Clinical Study

The Biopsychosocial Burden of Prostate Biopsy at the Time of Its Indication, Procedure, and Pathological Report

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Received 30 November 2018; Accepted 25 February 2019; Published 1 April 2019

Academic Editor: Cristina Magi-Galluzzi

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Purpose. To explore the burden of prostate biopsy at the time of its indication, procedure, and pathological report in the prostate cancer-screening scenario that is neglected and underestimated in the literature.

Methods. Prostate biopsy was offered to 47 consecutive patients with prostate-specific antigen (PSA) over 4 ng/dl or suspicious digital rectal examination (DRE) of whom 16 had undergone a biopsy. Comprehensive validated questionnaires at Time 0 (prebiopsy), Time 1 (before diagnosis, 20 days after biopsy), and Time 2 (after diagnosis, 40 days after biopsy) accessed patients’ erectile (IIEF-5) and voiding (IPSS) functions, Beck scales measured anxiety (BAI), hopelessness (BHS), and depression (BDI), added to the emotional thermometers including five visual analog scales for distress, anxiety, depression, anger, and need for help. The Mann-Whitney or Friedman tests were obtained among times and studied variables.

Results. Prostate biopsy did not significantly impact patients’ erectile and voiding functions while a higher Beck anxiety index (BAI) was observed at Time 0 (6.89 ± 6.33) compared to Time 1 (4.83 ± 2.87), p=0.0214, and to Time 2 (4.22 ± 4.98), p=0.0178. At Time 0, patients that experienced a previous biopsy presented higher distress (3.1 ± 3.0 vs. 1.6 ± 2.3), p=0.043, and emotional suffering thermometer scores (2.3 ± 3.3 vs. 0.9 ± 2.4) compared to those undergoing the first biopsy, p=0.036. At Time 2, patients with positive biopsies compared with those with negative ones showed no significant difference in outcome scores. The sample power was >90%. Conclusions. To be considered in patients’ counseling and care, the current study supports the hypothesis that the peak burden of prostate biopsy occurs at the time of its indication and might be higher for those experiencing rebiopsy, significantly impacting patients’ psychosocial domains. Trial Approval. This trial is registered under number NCT03783741.

1. Introduction

Prostate cancer is a very common condition, especially with aging. Enhancement of life expectancy around the world consequently promotes an increase of at least 60% in the diagnosis of prostate cancer. In absolute terms, it is the sixth most common tumor in the world and the most prevalent in men, accounting for about 10% of all cancers [1, 2].

The biopsy is considered the best form of histopathological prostate cancer diagnosis [3]. This diagnosis method may represent a potent psychological stress factor. In extreme cases it can increase the risk of negative impacts on recovery and death from cardiovascular diseases, especially after diagnosis [4–6].

Recognizing the real impact of this procedure in the physical as well as the psychological context is crucial to provide better support to the patient and minimize side effects that can hinder posterior treatment.

The aim of this trial is to explore the burden of prostate biopsy (PBxs) at time of its indication, procedure, and pathological report in the prostate cancer-screening scenario that is neglected and underestimated in the literature.
2. Methods

This is a prospective, longitudinal, and observational study in which the sexually active patients were evaluated at the Urology Department of the city of Paulínia and submitted to biopsy guided by transrectal ultrasound after ethics committee (355.357) and trial (NCT03783741) approvals.

Consecutive patients attended to by a urologist and with present prostate cancer suspicions (PSA > 4 ng/dL and/or rectal examination, DRE) [7] were submitted for a PBx. They were evaluated at three different moments of the biopsy:

1. Seven days before the biopsy procedure (T0)
2. 20 days after the biopsy, upon receiving the histopathological result, before becoming aware of it (T1)
3. 40 days after the biopsy, 20 days after being aware of the test result (T2)

Sixty-one consecutive patients were invited to participate in the study; 10 of them had no active sexual life and 9 answered the questionnaires only at the first moment and were excluded; 47 responded at the three times (T0, T1, and T2) (Figure 1).

Validated instruments were applied: IIEF-5 (erectile function); IPSS (voiding function); Beck scales (BAI) (anxiety), BHS (hopelessness), BDI (depression), and emotional thermometers.

The comparison among the moments (T0, T1, and T2) was performed through the Friedman test (analysis of variance) for repeated measures with the variables transformed in stations. The comparison between patients and variables was performed using the Mann-Whitney test [8–10]. Multivariate analysis searched for independent significant variables, the sample power was calculated, and the level of significance considered was 5%.

3. Results

Confirmed PCa through biopsies occurred in 32% (n = 15). The ages varied between 40 and 81 years (mean 62.37 ± 7.97), and 34% (n = 16) of the patients had already had at least one previous biopsy performed.

There was no significant impact on erectile and voiding functions throughout the assessments while a higher Beck anxiety index (BAI) was observed at Time 0 (6.89 ± 6.33) compared to Time 1 (4.83 ± 2.87), p = 0.0214, and to Time 2 (4.22 ± 4.98), p = 0.0178 (Table 1).

At Time 0, patients that experienced a previous biopsy presented higher distress (3.1 ± 3.0 vs. 1.6 ± 2.3), p = 0.043, and emotional suffering thermometer scores (2.3 ± 3.3 vs. 0.9 ± 2.4) compared to those undergoing the first biopsy, p = 0.036 (Table 2).

At Time 2, patients with positive biopsies compared with those with negative ones showed no significant difference in outcome scores. The sample power was >90%.

On multivariate analysis BAI was the only independent variable in the PBx timeline, p = 0.0312.

4. Discussion

In the present study, although PBx does not have a significant short- and medium-term impact on the erectile and voiding functions, there is interference mainly in anxiety (BAI), emotional distress, and distress, significantly higher at the time of biopsy indication, when compared to subsequent times, even in cases of positive biopsy for PCa.

Thus, it is intriguing to note that although we observed greater emotional distress and anxiety before the procedure, these feelings were even greater in the patients submitted to rebiopsy when compared to those that have never had this done before and there was no difference between the positive and negative results for cancer.

These data will allow better patient care in the context of the early diagnosis of PCa, in order to identify, in addition to sensitive aspects, also the critical moment (prebiopsy) to implement psychosocial actions that will minimize the impact of health interventions such as PBx, culminating in a better quality of life.

It is important to note that the scope of the study in question is in line with a current discussion that seeks to replace the biomedical model with a technical-instrumental reference of the biosciences by the biopsychosocial model with a broad and integral view of being and falling ill that includes the physical, psychological, and social aspects [11].

It is necessary to improve the doctor-patient relationship considering understanding the disease. It is important to improve communication, increasing flexibility, treating malaise and disease, respecting diversity, and assessing the patient’s previous historical context, aiming to supply the needs of the patient to find ways that will allow converging to the same point aspects between the doctor and the patient in the same context [12].

It is noteworthy that the psychosocial side effects of prostatic biopsy have also attracted more attention recently, especially in relation to emotional issues [13] and although we have found important statistical differences among the cited scores, it is quite complex to define the real clinical impact of interventions such as PBx in the psychosocial context [14].

In the on-screen study we consider the hypothesis that stress-triggering factors and their organic consequences occur differently in three moments:
The biopsy. This fact makes us reflect on the importance of study in which the greatest anxiety was observed before waiting for the histopathological result [18], opposing our days after PBx, and the highest level of anxiety was detected cases. Interference of biopsy positivity as a cause of ED in these PCa [17], allowing the interpretation of possible emotional only in the erectile function of patients who had confirmed patients submitted to PBx observed significant alterations in the study.

Prebiopsy evaluation, some patients were anxious after PBx without directly asking about anxiety and not having a significant impact, except for transitory worsening only in the first and fourth weeks after PBx, which returned to normal levels. Regarding erectile function, there was no erectile impact after the biopsy. However, there were higher anxiety indexes (Beck inventory and emotional thermometers), especially at the time of the indication and in cases with previous biopsy experience, with no difference between patients with a positive and negative result for cancer.

### 5. Conclusion

In the context of the early diagnosis of PCa, there was no significant impact on erectile (IIEF-5) and voiding (IPSS) functions throughout the short- and mid-term evaluations after PBx. However, there were higher anxiety indexes (Beck inventory and emotional thermometers), especially at the time of the indication and in cases with previous biopsy experience, with no difference between patients with a positive and negative result for cancer.

### Data Availability

The data used to support the findings of this study are included in the article.
Conflicts of Interest

The authors declare that they have no conflicts of interest regarding the publication of this paper.

Acknowledgments

This study was funded from CAPES (BEX 14679/13-2) and CNPq Research Productivity (302622/2015-2) to Leonardo O. Reis. The authors are indebted to the involved institutions, the patients, and those that provided and cared for the study patients.

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