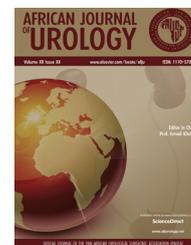




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Original article

Urethral catheterization: The need for adequate undergraduate exposure



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KEYWORDS

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Abstract

Introduction: Urethral catheterization is one of the basic skills expected of any intern. This is an important procedure which if not properly learnt and done leads to various complications.

Objectives: To assess the knowledge and practice of urethral catheterization among new interns in University of Benin Teaching Hospital as a measure of their undergraduate exposure to the procedure.

Subjects and methods: The study was carried out by administering questionnaire to all newly recruited house officers in the hospital. The component of the questionnaire included questions on knowledge of urethral catheterization procedure and precautionary methods taken while carrying out the procedure. Also assessed was the need for the demonstration of this procedure to newly recruited house officers. Permission for this study was obtained from the hospitals ethical committee. The result of the study was analysed using SPSS package.

Results: There were 60 respondents who all graduated from medical schools in Nigeria except 2 Nigerian European graduates. All were able to define urethral catheterization. Forty percent had formal demonstration of urethral catheterization procedure during their undergraduate years. All the respondents observed urethral catheterization as undergraduates. About 33.3% did not perform the procedure as undergraduates while only 6.7% passed more than 10 urethral catheters. A total of 65.8% were able to describe the steps involved in urethral catheterization while only 20% used appropriate lubricant. Of the respondents 91.7% could list the possible complications of catheterization while 83.3% indicated that there is need for practical demonstration of urethral catheterization procedure during internship period.

Conclusion: Newly recruited interns have poor practical exposure to urethral catheterization. Efforts should be made to improve the quality of supervised training given to medical undergraduates so as to avoid complications that could arise if this procedure is not properly done when they qualify.

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Introduction

The word catheter comes from the Greek meaning to let or send down, the device was used as early as 3000BC to relieve urine retention [1]. Urethral catheterization is an aseptic procedure during which catheter is passed through the urethra into the bladder.

It is one of the commonest basic clinical procedures carried out by new interns who are usually the first contact with the patient and hence carries out most of these procedures. Successful passage of urethral catheter requires a good knowledge of urethral anatomy especially that of the male, strict adherence to aseptic protocol and a good knowledge of steps involved in the procedure.

This simple basic procedure does not go without complications [2–4]. Complications of urethral catheterization include urethral trauma with stricture following healing, urinary tract infection, urinary incontinence, erectile dysfunction and infertility.

Most centres do not have separate training programme for new interns before letting them into the hospital to perform basic procedures like urethral catheterization. Therefore adequate exposure during undergraduate period is needed to prepare these neophytes in medical profession for this procedure.

Findings of an Irish study show that catheter related urethral trauma is commonest when the procedure is performed by interns [2]. Therefore, it is important to assess the level of exposure of these interns to this procedure during their undergraduate days. The information gathered is expected to aid suitable recommendations that will reduce morbidity incurred from this procedure when performed by this level of medical professionals

Methodology

The study was carried out by administering questionnaire to all newly recruited house officers in the hospital. The component of the questionnaire includes questions on what urethral catheterization is, whether formal demonstration of the procedure was done during their undergraduate days; the number of procedures observed and performed, steps of the procedure, precautionary measures involved and complications that could be encountered while performing the procedure. Also assessed was the need for the demonstration of this procedure to newly recruited house officers. Permission for the study was obtained from the hospitals ethical committee. The result of the study was analysed using SPSS package.

Results

There were 60 respondents who all graduated from medical schools in Nigeria except 2 Nigerian European graduates. Twenty-three percent of the respondent were able to define urethral catheterization incorporating the aseptic component, 86.7% had formal demonstration of urethral catheterization procedure during their undergraduate years.

During undergraduate training, all the respondents observed urethral catheterization, but when they were categorised based on the number of performed procedures, 33.3% did not perform any, while only 6.7% performed more than 10 procedures Fig. 1.

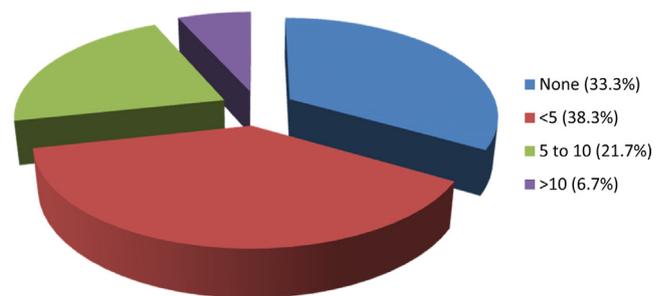


Fig. 1 Distribution of respondents according to number of procedures performed.

Table 1 Response to questions on the steps of the procedure.

Steps of the procedure assessed	Correct response N (%)	Wrong response N (%)
Cleaning of meatus	54 (90%)	6 (10%)
Type of lubricant used	12 (20%)	48 (80%)
Volume of lubricant used	34 (56.7%)	26 (43.3%)
Application of lubricant	35 (58.3%)	25 (41.7%)
Sign of bladder entrance	47 (78.3%)	13 (11.7%)

Table 1 shows response to questions on the steps involved in urethral catheterization. Only 12 (20%) respondents used appropriate lubricant (xylocaine gel).

Assessment of knowledge of complications from urethral catheterization revealed that 91.7% of respondents could list the possible complications, 83.3% indicated that there is need for practical demonstration of urethral catheterization procedure during internship period.

Discussions

The definition of urethral catheterization requires that the aseptic component be taken into consideration, only 23% of the respondents were able to define urethral catheterization incorporating this important concept. This omission can translate to practice where this important precaution is omitted during the procedure thereby increasing the risk of urinary tract infection.

All the respondents observed the procedure as undergraduate which is in keeping with basic training requirements of medical students [5]. Formal demonstration of the procedure by medical personal was done for 86.7% of the respondents as part of their training, this is to be encouraged. However, observation without performance of the procedure is not adequate as hands on experience under supervision boosts ones confidence, complements cognitive knowledge and perfects ones skill which helps prevent complications that could arise from a procedure.

Only 6.7% of the respondents performed significant numbers (>10) of the procedure while 33.3% did not perform any catheterization as undergraduates. These findings are similar to what was observed in a previous survey of first year interns in the UK which found that one in five (20%) had never performed male catheterization and nearly half (45%) had never performed female catheter [6] but much lower than the percentage of those that have performed urethral catheter (92.5%) documented by Popoola et al. in western Nigeria [7]. This

suggests that more structured training and supervision is needed in the study centre to ensure that undergraduate medical students perform adequate numbers of this procedure as already advocated by previous researchers [8,9].

Adherence to steps of urethral catheterization is key to the prevention of complications associated with the procedure. Certain steps of the procedures were assessed and the result revealed poor knowledge of some of these vital steps.

Cleaning of urethral meatus is necessary to prevent retrograde translocation of bacteria up the urinary tract, 90% of the respondents routinely do this which is encouraging but 100% adherence should be the standard as life threatening infective complications can arise from omission of this vital step. This is important as indwelling urethral catheter is a common source of infection among patients with sepsis [2].

Lubrication is an important component of urethral catheterization as this aid smooth frictionless passages of the catheter through the urethra. Ideal lubricant should have anaesthetic effect to keep the urethra and external sphincter relaxed for the entrance of the catheter. Eighty percent of the respondents use lubricant without anaesthetic property suggesting that they were poorly groomed for this important procedure. The mode of application of the lubricant and quantity used was poorly executed by a significant percentage of the respondents (43.3% and 41.7%, respectively) however, this is much lower than what was documented (98.2%) by Munalo et al. [10]. Lubricant is ideally instilled into the urethra allowing 3–5 min for the anaesthetic effect to commence, 10–15 ml is usually used in other to have a smooth frictionless procedure.

The poor knowledge of lubricant use exhibited by the respondents puts the population that they are to cater for at risk of urethral trauma and stricture. In a polish study [4], 32.9% of urethral trauma was associated with urethral catheterization, efforts should, therefore, be made to train interns who carry out most of this procedure so as to reduce this debilitating complication.

Most (91.7%) of the respondents are aware of the complications of the procedure. This knowledge is vital but should be translated to practice as the knowledge of precautionary measures required to prevent these complications is lacking among the respondents.

Medical training is a continuing process thus 83.3% of the respondents requested that further practical exposure should be given to interns to complement what they already learnt during their training years. This further highlights the deficiency of their exposure to the procedure as undergraduates.

More supervised and well structured training of medical undergraduates in the art of urethral catheterization preferably by a urologist will go a long way in complementing the knowledge garnered by interns as undergraduates. This technical skill should be written into the undergraduate training curriculum of all medical schools with a sign off of at least 5 performed procedures for all trainees.

This exposure could be given using live patients or by simulated practice. A study [11] done to evaluate the short- and long-term effects of urethral catheterization (UC) taught by simulated training demonstrated good transfer of urethral catheterization skills learned in the skills lab to real clinical situations up to six weeks after

training. Simulated UC training was, therefore, advocated as the standard for all medical school curricula to reduce avoidable complications. A simulated procedure as highlighted above could be employed but reinforced by at least one procedure on a live patient where the use of adequate numbers of live patients is not possible.

Conclusion

Newly recruited interns have poor practical exposure to urethral catheterization. Efforts should be made to improve the quality of supervised practical training on urethral catheterization given to medical undergraduates so as to avoid complications that could arise if this procedure is not properly done when they qualify. This procedure should be written into the curriculum of all medical schools. A training session involving a urologist using either a live patient or simulator just before commencement of internship is also recommended.

Conflict of interest

None declared.

Source of funding

None declared.

Ethical approval

Approved by the hospitals ethical committee.

Consent from the patient particularly in case reports

verbal consent.

Authors contribution

Ezenwa V Ekene: Main author- (email: veze001@yahoo.com).

Agugbui O Jude: proof read the article - (email: orumuah@yahoo.com).

Ibadin Eugene: assisted in data collection (email: talk2drIbadin@yahoo.com).

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