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Prostate biopsy: a survey of practice among Nigerian urologists

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Abstract

Background: Prostate biopsy is a commonly performed outpatient procedure in urology. It is a rapidly changing field with wide variation in practice pattern. The aim of this study is to document the current practice of prostate biopsy among Nigerian urologists.

Methods: A prospectively designed, self-administered, 16-item survey questionnaire was distributed among urologists and trainees at the 24th Annual General Meeting and Scientific Conference of the Nigerian Association of Urological Surgeons (NAUS). The survey covers various aspect of prostate biopsy including indications for biopsy, prophylactic antibiotic regimen use, methods of bowel preparation, number of biopsy cores taken, complications among others.

Results: Fifty-one completed questionnaires were returned, out of 76 distributed, giving a response rate of 67%. Majority of the respondents were Consultant urologist 47 (92%), most of them practice in the public health system 46 (90.2%), and performed more than 5 prostate needle biopsy per month 37 (72.5%). All respondents administer prophylactic antibiotics prior to biopsy, with intravenous Gentamycin being the most commonly administered prophylactics 14 (27.5%), only a few perform bowel preparations prior to biopsy 8 (15.7%) with Dulcolax suppository being the most commonly employed agents 5 (63%). Most of the biopsy were done under transrectal ultrasound guidance 29 (56.9%). None of the respondents performed MRI-guided transrectal biopsy. Most respondents take 8–12 core biopsy 20 (39.2%), using 18G trucut biopsy needle 31 (60.8%), with the patient in left lateral decubitus position 26 (51%), under 2% intrarectal xylocaine instillation 28 (54.9%). The commonest complication after the procedure was bleeding per rectum 20 (39.2%), followed by haematuria 9 (17.6%), and infection 8 (15.7%).

Conclusion: There is universal use of prophylactic antibiotic prior to biopsy. However, bowel preparation prior to biopsy is not common among Nigerian urologist, and MRI-guided biopsy is very rarely done for prostate biopsy. There is need for a prostate biopsy guideline among Nigerian urologists to ensure uniformity of practice, and enhance standardized service delivery.

Keywords: Transrectal prostate needle biopsy, Targeted antibiotic prophylaxis, Bowel preparation

1 Background

Prostate biopsy is one of the most commonly performed out-patient procedures in urology [1]. It's a rapidly changing field that has evolved over the years from aspirating

cells from the prostate for cytologic analysis to image-guided biopsy for histopathologic analysis [2, 3]. Transrectal ultrasound-guided systematic prostate biopsy is the current gold standard modality for obtaining histologic diagnosis for prostate cancer [4, 5]. However, new evidences are available showing that MRI-guided combined targeted and systematic biopsy may be the emerging, new gold standard [6]. Many urology units/centres

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in Sub-Sahara Africa have yet to fully embrace TRUS-guided prostate biopsy for lack of the facility for such undertaking; many units still rely on the abandoned practice of digitally guided needle biopsy.

A variation in the practice in not unexpected in the developing nations of the world, more especially in the Sub-Sahara Africa due to reasons that ranges from non-availability of necessary equipment to high poverty level that cannot sustain the option of “out-of-pocket” health-care that is being practiced in most of these developing nations [7].

The present study aimed at documenting the prostate biopsy practice pattern among Nigerian urologists with a view to forming a basis for standardization.

2 Methods

A prospectively designed, self-administered, 16-item survey questionnaire was distributed among urologists and trainees at the 24th Annual Scientific Conference and Annual General Meeting of the Nigerian Association of Urological Surgeons (NAUS), held at Usman Danfodiyo University (UDUTH), Sokoto, Nigeria, between the 27th to 30th November, 2018. Permission to administer the questionnaire was sought from and given by NAUS executives. Apart from Demographic information of the respondents, the survey covers various aspects of prostate biopsy including indications for biopsy, prophylactic antibiotic regimen use, methods of bowel preparation, number of biopsy cores taken, use of image guidance, complications among others. The data collected were entered into IBM SPSS for Windows (IBM Corp, Armonk, New York, United States of America) version 22 for analysis.

3 Results

A total of seventy-six questionnaires were distributed among participants. Fifty-one completed questionnaires were returned, giving a response rate of 67%. Majority of the respondents were Consultant urologist 47 (92%). Most of them practice in the public health system 46 (90.2%) and perform more than five (5) prostate needle biopsy per month 37 (72.5%). Other demographic information is as shown in Table 1.

All respondents administer prophylactic antibiotics prior to biopsy. Intravenous gentamycin is the most frequently administered prophylactics antibiotic 14 (27.5%); this is closely followed by ciprofloxacin and ceftriaxone 10 (19.6%) and 9 (17.7%), respectively (Fig. 1). Other respondents used a combination of these antibiotics for varying duration which ranges from one to five days post biopsy. Only a few of the respondents 2 (3.9%) administer culture guided antibiotic prophylaxis. The respondents

Table 1 Demographic characteristics of respondents

Variables	Frequency (%)
<i>Status of respondents</i>	
Consultants	47 (92)
Trainees	4 (8%)
<i>Duration of practice (years)</i>	
< 5	24 (47)
5–10	13 (25.5)
> 10	14 (27.5)
<i>Practice setting</i>	
Public	46 (90.2)
Private	5 (9.8)
<i>Practice location in Nigeria</i>	
South west	14 (27.5)
South east	3 (5.9)
South south	2 (3.9)
North west	10 (19.6)
North east	7 (13.7)
North central	15 (29.4)

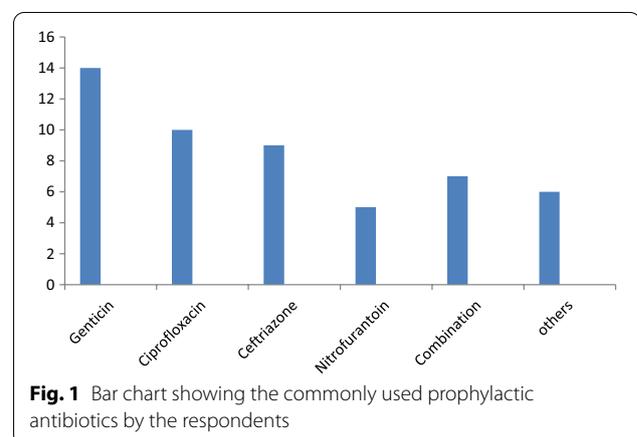


Fig. 1 Bar chart showing the commonly used prophylactic antibiotics by the respondents

predominantly practice empirical antibiotics prophylaxis (Table 2).

A few of the respondent perform bowel preparations prior to biopsy 8 (15.7%) using majorly Dulcolax suppository. More than half of the respondent performs transrectal ultrasound-guided systematic prostate biopsy 29 (56.9%); others perform digitally guided biopsy 22 (43.1%). None of the respondents performs MRI-guided targeted or systematic prostate biopsy, and none performs transperineal biopsy (Figs. 2 and 3).

Most respondents take an average of eight to 12 cores biopsy 20 (39.2%), using 18G semi-automatic trucut biopsy needle 31 (60.8%), with the patient in left lateral decubitus position 26 (51%), under 2% intrarectal xylocaine instillation 28 (54.9%) (Table 2 and Figs. 3, 4). The

Table 2 Showing some practice pattern among respondents

Number of biopsy cores	Number of respondents (%)
6	17 (33.3)
8–12	20 (39.2)
> 12	14 (27.5)
<i>Trucut biopsy needle size (G)</i>	
16G	20 (39.2)
18G	31 (60.8)
<i>Duration of antibiotics use (days)</i>	
1–2	7 (13.7)
3–5	28 (54.9)
> 5	16 (31.4)
<i>Rectal culture directed antibiotic prophylaxis</i>	
Yes	3 (5.9)
No	48 (94.1)
<i>Positioning</i>	
Left lateral decubitus	26 (50.9)
Lithotomy	12 (23.5)
Right lateral decubitus	6 (11.8)
Knee Elbow position	7 (13.7)

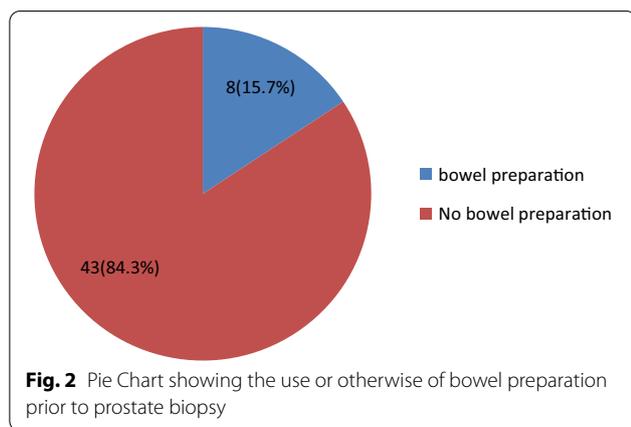


Fig. 2 Pie Chart showing the use or otherwise of bowel preparation prior to prostate biopsy

commonest complication after the procedure was bleeding per rectum 20 (39.2%), followed by haematuria 9 (17.6%), and infection 8 (15.7%), Fig. 5.

4 Discussion

The result from the present study of practice survey has demonstrated that prophylactic antibiotic use prior to prostate biopsy is universal among respondents. All of the respondents administer an antibiotic prior to the procedure; this is in keeping with standard global best practice. It has been shown in prospective randomized control trials that prophylactic antibiotics use, when

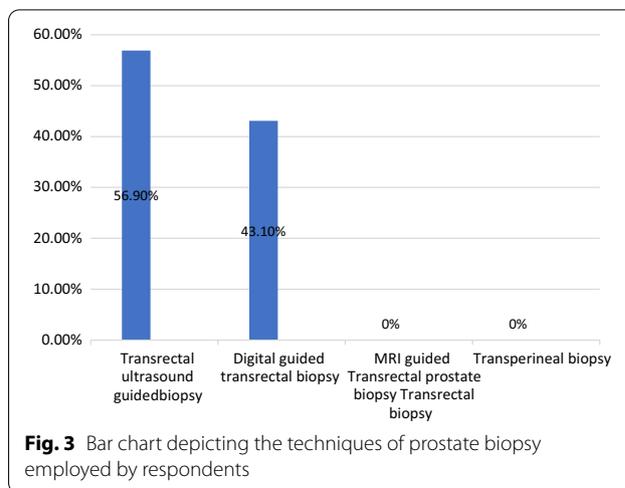


Fig. 3 Bar chart depicting the techniques of prostate biopsy employed by respondents

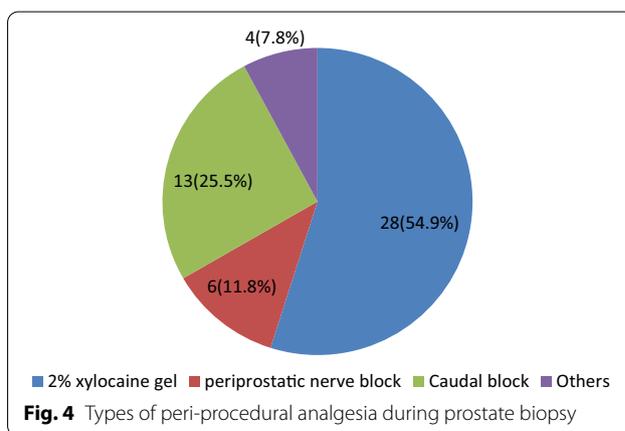


Fig. 4 Types of peri-procedural analgesia during prostate biopsy

compared to placebo, is effective in reducing infectious complications after prostate biopsy [8, 9]. However, the choice of antibiotics and the duration of antibiotic use vary, with most respondents using a three to five days course of antibiotics. This variation in choice, and duration of antibiotic use was also reported by other researchers [10–13]. Intravenous gentamycin is the most commonly administered prophylactic antibiotics in the present study. This is in contrast to other studies which reported fluoroquinolones as the most commonly administered antibiotics for prophylaxis prior to prostate biopsy [10, 11, 14]. The choice of gentamycin in this study may not be unrelated to the growing global concern for fluoroquinolone resistance and wide spread misuse in the poultry and agricultural sectors in this environment [14–16]. Empirical prophylactic antibiotic administration was practiced predominantly in this survey, admittedly by 94.1% of the respondents. In contrast however, culture-guided antibiotic prophylaxis, using rectal swab microscopy, culture and sensitivity, is

increasingly becoming more popular as a way to stem the tide of rising post-biopsy infectious complications, particularly in patients with risk factors for faecal carriage of fluoroquinolone resistant organisms [17–19]. There is currently a dearth of conclusive evidence to recommend routine use of culture guided antibiotics prophylaxis in clinical practice; thus the decision to use it is left at the discretion of the managing clinician [20].

Bowel preparation is not routinely being practice by Nigerian urologists; a total of eight of the respondents in this survey, representing 15.7%, does bowel preparation prior to prostate biopsy. Rectal preparation prior to biopsy is done based on the proposition that it will reduce bacterial load in the rectal vault and, hence, decreases incidence of post-biopsy infectious complications [21]. Rectal cleansing with enemas, suppositories, or povidone iodine lavage has not been found to be of significant benefits in patients who has received antibiotic prophylaxis [22]. However, the EAU guidelines recommend the use of rectal cleansing prior to biopsy based on a meta-analysis of six trials that showed that combining rectal cleansing with antibiotics resulted in lower incidence of infectious complications compared with antibiotics alone [20].

Transrectal ultrasound-guided prostate biopsy with extended cores is the commonest method of obtaining prostatic needle biopsy in this survey, but digitally guided transrectal prostate needle biopsy is also fairly common. This is in contrast to what Jeje et al. [10], in a similar survey conducted in the year 2014 but published in the year 2020 reported, in which digital-guided transrectal prostatic needle biopsy was the commonest method of obtaining prostatic needle biopsy. This represents a commendable shift towards the adoption of transrectal ultrasound-guided biopsy among Nigerian urologist. Despite increasing role of multi-parametric MRI and its recommendation by EAU in selecting patients for and

guiding prostatic needle biopsy both in biopsy naïve and in patients undergoing repeat biopsy after previous negative prostatic biopsy, MRI-guided prostate biopsy is not practiced among respondents in this survey [20]. This may be due to the high cost of MRI, its non-availability and limited expertise in the technique.

The respondents in this survey are fairly well distributed across all geo-political zones of the country, although they represent a small proportion of the number of registered practicing urologists and trainees within the country. Nonetheless, this survey provides an insight into the current practice pattern among Nigerian Urologist.

5 Conclusion

In conclusion, there is some variations in practice pattern among Nigerian urologists as regards prostate needle biopsy. Transrectal ultrasound-guided biopsy is the most common techniques employed, digitally guided biopsy is still fairly commonly practiced while MRI-guided biopsy is rarely practiced among respondents in this study. Prophylactic antibiotic use prior to biopsy is universal, and Gentamycin is the most commonly used prophylactic antibiotics. There is a need to standardize prostate biopsy practice pattern so as to enhance uniformity of care to patients based on good evidence.

Abbreviations

EAU: European Association of Urologist; MRI: Magnetic Resonance Imaging; NAUS: Nigerian Association of Urological Surgeons; TRUS: Transrectal Ultrasound; UDUTH: Usman Danfodiyo University Teaching Hospital.

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Authors' contributions

AAA conceptualized the idea for this paper. AAA, TOM and HBO designed the survey questionnaire. TOM, HBO and TTO collected the data, supervised by AAA and SAK. TOM analysed the data. TOM wrote the first draft of this manuscript. AAA reviewed the first draft. All authors read and approved the final manuscript.

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Availability of data and materials

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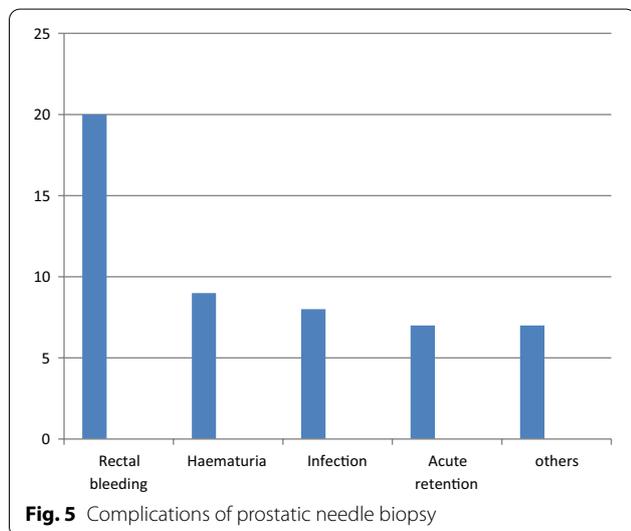
Declarations

Ethics approval and consent to participate

Approval to administer, the questionnaire among the delegates at the conference was obtained from the executives of the Nigerian Association of Urological Surgeons (NAUS).

Consent for publication

Not applicable.



Competing interests

All authors declare no conflicts of interest.

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