

RESEARCH ARTICLE

Individual prostate cancer screening: Practice survey with general practitioner of Lubumbashi, Democratic Republic of Congo

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Abstract: **Objective:** To analyze the practices of general practitioners (GPs) in terms of recommendations on individual screening for prostate cancer (PCa). **Methods:** An anonymous cross-sectional survey using a pre-established questionnaire was conducted among 193 GPs in the city of Lubumbashi from May 1st to July 31st, 2020. The questionnaire included three parts: identity criteria of GPs, screening practice and the opinion of GPs on the recommendations. **Results:** The participation rate was 79%. Eighty-two-point nine percent of respondents said they offered screening for PCa; 42.5% of them said they offered this screening to all men within a certain age limit, ranging between 50 to 75 years in 38.8% of the cases. Only 12.5% of GPs provided complete prior information to their patients. Thirty-six-point three percent of GPs reported combining digital rectal examination with total PSA testing, but in the presence of an abnormality, 60.6% reported that they referred their patients directly to the urologist without ordering other additional investigations (first or second line). Finally, 32.7% of GPs found that the recommendations disseminated were appropriate for their practice. **Conclusion:** Individual screening for PCa is widely proposed; but there are differences between the practices reported by GPs and official recommendations of learned societies. Our study highlights the need to popularize the recommendations of learned societies to GPs.

Keywords: prostate cancer, individual screening, general practitioner

1 Introduction

Prostate cancer (PCa) is the most common cancer in men. It is therefore a public health problem and has become a major concern for men from their fifties [1]. A recent study conducted in Lubumbashi by Mbey *et al.* [1] reported a 3-year overall survival rate of 56.82%. They found that there is a statistically significant correlation between the appearance of PCa on digital rectal examination, PSA level and patients' outcome [1].

PCa screening has even been the subject of much controversy as to its merits. Previous studies have reported the existence of the risk of over-diagnosis and over-treatment of PCa by performing prostate-specific antigen (PSA) screening [2, 3]. Mass screening for PCa is currently controversial around the world. On the other hand, several learned societies recommend individual screening after providing appropriate and informed information to men on the following points: (i) the natural history of PCa and its risk factors; (ii) description and performance of diagnostic tests; (iii) uncertainty in reducing mortality individual PCa screening, as well as (iv) existing therapeutic options, their benefits and side effects [4]. Pending a possible organized screening is in place, the general practitioner (GP), as the manager of primary care remains as the central player in the recommendation of individual PCa screening. He is the first to face the request for information and who must make the decision whether or not to take this step, in agreement with his patient. The importance of the role of GPs in screening for certain cancers has been widely demonstrated by several authors [5–7]. The contribution of GPs remains important in recommending patients for individual PCa screening [7]. In our community, the recommendations of learned societies on the individual screening approach are not popularized.

Noting the importance of the GP in this diagnostic approach, it seemed interesting to us to make an “inventory” of the practices of GPs in relation to the PCa screening in Lubumbashi.

2 Materials and methods

This is a cross-sectional study carried out from May 1 to July 31, 2020 among GPs practicing in private clinics, health centers and, general referral hospitals in the city of Lubumbashi in the Haut-Katanga province in Democratic Republic of Congo.

Participants in the study had voluntarily signed and received a structured questionnaire and self-administered, with an explanatory note on the purpose of the study. Data were collected using a standardized self-administered questionnaire, addressed to concerned. We used to model the questionnaire used by Guy *et al.* [6] (Supplementary material). In their study, which included 18 questions. Questions 1 to 7 concerned the identity criteria of GPs. The 8 to 17 concerned the screening itself: the population screened, information on the various aspects of screening, screening tools, the actions to be taken after positive and negative screening. Question 18 asked for the opinion of GPs on the recommendations. Concerning the information given to patients, we chose to interview GPs on four types of information they gave to their patients:

- (1) the natural history of PCa and its risk factors;
- (2) treatment options;
- (3) screening tests and the uncertainty of the reduction in mortality;
- (4) the continuation of the investigations if the screening was positive.

The encoding, processing and statistical analysis of the data were performed with STATA software version 15. The information from the survey was summarized using descriptive statistics. Information of the quantitative type was represented in the form of mean and standard deviation, while that of qualitative type in the form of counts and percentages.

Inferential statistics were used to compare variables. Unpaired *t*-test was performed to compare the age of respondents depending on whether or not they offered individual PCa screening. Of the latter variable, the comparison of proportions by sex, exercise setting, mode of exercise, and type of health facility was performed using Fisher’s exact test. A significance level of 5% was retained and for a two-tailed test with a value of $p < 0.05$ was considered significant.

3 Results

Of 244 GPs surveyed, 193 had agreed to answer the questionnaire, which corresponds to a participation rate of 79%. All questionnaires were exploitable:

- (1) One hundred and sixty (82.9%) GPs who responded to this questionnaire declared that they offered individual PCa screening;
- (2) Thirty-three (17.1%) GPs responded that they did not perform PCa screening.

We observed no significant difference ($p > 0.05$) between the two physician groups regarding mean age, sex, mode of exercise, practice environment, and health facility (other results are summarized in Table 1).

Table 1 General characteristics of the study population

Variable	Do you offer individual prostate cancer screening?		Total N = 193	p-value
	No (n = 33)	Yes (n = 160)		
Age (mean ± SD)	37.1 ± 6.5	37.4 ± 5.8	37.3 ± 5.9	0.7948
Sex				0.1927
Female	12 (23.5%)	39 (76.5%)	51	
Male	21 (14.8%)	121 (85.2%)	142	
Practice settings				0.7909
Semi-rural	4 (13.8%)	25 (86.2%)	29	
Urban	29 (17.7%)	135 (82.3%)	164	
Practice mode				0.4081
Group practice	21 (15.6%)	114 (84.4%)	135	
Individual practice	12 (20.7%)	46 (79.3%)	58	
Health facility				1.000
Private	16 (17.6%)	75 (82.4%)	91	
Public	17 (16.7%)	85 (83.3%)	102	

The following results relate only to the 160 GPs who declared that they offered screening.

(A) *Target population for PCa screening*

Among the GPs who said they offered screening, 66.9% said they offered it to men with functional urinary disorders and 42.5% said they offered it to all men within a certain age limit. In 38.8% of cases, it ranged from 50 to 75 years and in 55.6% of cases the lower limit began at 45 years.

(B) *Information to give to patients*

The results regarding the information given to the patients are reported in Table 2. Only 20 (12.5%) GPs provided all the information (regarding all the data) before initiating screening. Instead, information on the natural history of PCa and risk factors, as well as screening investigations, was given before they were done.

Information on treatment options and that on further investigations were rather data after running the tests.

Table 2 Distribution of respondents based on the information provided

Time of issue	Information type			
	Information on natural history of cancer and its risk factors (%)	Information about treatment options (%)	Information on screening tests and uncertainty of mortality reduction (%)	Information on further investigations if screening positive (%)
Before screening	59.38%	31.25%	47.50%	26.25%
After screening	17.50%	42.50%	11.88%	54.38%
Not given	23.13%	26.25%	40.63%	19.38%

(C) *PCa screening tools*

Among the GPs who said they offered screening:

(1) 36.3% declared that they only used digital rectal examination combined with the total serum PSA assay;

(2) 29.4% declared using the digital rectal examination combined with the total serum PSA assay, in combination with other complementary investigations;

(3) 16.3% used digital rectal examination alone without doing a total serum PSA assay;

(4) 8.8% declared that they used other tools, such as free PSA testing and / or endorectal ultrasound of the prostate, as a first-line treatment.

(D) *What to do in the event of a positive PCa screening*

Among the GPs who said they offered screening:

(1) 60.6% declared to send directly to the urologist the patients whose screening tests were suspicious (in the event of an abnormality in the digital rectal examination and / or total serum PSA assay) without performing other additional investigations;

(2) 22.5% said they actually referred their patients to the urologist and also performed other investigations;

(3) Finally, 16.9% declared that they were continuing the diagnostic process themselves, by ordering other additional investigations (endorectal ultrasound of the prostate, the determination of free PSA and its ratio to total PSA, and control of total serum PSA).

(E) *What to do if PCa screening is negative*

Among the GPs who said they offered screening:

(1) 60.6% declared to send patients directly to the urologist even if the screening was negative without performing other additional examinations;

(2) 23.1% said they checked the digital rectal examination and the total serum PSA assay more than once a year;

(3) 13.8% declared that they checked the digital rectal examination and the total serum PSA assay once a year, or even less often.

(F) *Opinion of GPs on recommendations*

GPs offering PCa screening estimated 32.7% that the recommendations were appropriate for their office practice and 67.3% believed that they were not.

4 Discussion

This is the first study conducted in Lubumbashi among GPs to analyze their practices in relation to individual PCa screening. It demonstrated a majority support for the principle of PCa screening in the population of GPs studied. The need for PCa screening seems perfectly accepted by GPs in Lubumbashi since the majority of them (82.9%) offered it to their patients. However, there were significant differences in their existing practices and recommendations. The results of our survey were lower than those of Guy *et al.* [6] who report that 98.3% of French GPs declared performing individual screening for this cancer. The dissimilarity of

our results with those of French authors would be linked to the codification and follow-up of recommendations by French GPs, unlike Congolese GPs where these recommendations are not popularized to them. In our study, the majority of GPs reported offering screening to all men (42.5%) in the age group of 50 to 75 years (38.8%). In 55.6% of cases, the lower limit beginning at age 45. The study by Guy *et al.* [6] found that 89.5% of surveyed French GPs reported offering screening to all men and 80.8% in the age group of 50 to 75 years. Studies in other countries show that GPs often offered PSA test under varying circumstances in asymptomatic patients [8], during a “check-up” medical [9, 10], or the patient’s request [11].

In our survey, 65.7% of the GPs prescribed a PSA test combined with a digital rectal exam. This rate is lower than that observed in several other countries [7–10]. Learned societies and health authorities, they recommend or not the individual PCa screening, advise regulate this practice by clear information before the patient to initiate screening. Our survey showed a certain deficit in the provision of information by GPs, with a low rate of GPs (12.5%) who declared that they provided the four types of information (natural history, screening tests, uncertainty about the reduction in mortality, therapeutic options) before starting the diagnostic process. The least information given was that concerning treatment options and further investigation in case of positive screening. The same information was given mostly too late, that is to say after receiving the test results. Results from other studies [6, 12, 13] confirm that information on the benefits, limitations and consequences of PSA testing is lacking.

The results of our study also show uncertainty in the identification and use of screening tools, as well as in what to do in the event of a positive screening. In fact, only 36.3% of the GPs declared that they performed first-line digital rectal examination and total serum PSA assay. It also appears that the GPs in our study declared that they used additional investigations that were not recommended (endorectal ultrasound, free PSA assay) as first (8.8%) or second-line (16.9%). This reinforces the idea that good practice guides are needed to be developed in the field of prostatic pathology.

Our study has allowed us to better understand physician practices which will allow a better definition of training needs for better integration into the national cancer screening program. The GP is not only one that treats the disease but also one that takes care of patients by providing all preventive measures. It is in this perspective that prevention and screening are essential. The results of European and American studies represented an important step in understanding the benefits of PCa screening impacting on specific mortality (reduction of approximately 2% per year in PCa mortality) [2, 3]. This is related to the improvement of diagnostics and advances in care. Finally, they are part of the logic of establishing an early curative treatment for this cancer. The PCa screening becomes an imperative in African environment where it is often found in advanced stages and not curative. Thus, the earlier the diagnosis is made at an early stage and asymptomatic, the greater the chances of cures for patients. This involves the role and responsibility of GPs on better use of the currently available investigations. Although this is declarative data, several highlights are highlighted by this study. It shows that GPs are aware of being very involved in prevention measures in their daily practice. It should be noted the methodological limitations of this type of study. Indeed, bias risk is related to respondents, probably more invested in prevention measures than non-respondents. Moreover, the data we have obtained are unverified because they are declarative data; it is likely, as has already been shown that there is a gap between what the doctor says and do what he does in reality [14]. However, our results confirm those of other studies, thereby suggesting that the information we have collected are valid and interpretable.

5 Conclusion

Our study has shown that in our community, individual PCa screening is regularly carried out in general medicine. However, information available to GPs, facing a population often insufficiently informed, seem incomplete. It is also noted a large prescription for additional examinations, resulting from a poor identification of screening tools. Individual PCa screening is massively offered by GPs, but differences are observed between their reported practices and official guidelines. Our study highlights the need to provide patients with clear and comprehensive information by improving knowledge of GPs through continuing education regarding the PCa screening and the use of the algorithm that we propose them (Figure 1).

Competing interests

The authors declare that they have no competing interests.

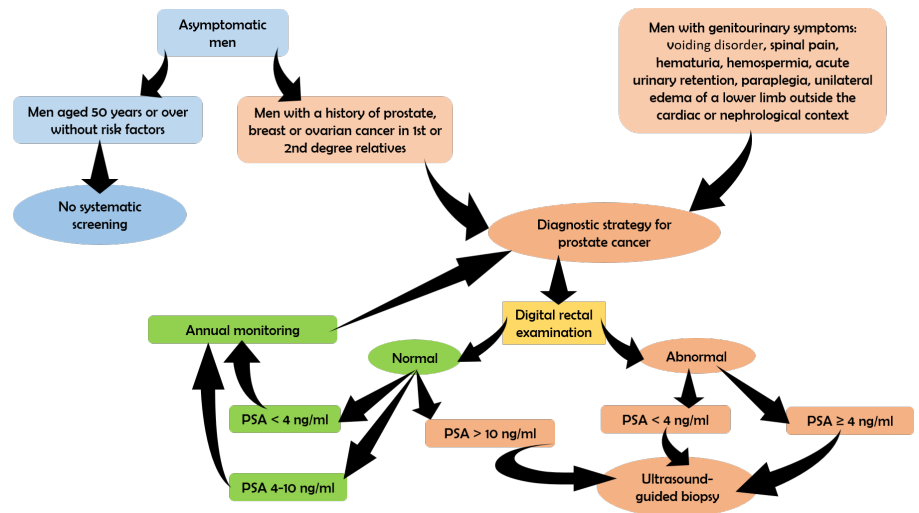


Figure 1 Algorithm for prostate cancer screening in limited resource settings

Authors' contributions

All authors participated in the development and conduct of this study, and all have read and approved the final version of the manuscript.

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