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Spectrum of Prostate Disorder in Jos, Plateau State of Nigeria

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ABSTRACT

The spectrum of prostate disorders encompasses prostatis, benign prostatic hyperplasia and prostate cancer. Acute prostatis is usually a bacterial infection caused by uropathogens. This is diagnosed by tenderness of the gland on digital rectal examination (DRE), BPH and Cap diagnosis by DRE, ultrasound and PSA, and finally by histology. In assessing the spectrum of prostate disorders, we use a hospital based descriptive study of Skane Radio-Diagnostic Centre Jos. This is results showed a comprehensive statistical data, clinical and visualization-based analysis of prostate health data with mean PSA 12.0ng/ml. the mean PSA of 12.0ng/ml for CAP and mean vol. 12.75. The prevalence of each disorder was presented as below. There is high prevalence of BPH (69%) followed Cap (20%) prostatis (1%). This findings from this study can guide the screening I diagnosis and management of the prostate disorders. The summary of the results found is as follows: BPH = 69%, CaP = 20%, Prostatis = 1%

Keywords: *Cancer, Prostate, Antigen, pathogens, Radio, disorders.*

Abbreviations: *PSA = Prostate Specific Antigen, CAP = Cancer of Prostate, BPH = Benign Prostatic Hyperplasia, LUTIC = Lower Urinary Tract*

INTRODUCTION

Acute prostatis is commonly caused by a bacterial and is usually by uropathogens and can be treated initially by broad spectrum antimicrobials until the results from urine culture are available for a more tailored antibiotic therapy chronic prostatitis-like symptoms in men may have multifactorial causes. About 10% will progress to chronicity [1,2]. Benign prostratic hyperplasia (BPH) is a to the nonmalignant growth or hyperplasia of postrate tissue and is a non malig of lower urinary tract symptoms (LUTS) in older men. Prevalence has been shown to increase with advancing age. The etiology BPH is influenced by a wide variety of risk factors, in addition to the direct hormonal effects of testosterone on prostrate tissue. Men who are castrated before puberty or who have an androgen-related disorder do not develop BPH. Some risk factors contribute to the development of BPH[3,4].

The second-leading cause of cancer death in men in the United States and many other westernized countries is CaP; accordingly, judicious screening of healthy men allows for diagnosis sufficiently early that all options (i.e., treatment or surveillance) are still available in most cases [5]. The prostate-specific antigen (PSA) blood test is the foundation for modern prostate cancer (CaP) screening. Initially it was used in forensic medicine. The subsequent discovery that it could be measured in serum, and that serum levels increase in the setting of prostatic disease, led to its current application as a CaP marker. It is now used to screen for CaP and monitor disease course [6]. A significant predictor of the development of BPH is age over 50% of older men show evidence of BPH and with associated LUTS increasing with age linearly. The aim of study is portray the prevalence of prostate disorder in Jos secondary diagnostic centre.

Materials and Methods

Study Area

The study center is SKANE RADIO-DIAGNOSTIC CENTRE a secondary health facility located in Jos, the capital city Plateau State in North-Central Nigeria. SKANE serves as a referral center for Plateau Hospital, OLA hospital and Bingham Teaching Hospital mainly for diagnostic purposes. Plateau state is situated at an elevation of about 1,238 meter above sea level. The city is geographically located between latitude 9055'N and longitude 8054E.

Study Design

This study employs a hospital-based cross-sectional descriptive study. The design was chosen to determine the prevalence of Prostate BPH and CaP Specific levels and their distribution across different age categories among male patients who attended Jos University Teaching Hospital during the study period. Each subjects have gone through physical examination including DRE, Ultrasound.

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Study Population

The study population consisted of Ninety-Two (92) male patients who attended Skane Radio-Diagnostic Centre. Diseases that form the spectrum are prostitis, BPH and Ca prostate. Serum PSA and USS results, DRE findings obtained from documented hospital records. BPH and CaP can be diagnosed by ultrasound and prostatis was diagnosed clinically by tenderness of the of the gland.

DRE Patients with incomplete records, duplicate entries, or inconclusive laboratory results were excluded.

Data Collection

Data were obtained from the hospital's laboratory information management system and patient records in the Pathology. Relevant variables extracted included Patient age and prostate sizte serum PSA levels (ng/mL). The data collection was carried out with strict adherence to patient confidentiality. Prostate sonography findings of each patient was obtained from hospital records.

RESULTS

This report presents is results a comprehensive statistical, clinical and visualization-based analysis of prostate health data. The data set initially contained 92 records; however, one was removed due to inconsistency, resulting in 91 valid entries. This result presents with prostate size, PSA concentration, prostate volume, Age and BPA for prostatis.

Descriptive Statistics

- Mean: 12.06ng/l
- Min: 0.20
- Max: 105.80

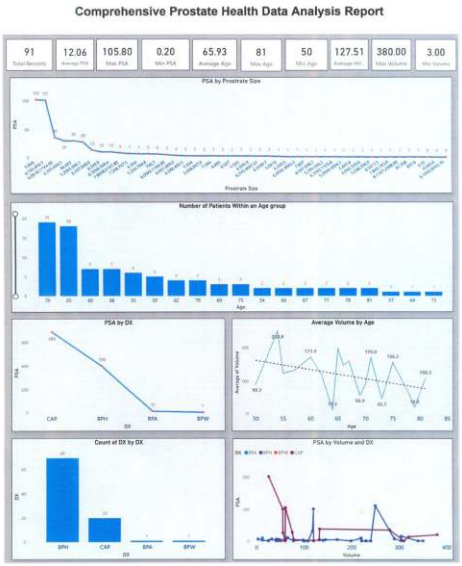
Age:

- Mean: 65.93 years
- Min: 50
- Max: 81

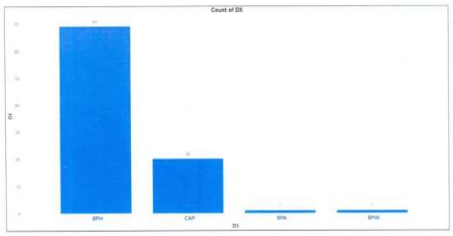
Prostate Volume:

- Mean: 127.71cm^3
- Min: 3 cm
- Max: 380cm

The data set represents an older adult male population with diverse prostate conditions. PSA and values show high variability, suggesting both benign and malignant conditions.



Diagnosis Frequency

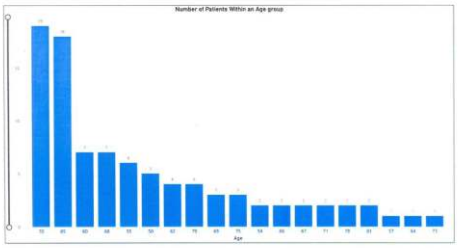


Diagnosis counts:
- BPH (Benign Prostatic Hyperplasia): 69
- CAP (Cancer of the Prostate): 20
- BPA: 1
- BPW: 1

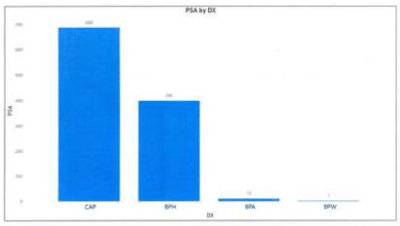
Inference:

BPH is the predominant condition (≈76%), consistent with typical urology clinic populations. CAP accounts for ≈22%, representing a significant malignant subgroup. BPA and BPW are rare benign findings.

Number of Patients within age group



4. PSA by Diagnosis



Total PSA:
- CAP: 688
- BPH: 398
- BPA: 10
- BPW: 1

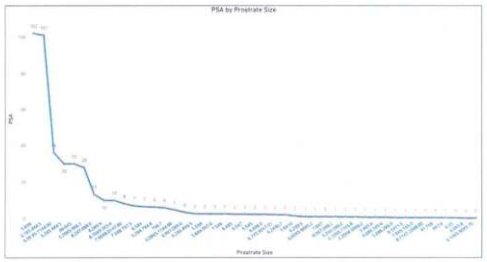
Insight:

CAP cases produce disproportionately high PSA values, confirming PSA's strong association with malignancy. BPH shows moderate PSA elevation, while BPA and BPW show minimal PSA.

Inference:

PSA effectively distinguishes malignant from benign prostate diseases.

PSA vs Prostate Size



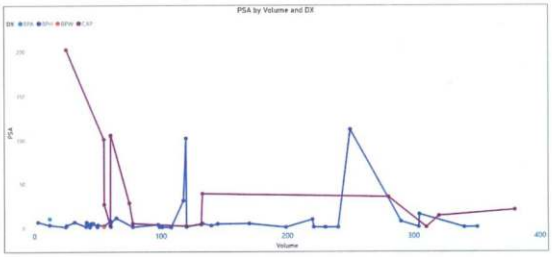
The analysis shows that prostate size and PSA levels do not rise together in a consistent pattern. Some patients with very large prostates recorded extremely low PSA values, while a few with moderate prostate sizes had very high PSA levels (30–102). Most patients with moderate prostate sizes had PSA values within 1–15. The overall

scatter indicates no linear or proportional relationship between prostate volume and PSA.

Inference:

Prostate size alone cannot predict PSA levels. High PSA is more strongly linked to cancer activity or inflammation, not to the physical size of the prostate. Large prostates with low PSA suggest benign enlargement (BPH), while extremely high PSA with moderate size suggests possible malignancy.

PSA vs Prostate Volume



Insight:

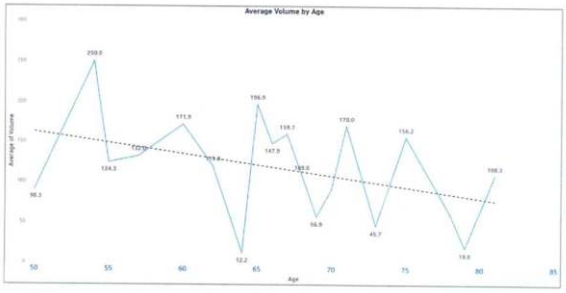
- Most patients cluster around PSA ≈ 26 regardless of prostate volume.
- A small cluster appears around PSA ≈ 100.
- One outlier reaches PSA 204.

There is no linear relationship between PSA and prostate volume. High PSA values correspond to likely cancer cases, while moderate PSA values represent benign conditions.

Inference:

Prostate volume does not predict PSA. PSA elevation reflects pathological activity rather than gland size.

Prostate Volume and Age



Analysis of the dataset shows that prostate volume generally increases with age, but not in a consistent or predictable pattern. Some age groups (50, 55, 60, 71, 75) recorded very large average volumes, while others of similar or older ages (64, 69, 79) showed normal or small prostate sizes. This wide variation indicates that prostate enlargement is age-associated but not determined solely by age. Individual differences, possible BPH, prostate cancer, or inflammation may account for the discrepancies.

Inference:

Prostate size varies significantly among individuals of the same age, meaning age alone is not a reliable indicator of prostate health.

Prostate volume must be interpreted alongside PSA and diagnosis, not age alone.

Relationship Summary

- PSA Volume: Weak correlation
- Volume vs Age: Weak correlation
- PSA vs Size: Weak correlation
- PSA vs Diagnosis: strong differentiation

Overall Clinical Inferences

1. PSA is a strong indicator of malignancy
2. Prostate size varies independently of PSA and age
3. BHP is the common condition (69%)
4. CAP cases, though fewer, produce very high PSA values (20%)
5. Visualization patterns reveal two populations:

- Large benign cluster (low-moderate PSA)
- Small malignant cluster (high PSA)
- E – Prostatis form in (2%)

Conclusion

This analysis confirms that PSA is the most reliable marker for differentiating prostate pathologies. Prostate volume and age alone are insufficient for predicting disease severity. The diagnostic and PSA patterns align with established clinical knowledge. These findings can guide screening, diagnosis and management of prostate health conditions.

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