Evaluation of the Anatomopathological Result of the Anatomical Pieces Resulting from a Prostatic Adenomectomy by High Approach in Patients Operated for Benign Hypertrophy of the Prostate at the Hospital of Tanguiéta Zone

Gayito Adagaba René Ayaovi[1*]**, Chamutu Maheshe**[1,2]**, Nzuwa Nsilu Joel**[1]**, Gbotounou Nésaire**[1,2]**, Azakpa Assogba Leopold**[1]**, Aholou Renauld**[1]**, Agbegninou Pascal**[1]**, Agonhossou Ghislain**[1]**, Boisnard Oscar**[1]**, Duchnicz Laure**[1]**, Seynaeve Sophie**[1]**, Bourou Luc**[1]**, Hounwaye D Armand**[1]**, Avakoudjo Josue Dejinnin Georges**[2]

[1*]Department of General Surgery, Tanguiéta Zone Hospital, Benin

[2]Department of Urology Andrology, National Universitary Hospital Center, Benin

[*]**Corresponding author:** Gayito Adagaba René Ayaovi, Department of General Surgery, Tanguiéta Zone Hospital, Benin, Tel: 95612355; Email: gayito_castro@yahoo.fr

Abstract

Objectives: To determine the correlation between digital rectal examinations, prostate volume, PSA level and pathological results after upper prostate adenomectomy indicated in the event of benign prostatic hypertrophy diagnosed and operated on at the Saint John of God Hospital in Tanguiéta.

Patients and methods: This was a descriptive retrospective study from January 1, 2017 to December 31, 2020. Focusing on patients operated on for clinically diagnosed benign upper prostatic hypertrophy.

Results: 128 cases were retained. The average age was 65.29±7.84 years. The most represented group was those aged 61 to 70 with a proportion of 54%. The average PSA level was 27.64±70.14 g. The average prostate volume was 89.91±44.72 g. After the pathological examination, 14% had prostate adenocarcinoma. PSA levels and pathological outcome would be related variables. Age had no influence on the patient's PSA level. The same is true for the patient's prostate volume. Only the prostate volume would have an influence on the PSA.

Keys words: Prostate-Adenoma-PSA

Introduction

Benign prostatic hyperplasia is a condition that affects a significant proportion of men, particularly those over 60 years of age [1].

While the efficiency of medical treatments is indisputable, the risk of Benign prostatic hyperplasia -related surgery beyond the age of 50 is estimated to be between 20 and 30% [2]. Endoscopic prostate resection (EPR) and upper adenomectomy (UAP) are the gold standard procedures for complicated BPH or the ones refractory to medical treatment [3,4].

Upper adenomectomy is the primary method of surgery for benign prostatic hyperplasia. It remains the most common method used by urologists in underdeveloped countries [5]. It represented 1.1% of the operative activity of the general surgery department in Benin in 2015 [6]. But what is the margin of error between the preoperative diagnosis and the anatomopathological diagnosis? In order to answer this question, we conducted this study with the objective of determining the correlation between the digital rectal examination, the prostate volume, the PSA level and the anatomopathological results after prostatic adenomectomy by the high route indicated in front of a benign hypertrophy of the prostate diagnosed and operated on at the Saint Jean de Dieu Hospital of Tanguiéta.

Patients and Methods

This was a retrospective and descriptive study from January 1, 2017 to December 31, 2020 conducted in the general surgery department of the Tanguiéta Zone Hospital. All cases of prostatic hypertrophy labelled as benign and treated as such were included in the study, and for which the results of the digital rectal examination, prostatic ultrasound and anatomopathological examination were available in the medical record. The exclusion criteria were: Unavailability of pathology result, no information on PSA or DRE results, and cases operated endoscopically.

The parameters studied were: age, consultation time, length of hospitalization in surgery, ultrasound volume of the prostate, prostate specific antigen and histology of the surgical specimen.

Data entry and analysis were done on Epi-info data 7.2.2.6, Microsoft Excell 2013.

Mean, percentage and Chi-square test were used for interpretation of results.

Results

During the study period, 135 patients were managed for benign prostatic hypertrophy. 7 files were excluded for lack of information on PSA. This represents a study population of 128 cases. The mean age was 65.29±7.84 years. The most represented age group was 61 to 70 years with a proportion of 54%. The mean time before consultation was 649.08±760.21 days. Renal function was disturbed in 28.45% of our patients. The digital rectal examination in all patients was in favor of benign prostatic hypertrophy.

The mean PSA level was 27.64±70.14 g. Patients with a PSA level greater than or equal to 4 ng/ml were the most representative (83%) compared to 17% for those with a PSA level lower than 4 ng/ml. The mean prostate volume was 89.91±44.72 g. Patients with a volume between 59 and 105 g were the most represented (47%).

Most patients had a pathological finding of nodular hyperplasia. Of the 128 patients, only 14% had been diagnosed with adenocarcinoma of the prostate, 86% with benign prostatic hypertrophy.

Bivariate analysis between PSA level and prostate volume showed that the two variables were related. With prostate volume significantly influencing the PSA level (P=0.001) (Table I)The bi-variate analysis between PSA level and anatomopathological result had shown that the two variables were related (Table II). However, this relationship was weak (cramer coefficient = 0.18). The multivariate analysis showed that only one variable influenced the PSA level (Table III) No correlation between age and PSA level was found (p-value greater than 5%) (Table IV)The same was true for prostate volume, where the patient's age had no influence on prostate volume (p-value greater than 5%) (Table V).

Table I: Distribution of patients by PSA levels according to prostate volume.

Crossed Tabulation								
			Portion	Total				
			[13-59[		[59-105[	[105-151[	[151-197[	[197-243[
PSA	< 4	Employees	11	5	2	0	0	18
		% included in PSA	61,1%	27,8%	11,1%	0,0%	0,0%	100,0%
	> 4	Employees	12	41	16	9	1	79
		% included in PSA	15,2%	51,9%	20,3%	11,4%	1,3%	100,0%
Total		Employees	23	46	18	9	1	97
		% include in PSA	23,7%	47,4%	18,6%	9,3%	1,0%	100,0%

Table II: Distribution of patients by PSA level according to the anatomopathological result.

Crossed Tabulation					
			Anatomopathological Result		Total
			Adenocarcinoma	Nodular Hyperplasia	
PSA	< 4	Employees	0	21	21
		% included in PSA	0,0%	100,0%	100,0%
	> 4	Employees	17	83	100
		% included in PSA	17,0%	83,0%	100,0%
Total		Employees	17	104	121
		% included in PSA	14,0%	86,0%	100,0%

Table III: Multivariate analysis.

Variables in the equation		A	E.S.	Wald	ddl	Sig.	Exp(B)	IC pour Exp(B) 95%	
								Inferior	Superior
Step 1a	Volume	1,355	,460	8,682	1	,003	3,875	1,574	9,543
	Result	19,088	10069,341	,000	1	,998	194874515,224	,000	.
	Constant	-1,152	,800	2,074	1	,150	,316		
a. Variable(s) included in step 1 : volum, Résult.									

Table IV: Bivariate analysis between age and PSA level.

Chi-square test			
	Value	ddl	Asymptotic significance (bilateral)
Pearson's Chi-square	177,689a	184	,617
Likelihood ratio	1,56,305	184	,932
Linear association by linear	,237	1	,626
Number of valid observations	119		
235 cells (100.0%) have a theoretical number lower than 5. The minimum theoretical size is .03.			

Table V: Analysis between age and volume.

Chi-square test			
	Value	ddl	Asymptotic significance (bilateral)
Pearson's Chi-square	271,822a	268	,423
Likelihood ratio	1,99,318	268	,999
Linear association by linear	,227	1	,634
235 cells (100.0%) have a theoretical number lower than 5. The minimum theoretical size is .03.			

The average length of hospitalization after Upper Aapproach Prostatic Adenomectomy was 11.03± 3.15 days.

Discussion

The average age in our study was 65.29±7.84 years. The most represented age group was 61-70 years. These results are almost the same of the ones of Luhiriri ND et al [7].

Renal function was impaired in 28.45% of our patients. This percentage is much higher than that of Massandé Mouyendi J et al. which was 9% [8] and Bagayogo NA et al. which was 11.11% [9]. This could be due to the delay in consultation in our study environment which is rural compared to the other two studies carried out in urban areas, with a shorter delay in consultation than ours.

A strong correlation between prostate volume and PSA level was found in our study. These same findings had already been made by several authors [10,11,12]. Our study shows that patients with a PSA level lower than 4 ng/ml do not exceed 104 g of prostatic volume whereas those with a PSA level higher than 4 ng/ml see their prostatic volume reach a peak between 59 and 104 g and progressively decrease until a volume equal to 242 g. This clearly shows the close relationship between prostate volume and PSA level. Patients with a larger prostate

volume being more likely to have a PSA level greater than or equal to 4.

No correlation between age and PSA level was found in our study. These results are consistent with those of some authors in the literature [13] but not all [11]. The same is true for the relationship between age and prostate volume where no significant relationship was found between these two variables. This is similar to the results of Berroukche A et al [14], but contrary to those of Bo M et al [13] who found a slight correlation (p < 0.05). The study shows that there is a strong correlation between the PSA level and the anatomopathological nature of the prostate. But it also shows that patients with a PSA < 4 do not have adenocarcinoma, whereas those with a PSA > 4 have either adenocarcinoma or nodular hyperplasia. This is a known fact in the literature [11-13]. Our mean time of hospitalization was 11.03± 3.15 days. These results are in agreement with many authors in the literature [15,16].

The margin of error between the preoperative diagnosis and the anatomopathological diagnosis after prostatic adenomectomy was 14%, corresponding to the number of cases in which prostatic hypertrophy was falsely evoked.

Conclusion

After prostatic adenomectomy indicated for benign prostatic hypertrophy, 14% of cases were prostatic adenocarcinomas after anatomopathological examination. Only an increase in the volume of the prostate could explain an increase in the PSA level. The interpretation of the digital rectal examination, the ultrasound assessment of the prostate volume and the PSA level are effective diagnostic tools for benign prostatic hypertrophy in practice.

References

1. Bonnaure-Sorbier D (2020) Benign prostatic hypertrophy, a natural cellular aging process. Actualités pharmaceutiques 59:20-24

2. Reich O, Gratzke C, Bachmann A (2008) Urology section of the BavarianWorking Group for Quality Assurance. Morbidity, mortality and early outcome of transurethral resection of the prostate: a prospective multicenter evaluation of 10 654 patients. J Urol 180:246-9

3. Lahlaidi K, Ariane MM, Fontaine E (2014) Actualités sur la prise en charge de l'hyperplasie bénigne de la prostate. Quel adénome traiter et comment ? Rev Méd Int 35:189-95

4. Coulange C (2005) Current place of traditional surgery in France in the treatment of benign prostatic hyperplasia. E-Mem Natl Chir Academy 4: 8-11

5. Holtgrewe L (1995) Transurethral Prostatectomy. Urologic Clinics of North America 22: 357- 68

6. Toré Sanni R, Mensah E, Hounnasso PP, Avakoudjo J, Allode A, et al. (2015) Postoperative complications of the suprapubic prostatectomy in a service of general surgery in Benin, About 124 cases. Méd Afr Noire 6202:83 – 89

7. Luhiriri ND, Alumeti DM, Cirimwami P, Ahuka OL (2016) Diagnostic and surgical management of benign prostatic hyperplasia at PANZI Hospital / Democratic Republic of Congo. Uro'Andro 1:289-93

8. Massandé Mouyendi J, Mougougou A, Ndang Ngou Milama S, Adandé Menest E (2017) Morbidity and mortality post trans vesical open prostatectomy at the Libreville teaching hospital: a study of 68 patients. Uro'Andro 1:362-6

9. Bagayogo NA, Sine B, Faye M, Sarr A, Thiam A (2021) Giant benign prostatic hyperplasia (BPH): Clinical and therapeutic epidemiological aspects. J Afr Urol 27: 49-55

10. Bharti SV (2017) Correlation Between Serum Prostatic Specific Antigen and Prostatic Volume in Benign Prostatic Hyperplasia. J Nep Med Col 15:9-15

11. Bagus IOWP, Hamid ARAH, Mochtar CA, Umbas R (2016) Relationship of age, prostate-specific antigen and prostate volume in Indonesian men with benign prostatic hyperplasia. Prostate Intl 4:1-6

12. Okuja M, Ameda F, Dabanja H, Bongomin F, Bugeza S (2021) Relationship between serum prostate-specifc antigen and transrectal prostate sonographic fndings in asymptomatic Ugandan males. Afr J Uro 27:2-9

13. Bo M, Ventura M, Marinello R, Capello S, Casetta G, et al. (2003) Relationship between Prostatic Specific Antigen (PSA) and volume of the prostate in the Benign Prostatic Hyperplasia in the elderly. Critical Reviews in Oncology/Hematology 47:207-11

14. Berroukche A, Bendahmane-Salmi M, Kandouci AB, (2013) Relationship between age and clinical and biological parameters. Sixtyseven cases of benign prostate hyperplasia in a western Algeria hospital. J Afr Cancer 5:1-6

15. Bah I, Bah MB, Barry MII, Diallo A, Kante D (2020) Transvesical prostatic adénomectomie: results and complications at the andrology urology service of the Ignace Deen Hospital, Conakry University Hospital. Health Sci Dis 21:55-9

16. Toré Sanni R, Mensah E, Hounnasso PP, Avakoudjo J, Allode A, et al. (2015) Postoperative complications of Trans bladder prostatic adenomectomy in a general surgery department in Benin: report of 124 cases. Med Afr Black 62: 83-89