ISSN(O)-3107-7889 *Volume:1 Issue 11, November,* *2025 01(11),01-12*

JANA NEXUS: JOURNAL OF HEALTH AND MEDICINE

Article DOI: 10.21474/JNHM01/113
DOI URL: http://dx.doi.org/10.21474/JNHM01/113

RESEARCH ARTICLE

CLINICAL, THERAPEUTIC, EVOLUTIONARY PROFILE AND NURSING CARE PROVIDED TO PEOPLE OPERATED ON FOR BENIGN PROSTATIC HYPERTROPHY AT THE PANZI GENERAL REFERENCE HOSPITAL IN BUKAVU: A DESCRIPTIVE STUDY FROM JANUARY 1, 2021 TO SEPTEMBER 30, 2025

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Manuscript Info

Manuscript History
Received: 04 September 2025
Final Accepted: 06 October 2025
Published: November 2025

Key words:-
Nursing, benign prostatic hypertrophy, surgery, Panzi, post-operative.

Abstract

Introduction : Benign prostatic hypertrophy is a major problem that is often the cause of urinary problems in men over 50, and cancause severe complications such as urinary retention or kidney failure. The objective was to determine the clinical, therapeutic, evolutionary profile and the nursing care provided to those undergoing surgery for benign prostatic hypertrophy to contribute to improving the nursing care of those undergoing surgery for this problem at the PANZI General Reference Hospital.

Methods: This was a descriptive study with retrospective collection which was carried out at the Panzi General Reference Hospital. It covered the period from 2021 to 2025, i.e. almost five years. This is an exhaustive sampling study which examined 80 patients operated on for benign prostatic hypertrophy, the data was processed by Epi Info software.

Results: after the analyzes only 80 patients were operated on for BPH; the average age was 67.5 ± 9.8 years, with a predominance of subjects aged over 60 years (72.5%). The most common clinical signswere acute retention of urine (31.2%) and dysuria (25%), Prostate specific antigen (PSA) assay, cytobacteriological examination of urine (ECBU) and prostate ultrasound were the most performed examinations (100%). Nursing care focused on placement and monitoring of the bladder catheter, bladder flushing, monitoring of vital signs and infection prevention (100%). Hematuria (10%) and urinary infection (8.7%) were the most frequent postoperative complications. The outcome was favorable in 92.5% of cases, with patients well recovered and satisfied with the care received.

Conclusion: Benign prostatic hypertrophy remains a growing public health problem with the aging of the male population. Multidisciplinary care, combining early diagnosis, appropriate treatment and quality nursing care, remains the key to improving the prognosis and quality oflife of patients operated on in Panzi and in similar contexts.

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Introduction:-

Benign prostatic hypertrophy (BPH), also called benign hyperplasia or prostatic adenoma, is a common condition among older men, particularly after the age of 50. It is characterized by a non-cancerous increase in the volume of the prostate, leading to urinary disorders such as dysuria, pollakiuria, or urinary retention(1).

In the Democratic Republic of Congo, as in many African countries, BPH represents the leading urological pathology in elderly men(2). Despite its benign nature, it can significantly alter quality of life and lead to complications such as urinary infections, bladder stones or kidney failure. (3) It has a prevalence of more than 50% among men aged over 60 in its formsymptomatic. (4) Several studies have shown that certain factors can prevent or slow the progression of BPH. These include regular physical activity, a balanced diet and reducing alcohol and coffee consumption. (5) However, in many regions, men ignore the early signs of BPH and most often consult late, sometimes in the complication phase(4). It is often the cause of urinary problems in men over 50, and can cause severe complications such as urinary retention or kidney failure. This type of prostate growth has long been recognized as one of the main causes of urinary obstruction in men (10). Economically, BPH represents the third pathology generating the most health expenditure in several countries. About 70% of men will receive treatment during their lifetime, and 25% will undergosurgical intervention before the age of 75 (10). Hence nursing plays a fundamental role in the overall care of patients(8). In the province of South Kivu, a study conducted in 2016 at the Panzi General Reference Hospital in Bukavu identified BPH as the most common urological pathology, representing more than 57.7% of cases (11). Currently, studies on this subject are poorly documented in the city of Bukavu, this is how we wanted to know: what is the epidemiological, clinical, therapeutic and progressive profile as well as the nursing care provided to those undergoing surgery for benign prostatic hypertrophy with the aim of contributing to improving the nursing care of those operated on for this problem at the PANZI General Reference Hospital.

Materials and Methods:-

Study setting: The study took place at the Panzi General Reference Hospital, located in the city of Bukavu, province of South Kivu, in the Democratic Republic ofCongo. This hospital is the second hospital in the city of Bukavu after the provincial hospital.

Type and period of study: We conducted a retrospective study of the descriptive type, the objective of which was to determine the clinical, therapeutic profile and nursing care provided to patients operated on for BPH in a period from January 1, 2021 to September 30, 2025; This descriptive approach was chosen to describe nursing practices, identify the most common interventions and analyze the quality of postoperative care of these patients.
Study population: Our target population was composed particularly of patients hospitalized and operated on for benign prostatic hypertrophy in the Urology department during the study period.

Sampling: We used exhaustive sampling. That is to say that all the files of patients hospitalized and operated on for benign prostatic hypertrophy in theUrology department during the study period were consulted for information on our research theme.

Inclusion and non-inclusion criteria: In this study, patients would ideally have been included if they met the following conditions: Patients operated on for benign prostatic hypertrophy including Having undergone surgery for BPH (open prostatectomy, TURP, or other available technique). Surgery performed between January 1, 2021 and September 30, 2025; Have been treated in this establishment for the surgical procedure and post-operative care; Sufficiently complete files Confirmed diagnosis of BPH: clinical and/or paraclinical confirmation (rectal exam, prostate ultrasound, compatible PSA, etc.)

Patients were excluded from the study if they presented one of the following situations: Patients operated on for another prostate pathology such as prostate cancer, acute prostatitis orchronic requiring surgery or prostatic abscess. Patients operated on outside the study period; Incomplete or unusable files; Non-operated patients; Patients operated on but transferred before completion of postoperative care; Suspicion or coexistence of prostate cancer not excluded
Data collection technique

To collect data for this study, we used the following techniques:

- The documentary review where we consulted books, articles and certain theses. Also, hospital registers and records.
- The observation sheet developed for this purpose, including sociodemographic, clinical and care variables.

Data collection tools. Data collection was done with the survey questionnaire set up in the Kobocollect application, taking into account our expertise in the use of these tools (from previous scientific research) and the configuration of the Kobotoolbox account. WeWe also carried out a little training on using the KoboCollect tool for our friends who helped us collect this data.

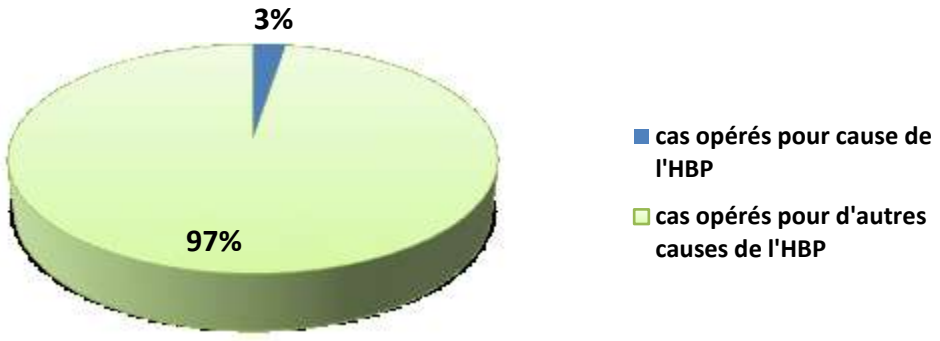
Validation of the study: Throughout the completion of this work we scrupulously observed the following plan: Obtain authorization from the official University of Bukavu via the public health sector and test the questions before their use in the field, with the aim of verifying them according to our research objectives.

Data processing and analysis The data collected was initially processed using Microsoft Excel software, which allowed the entry, cleaning and organization of variables and analyzed using Epi-info software versions 7.2. The results are then presented in the form of tables of numbers and percentages for each of the qualitative variables. Central tendency (mean) and dispersion (Standard deviation) values were calculated for the quantitative variables.
Ethical considerations

The ethical principles of confidentiality and anonymity in force in biomedical research were respected. Approval was obtained from the Medical Ethics Committee of the Official University of Bukavu, under reference number 023/2025. All stages of the research were conducted in accordance with national and international ethical guidelines, including those set out in the Declaration of Helsinki.

Results:-

The main objective of this study was to determine the clinical, therapeutic and evolutionary profile and the nursing care provided to people operated on for benign prostatic hypertrophy (BPH) at the Panzi General Reference Hospital. After processing and analysis of the data collected, 80 cases of BPH were operated on during the period considered, i.e. from January 1, 2021 to September 30, 2025. These cases represent 2.41% of all 3,322 patients operated on during the same period. This low prevalence shows that,although benign prostatic hypertrophy is a relatively common condition in urological consultation, it constitutes a limited operative indication among all the surgical interventions carried out at the Panzi General Reference Hospital.



1Figure 1. Prevalence of BPH cases operated on at Panzi hospital from January 1, 2021 to September 31, 2025

According to the results of this figure, the cases of benign prostatic hypertrophy at the Panzi general reference hospital, in the period from January 1, 2021 to September 30, 2025

1Table 1. Patient sociodemographic characteristics

Variables	**N=80**	**%**	Mean (± stand deviation)
Age of patients			72,ans ± 7,23
≤ 65 years	14	17,5	
> 65 years	66	82,5	
Marital status			
Maried	41	51,25	
widowed	30	37,5	
Divorced	6	7,5	
Common-law union	3	3,75	
Type of marital union			
Monogamous	60	75	
Polygamous	20	25	
Occupation			
Governmentemployed	25	31,25	
Retired	25	31,25	
Informolwork	30	40,60	
Level of education			
Highereducation	27	33,75	
Secondary	22	27,5	
No formaleducation	16	20	
Primary	15	18,75	

Analysis of the data presented in the table below shows that the majority of patients operated on for benign prostatic hypertrophy were subjects aged over 65, representing 82.5% of the sample, with an average age of 72.05 ± 7.23 years. Regarding marital status, 43.75% of patients were married, while 37.5% were widowed. ThereThe vast majority, 75%, lived in a monogamous regime. Professionally, state civil servants and retirees each constituted 31.25% of the total workforce, reflecting a predominance of people who have worked in the public sector. Finally, regarding the level of education, 33.75% of patients had reached a higher level of education, compared to 27.5% having a secondary level. These results indicate that BPH mainly affects older men, married or widowed, relatively educated, and most of whom have professional experience in the public service.

2Table 2. Clinical characteristics

Variables	N=80	%	Mean (± stand deviation)
Admission mode			
Came alone	42	52,5	
Referred (Transfert)	38	47,5	
Place of admission			

Outpatientclinic	41	51,25	
Emergency department	39	48,75	
Duration of illness			
≤ 5 days	62	77,5	8,3 ± 11,3 jours
> 5 days	18	22,5	
Reason of consultation			
Acute urinaryretention	25	31,25	
Pollakiuria (frequent urination)	18	22,5	
Urinary incontinence	13	16,25	
Hématuria	12	15	
Dysuria (painful urination	12	15	
Clinicalsigns			
Bladderdistention (vesical globe)	37	46,25	
Weak urine stream	22	27,5	
Abnormal digital rectal exam	15	18,75	
pallor	6	7,5	

Analysis of the corresponding table shows that the majority of patients came for consultation on their own (52.5%), while an almost equivalent number (47.5%) were referred or transferred from other health structures. Concerning the method of admission, more than half of the patients (51.25%) consulted through amedical office, compared to 48.75% who presented urgently. The average time before consultation was 8.3 ± 11.3 days, reflecting a certain variability in the speed of seeking care. Regarding the main reason for consultation, acute retention of urine predominated with 31.25% of cases, followed by pollakiuria (22.5%) and urinary incontinence (16.25%). The most frequently observed clinical signs were bladder glob in 46.25% of cases and weak urinary stream in 27.5% of cases, indicating significant bladder obstruction. Finally, the diagnosis on admission consisted of 100% cases of benign prostatic hypertrophy (BPH), thus confirming the specificity of the group studied and the relevance of the choice of patients included in this research.

3Table 3. Paraclinical characteristics

Variables	**N=80**	**%**
BiologyPSA		
yes	80	100
Urea		
yes	76	95
No	4	5
Creatinine		
yes	75	93,75

No	5	6,25
Imaging ultrasound		
yes	80	100
X-ray : urethrocystography		
yes	14	17,50
No	66	82,50
Fonctional exploration Urethrocystoscopy		
yes	35	43,75
No	45	56,25

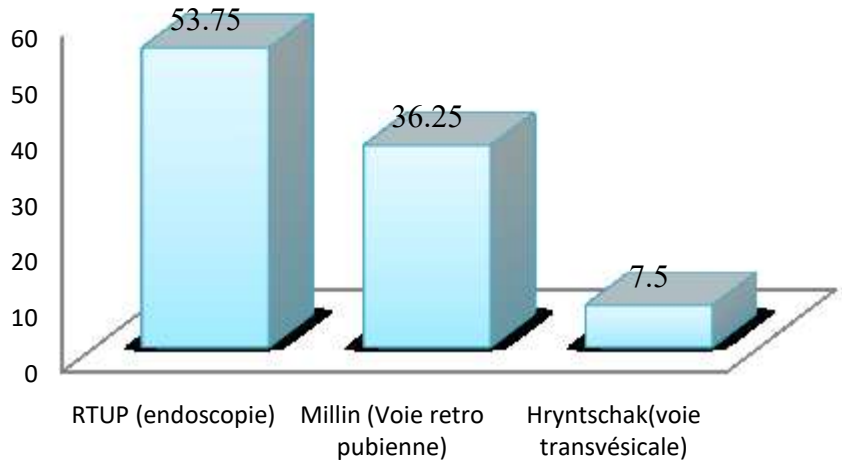
Analysis of the corresponding table reveals a systematic use of biological examinations in the management of patients operated on forbenign prostatic hypertrophy. Thus, the PSA (prostate specific antigen) assay was carried out in 100% of patients, reflecting a rigorous diagnostic approach aimed at excluding an associated malignant prostate pathology. Furthermore, an assessment of renal function was widely carried out, with measurement of urea in 95% of patients and that of creatinine in 93.75%, making it possible to assess the functional impact of urinary obstruction on the kidney. In terms of medical imaging, abdominal-pelvic ultrasound was performed in all patients (100%), constituting the first-line examination for the assessment of prostate volume and the condition of the bladder. On the other hand, urethrocystography radiography was only used in 17.5% of cases, while urethrocystoscopy, used for the purposes of functional exploration and endoscopic evaluation, concerned 43.75% of patients. These results showa preference for non-invasive examinations, in particular ultrasound and biological analyses, in accordance with current recommendations in urology.

4Table 4. Therapeutic characteristics

Variables	N=80	%	Mean (± stand deviation)
Medicaltreatement			
yes	80	100	
Antibioticsused			
Fluroquinolone	34	42,5	
Aminoside	13	16,25	
Penicillin	23	28,75	
Ceftriaxone	6	7,5	
None	4	5	
Antalgicsused			
Paracetamol	35	43,75	
Tramadol	21	26,25	
Ibuprofen	13	16,25	

Codeine	10	12,50	
None	1	1,25	
Alpha-Blockersused			
Doxazosin	28	35,00	
Tamsulosin	35	43,75	
Alfuzosin	14	17,5	
None	3	3,75	
Time of surgical intervention			11,1 ± 11,2 jours
≤ 5 days	10	12,5	
> 5 days	70	87,5	
Surgicaltreatment			
yes	78	97,5	
No	2	2,5	

Analysis of the corresponding table indicates that all patients (100%) received medical treatment prior to surgical intervention. Among the antibiotics prescribed, fluoroquinolones were the most frequently used (42.5%), followed by penicillins (28.75%), reflecting an orientation towards broad coverage of common urinary germs. Concerning analgesics, paracetamol was the most used (43.75%), followed by tramadol (26.25%), which reflects appropriate management of pain according to its intensity. Regarding alpha-blockers, used to improve bladder emptying before surgery, tamsulosin was prescribed in 43.75% of patients, while doxazosin was prescribed in 35%. Average time before interventionsurgical time was 11.1 ± 11.2 days, with a majority of patients (87.5%) operated on beyond five days after their admission, reflecting a preparatory period of medication and clinical stabilization prior to surgery. Finally, 97.5% of patients benefited from surgical treatment, confirming the operative nature of the management of benign prostatic hypertrophy at the Panzi General Reference Hospital.



2Figure 2. Type of Techniques

This figure shows the most received treatment was by TURP (53.75%) followed by Millin adenomectomy (36.25%).

5Table 5. Scalable characteristics

Variables	N=80	%	Mean (± stand deviation)
Length of hospitalstay			11,66 (± 8,86)
≤ 5 days	3	3,75	
> 5 days	77	96,25	
Postoperative complications			
None	40	50	
Urinary tract infection	20	25	
Hématuria	15	18,75	
Accidentalremoval of urinarycatheter	4	5	
Vesicocutaneousfistula	1	1,25	
Patient outcome			
recovered	73	91,25	
Dead	5	6,25	
Transferred	2	2,5	

Analysis of the data shows that the average duration of hospitalization of patients operated on for benign prostatic hypertrophy was 11.66 ± 8.87 days. The vast majority of patients (96.25%) stayed in hospital for more than five days, reflecting prolonged postoperative care, often necessary to ensure monitoring.optimal after urological surgery. Concerning postoperative complications, they were observed in 50% of patients, the most frequent being urinary infections (25%) and hematuria (18.75%). These complications, although generally controlled, underline the importance of the nursing role in monitoring, asepsis and management of urinary catheter care. Finally, the postoperative mortality rate recorded was 6.25%, representing a relatively low but significant proportion, reflecting the risks inherent in prostate surgery in patients who are often elderly and have comorbidities.

6Table 6. The sample according to nursing care.

Variable	N=80	%
Removal of urinarycatheters		
Measurement of vital signs	14	17,5
Removal of sutures	14	17,5
Bladder irrigation	13	16,25
Intervenous infusion	12	15
Dressing change	11	13,75
Insertion of urinarycatheters	10	12,5
Pose de sondes vésicales	6	7,5

Analysis of the table reveals a diversity of nursing interventions essential to the postoperative follow-up of patients operated on for benign prostatic hypertrophy. The most frequently performed treatments were the removal of

bladder catheters and the taking of vital signs, each performedin 17.5% of patients. These actions reflect the priority given to clinical monitoring and the gradual restoration of urinary autonomy. They were followed by the removal of sutures (16.25%) and bladder rinsing (15%), interventions aimed at preventing infections and maintaining the permeability of the urinary system after the procedure. Other important care was also carried out, notably the installation of infusions (13.75%), surgical dressings (12.5%) and the installation of bladder catheters (7.5%), illustrating the complementarity of nursing activities in the overall care of the patient in the postoperative period. These results highlight the central role of nursing staff in preventing complications, continuously monitoring the clinical condition and supporting the patient towards optimal functional recovery.

In short, this study highlights the relevance of nursing care in the process ofhealing and underlines the need for continuous strengthening of the skills of nursing staff in the care of patients operated on for BPH.

Discussion:-

Prevalence

In the present study, the hospital prevalence of benign prostatic hypertrophy (BPH) at the Panzi General Referral Hospital was 2.41% (80 cases out of 3322 interventions). This rate, although low, confirms that BPH constitutes a condition frequent in consultation, but rarely operated on, because the majority of cases are managed medically before considering surgery. In comparison, Costa et al. (30) in Europe reported an overall prevalence of 40.8% in a male population aged 55 to 70 years, while in Kinshasa, Moningo (16) found a prevalence of 18.3% in patients operated on for BPH.

Konaté (10) in Mali also reports that approximately 25% of men require surgery before age 75. These differences are mainly explained by the variation in thedemographic structure, access to care, and availability of diagnostic means. In Panzi, the low proportion of surgical interventions can be attributed to the effective medical management of simple forms and the scarcity of endoscopic equipment, which limits the operating frequency.

Caractéristiques sociodémographiques

The average age of the operated patients was 72.05 ± 7.23 years, with 82.5% aged over 65 years. This result is consistent with the observations of Mamadou (9), who reported an average age of 71 years among patients operated on for BPH in Mali. According to Oelke et al. (36), the prevalence of BPH increases with age, affecting 50% of men by age 60 and almost 90% by age 80.

Regarding marital status, the majority of patients were married (43.75%) or widowed (37.5%), which reflects the typical profile of the elderly population affected by this pathology. The predominance of monogamists (75%) is consistent with the results of Yeboah (35) in Ghana. On the planprofessional, civil servants and retirees each represented 31.25%. This high proportion of sedentary professions confirms the role of lifestyle in the occurrence of BPH, as highlighted by Ngoma et al. (33). Finally, a relatively high level of study (33.75% higher, 27.5% secondary) contrasts with the results of Ben Abdallah
(34) in Tunisia, according to which the low level of education delays consultation and treatment.

Clinical features

The main reason for consultation was acute retention of urine (31.25%), followed by pollakiuria (22.5%) and urinary incontinence (16.25%). These observations are consistent with those of Barry and Fowler (31), who report urinary retention as a major complication of BPH. The predominant clinical signs were bladder bulge (46.25%) and weak urinary stream (27.5%). These results are similar to those of Traoré et al. (22). These findings reflect a late consultation,often at the stage of complications, a phenomenon also noted by Madibulaya et al. (4) in the DRC. This situation highlights the lack of early detection and the need for health education adapted to the elderly male population.

paraclinical characteristics

The study shows excellent use of biological examinations: PSA and prostate ultrasound were performed in 100% of patients, urea in 95%, and creatinine in 93.75%. These practices align with the recommendations of the European Association of Urology (EAU) (36). Urethrocystography was only performed in 17.5% of patients and urethrocystoscopy in 43.75%, which indicates a technical and financial limitation. On the other hand, Couvelaire and Cukier (27) indicate that these examinations are systematic in specialized centers to evaluate obstructive lesions. Thus, despite a modest technical platform, the essential examinations were carried out in the majority of cases.

therapeutic characteristics

All patients (100%) received preoperative medical treatment. Fluoroquinolones (42.5%) and penicillins (28.75%) were the most used antibiotics. The most prescribed analgesics were paracetamol (43.75%) and tramadol (26.25%), while alpha-blockers such as tamsulosin (43.75%) and doxazosin (35%) were used, in accordance with the recommendations of McConnell et al. (37). Surgically, 97.5% of patients underwent surgery, mainly by transurethral resection of the prostate (TURP) (53.75%) and Millin adenomectomy (36.25%). This result is consistent with the conclusions of Oelke et al. (36) and Mohamed (12). However, in the African context, open adenomectomy remains frequent, as confirmed by Adebayo (32) and Cirimwami (17). The average time before intervention was 11.1 ± 11.2 days, compared to 5 to 7 days in Western hospitals (37).

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The average length of hospitalization was 11.66 ± 8.87 days, with 96.25% of patients hospitalized for more than five days. This prolonged stay is explained by the intensive postoperative follow-up and monitoring of complications. According to McConnell et al. (37), patients hospitalized for BPH in developed countries have an average stay of 5 to 7 days. Postoperative complications were present in 50% of cases, dominated by urinary infections (25%) and hematuria (18.75%). These results agree with those of
Jacqmin and Saussine (13). The overall evolution was favorable in 91.25% of cases, with 6.25% deaths, slightly higher than the rate observed by Wagner (7).

Postoperative nursing care

The most performed nursing care was the removal of bladder catheters (17.5%), taking vital signs (17.5%), removing wires (16.25%) and bladder rinsing (15%). These actions constitute the basis of postoperative monitoring. According toVera (8), the nursing role in the management of BPH is holistic: it includes monitoring, patient education and promotion of patient autonomy. This approach is consistent with the conceptual model of Virginia Henderson (18), which defines care as assistance allowing the patient to regain their independence. Thus, nursing care has a determining role in reducing postoperative morbidity and improving patient recovery.
Limitations of the study

Retrospective nature of the study: The data depended on the quality of existing medical records, hence the risk of missing, incomplete or imprecise data. No ability to control how the information was initially collected. The study involved 80 patients, which could seem insufficient to draw generalizable conclusions. The small size limits statistical power and the ability to identify robust associations between variables. The studycarried out only at the Panzi General Reference Hospital. Results may not be representative of other hospitals or regions (variations in resources, clinical practices, staff skills, level of equipment). No comparison with non-operated patients, patients operated by different techniques, other establishments. The study is strictly descriptive. No in-depth analysis of the factors influencing postoperative complications, the determinants of a good postoperative outcome, the impact of age, PSA, comorbidities, etc. Selection bias: Inclusion only of patients for whom the files were complete; complicated patients or those lost to follow-up may not be included. Hence the recommendations for Future Research are to include multiple hospitals or regions; compare surgical and nursing practices, increase the sample size to strengthen statistical power;compare different BPH surgery techniques (TURP, open prostatectomy, laser, etc.), management in different departments or teams; Evaluate the quality of nursing care with standardized tools; Study the factors associated with postoperative complications; Integrate an assessment of post-operative quality of life.

Conclusion:-

This study shows that the profile of patients hospitalized and operated on for benign prostatic hypertrophy in the Urology department during the study period was dominated by elderly men (average age of 72 years), married or widowed, often retired and civil servants, reflecting the influence of age and sedentary lifestyle in the occurrence of the disease. Clinically, acute retention of urine constitutes the main reason for consultation, followed by urinary flow disorders, often reflecting a late consultation at an already complicated stage, biological and ultrasound examinations weresystematically carried out, reflecting good application of diagnostic protocols, despite certain technical limitations in specialized explorations (urethrocystography, urethrocystoscopy). Therapeutically, all patients received medical treatment before surgery. Transurethral resection of the prostate (TURP) and Millin adenomectomy were the most commonly performed procedures. The rate of postoperative complications (50%) remains high, dominated by urinary infections and hematuria, but the overall outcome remains favorable in more than 90% of cases. The mortality rate of 6.25% nevertheless highlights the need for strengthening postoperative

monitoring. Postoperative nursing care, focusing on vital sign monitoring, catheter management, bladder flushes, and wire removals, has been shown to be instrumental in functional recovery and prevention of complications. The role of theNursing, according to Virginia Henderson's model, appears essential to support the patient towards regaining their autonomy and maintaining their quality of life after prostate surgery.

Recommendations:-

To the health authorities and hospital management

Strengthen the technical and material capacities of the urology department, particularly in endoscopic and postoperative monitoring equipment. Support continuing education for nurses and doctors on the integrated management of BPH, including pre-, intra- and post-operative care; Establish a standardized postoperative nursing care protocol for patients undergoing BPH surgery. Create a long-term monitoring system for patients after prostate surgery in order to reduce complications and relapses.

To nurses and health personnel

Ensure rigorous monitoring of vital signs, urine output and general condition of the patient in the postoperative period.
Prevent infectionsurine by strict compliance with asepsis when handling probes and rinsing.
Strengthen therapeutic education of the patient and his family on home care, diuresis, hygiene and early recognition of signs of complications.
Promote empathetic and educational communication that promotes patient confidence and autonomy.

To researchers and trainers

Encourage applied nursing research on postoperative care and factors influencing recovery after prostate surgery.
Integrate specific modules on the health of older men and the management of BPH in nursing training programs.
Promote multicenter studies to compare practices and identify the best care approaches in the Congolese context.

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