surgeons. Information obtained included patient's biodata, indications and routes of catheterization, duration of catheterization, number of times changed, aetiology of urinary retention, complications and Qol assessment using the IPSS Qol scale and the cost per catheter change. Data collated were analyzed using SPSS version 20.0 software. Frequency of categorical variables was obtained and descriptive statistics was used for continuous variables. Student's t-test was used to assess mean difference and Pearson correlation was used to test level of association between variables. P value ≤ 0.05 was stated as statically significant.

RESULTS

82 patients with a mean age of 62.12 ± 14.67 years ranging from 19 to 87 years were studied. The

aetiology of urinary retention were BPH in 58.5%, Cap in 19.5% and Urethral stricture in 23.0% (Table 1). The mean age was respectively 66.87 ± 8.04 years, 68.37 ± 12.22 years and 48.44 ± 20.51 years (Table 2). 85.4% were married while 14.6% were singles. More patients were in their 7th and 8th decades of life (fig 1). Retired Civil Servants formed the majority (34.1%) and patients with primary level of education were more than those with other levels of education (Fig. 2). Most patients had indwelling urethral catheter (Table 3). Average duration of catheter use was 21.26 months (range 1 to 132 months). Mean duration of urethral catheterization did not show statistically significant difference from those with SPC (Pvalue=.074). Patients with BPH had the shortest duration of indwelling catheter (18.29months) while urethral stricture with SPC had the longest duration (29.22 months), and 21.19 months for Cap patients. There was however no statistical significant difference in the duration of catheter use (P value =.411).

Among the various complications; loss of dignity due to prolonged catheterization was the major complaint (78.0%), urethral pain was reported by 56.0% of patients (Table 4). Erectile dysfunction and absence of intercourse were the side effects that had significant negative impact on health related Qol (P value = .05 and .02 respectively). In the Qol measures adapted from IPSS Questionnaire (Table 5), 76.8% of patients were unhappy with their health conditions. One patient (1.2%) was pleased, 10 patients (12.2%) described their experience as terrible, 7 patients (8.5%) were mostly dissatisfied and one patient (1.2%) had mixed feelings about life related to his condition.

The average cost for catheter change ranges from N1500 to N2, 000 depending on who uses urine bag or spigot. We found that cost of transportation and drug could not be accurately estimated by the patients, and same was omitted. Most of them are not registered with the NHIS to subsidize the bills and so the total costs for catheter change for these 82 patients per month range from N123, 000 (\$246) to N164,000 (\$328). Currently, annual cost of change of catheter among patients awaiting definitive diagnosis and treatment in our facility is between N1, 476,000 to N1, 968,000 Equivalent to \$2,952 and \$3,936 respectively.

Table 1: Frequency Table: Aetiology of retention and Duration of Catheterization

Aetioloely of retention	Frequency (%)	Duration of catheterization
BPH	48 (58.5)	18.29± 28.08 (1-108)
CaP	16 (19.5)	21.19± 16.84 (2-48)
Urethral stricture	18(22.0)	29.22± 40.09 (2-132)
Total	82 (100.0)	21.26 (1-132)
		P value = .411

Table 2: Mean age of patients

Aetiology	Mean age
BPH	66.87± 8.04
CaP	68.37± 12.22
Urethral Stricture	48.44± 20.51
All patients	63.12± 14.67
Range	19-87 years

Table 3(i): Route of Catheterization

Routes	Frequency	Percentage (%)	Cumulative percent
Urethral	54	65.9	65.9
SPC	28	34.1	100.0
Total	82	100.00	

Table 3(ii)

Mean duration (in months)	Urethral	SPC
	17.07	29.32

Table 4: Frequency of Complications

Complications	Number of patients (n)	Percent (%)	Correlations
Urethral pain	46	56.0	.582
Suprapubic pain	32	39.0	.525
Bleeding	28	34.1	.799
Haematuria	28	34.1	.488
Loss of dignity	64	78.0	.796
Loss of job	37	45.1	.659
Out of school	2	2.4	.329
No intercourse	15	18.3	.050*
Urine blockage	38	46.3	.269
Catheter blockage	32	39.0	.697
No libido	26	31.7	.640
Erectile dysfunction	20	24.4	.028*
Urethral discharge	12	14.6	.509
Fever	6	7.3	.891
Scrotal swelling	15	18.2	.668

*Statistical significance P value ≤ .05

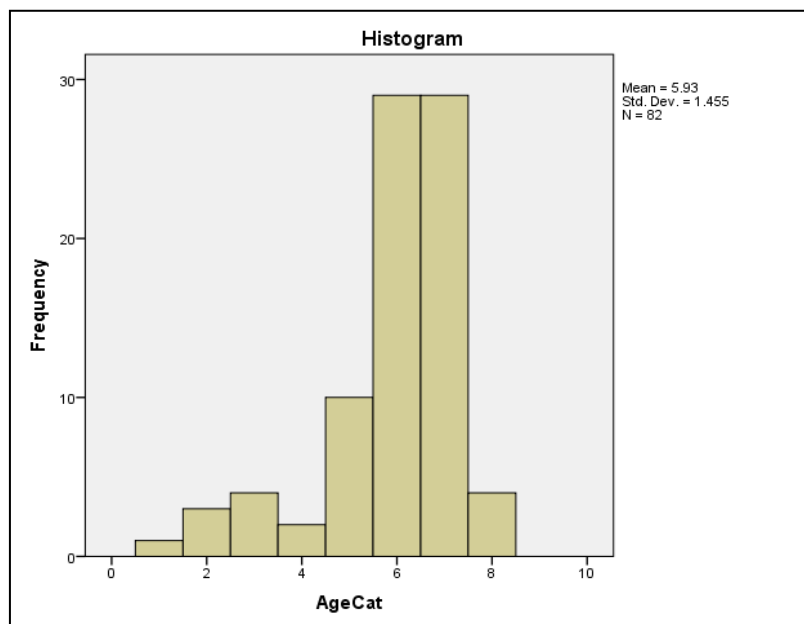


Figure 1: Age category in decades

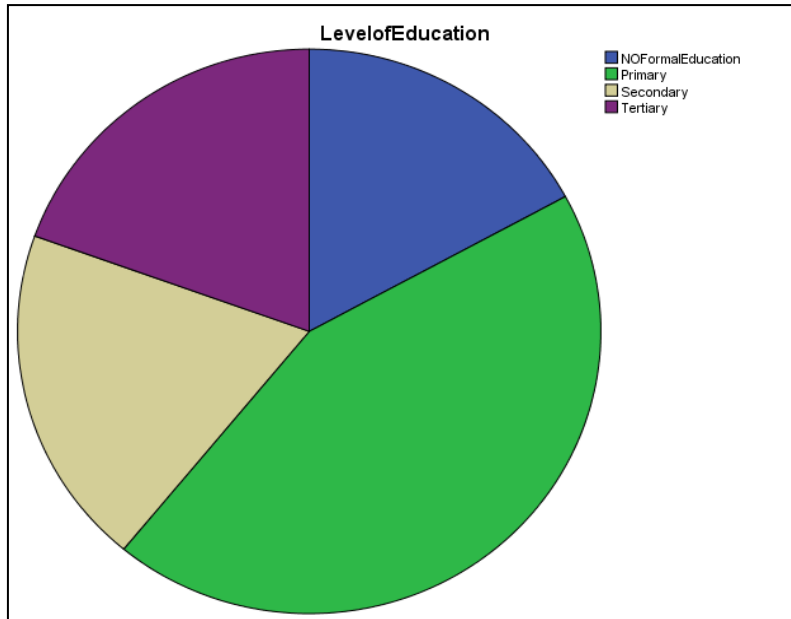


Figure 2: Level of Education

Table 5: Quality of life

QOL	Frequency (n)	Percent (%)	Cumulative percent (%)
Delighted	0	0.0	0.0
Pleased	1	1.2	1.2
Mostly satisfied	0	0.0	1.2
Mixed	1	1.2	2.4
Mostly dissatisfied	7	8.5	11.0
Unhappy	63	76.8	87.8
Terrible	10	12.2	100.0
Total	82	100.0	

DISCUSSION

Urinary retention is a public health issue and relates directly to the QoL of the sufferer. It has been noted to be the commonest urologic emergencies worldwide [2, 3] and even more so in the Sub-Saharan African Countries [4,5]. Initial treatment consists of immediate bladder decompression with a urethral catheter or SPC when the urethral route is contraindicated as in urethral trauma or when it fails as in urethral stricture [7]. Urinary retention possess serious economic burden to the patients aside from the numerous side effects especially when catheters are worn for prolonged periods of time. In some developed countries, definitive management is not usually prolonged: Khoubehi *et al.*, [10] in their centre documented an average duration of catheterization of 12 days before definitive management procedure is done. In our study, a mean duration of catheter use was 21.26 months ranging from 1 to 132 months. Similar prolonged duration (23 months) was recorded by Ikuerowo *et al.*, [9] in the Western part of Nigeria. In another study [11], a significantly shorter duration (8 months) was documented in same western region of our country. In the above mentioned studies, their main reason was prolonged waiting list for definitive surgery. This is in sharp contradistinction to what we observed

in our work. In this study, about 80% of them have had their conditions diagnosed and counseled on definitive management and because of financial constraints, prefer to remain on catheter. 15% were ready for surgery and listed, while the remaining number could not afford the diagnostics details.

It has been observed that post-Covid-19 period has posed considerable economic burden world-wide and this has actually escalated the already existing financial malady in this part of the world. This seeks to remind the government of the day on the need for good health for all. The NHIS has been fully operational, and till date, has remained elusive to many. This is a far cry for an all-inclusive NHIS in the country incorporating private health concerns so that such arrangements can take-off patients load from the tertiary health institutions. Most importantly, is the need to create awareness for all citizens to get enrolled in the scheme because it has been observed that many of them are unaware of it? Other things that may have contributed to poor financial power is that most of them are in their 7th and 8th decade of life (fig 1) and as such have retired from active service and become dependent. Again, the younger ones in this study may be bread-winners in

their families but have such capacity stalled by their conditions.

On the other hand, monthly change of catheter is not without cost. In this study, it takes between N1.5million to N2.0million annually for catheter change excluding medications used in the process and patients transport fare. This is a serious economic burden on the part of the patients which could be ameliorated if appropriate programmes are undertaken to assist them, same cost burden was noted by Ikuerowo *et al.*, [9] in their study of 62 patients on 3–weekly catheter change.

Several side effects of prolonged catheter use have been variously documented [10, 12]. In this study, 98.7% of the patients had bothersome side effects. Another author [9] recorded 95% of men with side effects due to same problem. 22% of our patients had more than 5 complications and this was noted to be duration dependent. One (1.2%) patient did not report any complications and was among the 5 patients (6.0%) who had their catheters changed for the first time. 64 patients (78.0%) complained of loss of dignity attributable to urethral pain, urine leakage and absence of intercourse especially those on urethral catheter. Urethral pain was also noted to be a common symptom elsewhere [9]. Quality of life correlated poorly with those who had issues with sexual activity (P value < .02): Erectile dysfunction was reported by 24.4% of patients. This could have been multi-factorial and beyond the aim of this study. Absence of intercourse was also noted to correlate poorly with Qol (P value < .05) especially those on urethral catheter. We recorded 27.5% of men with SPC who had their sexual activity uninterrupted although with mixed feelings of anejaculation in extreme cases.

Mean duration of SPC use was longer (29.32months) than those on urethral catheter (17.07months). However, the mean difference was not statistically significant (Pvalue =.074). Mean duration of catheter use was longest in the stricture group and shortest in the BPH group, in between were those with Cap. No statistical significant difference was observed (Pvalue = .411). In table 5, the array of side effects is obvious and subsists on prolonged catheterization. This article along with other works worldwide is indicated to further portray the fact that catheterization by any route is invasive and should only be done to serve a particular purpose of relieving urinary retention, otherwise not needed. The procedure should be learned and aseptic technique employed, backed up by urologists supervision because most complications are related to the skill of the person and breach of asepsis. Prolonged duration of catheterization should be discouraged with government insurance scheme made for all to minimize financial constraints on her citizens to assess health care.

Limitation of this study was that we could not adequately estimate the cost of medications and transport fare for each patients. Therefore, total annual cost for this procedure is far beyond the amount estimated here.

CONCLUSION

Urinary retention is one of the urologic emergencies worldwide. Initial treatment involves bladder decompression usually with urethral catheter or SPC. Complications are usually related to the procedure and most importantly when it is in dwelling for prolonged period of time. This has been noted by some authors to be due to prolonged waiting time for definitive surgical management. In our study, financial constraints to having definitive surgery as well as completing diagnostic details have been noted. Government participation in healthcare cost with subsidy is the much needed solution to this nagging problem.

Authors Contribution

EAU: Substantial contributions to conception and design, Acquisition of data, Drafting the article, revising it critically for important intellectual content, data analysis and Final approval of the version to be published.

IUE: Substantial contributions to conception and design, revising it critically for important intellectual content and final approval of the version to be published.

PDE: Substantial contributions to conception and design, revising it critically for important intellectual content and final approval of the version to be published.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

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