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Prostate Cancer Screening Using PSA as a Screening Tool in a Tertiary Health Centre in Umuahia, Abia State, South Eastern, Nigeria

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Abstract:
Prostate Cancer is the most common cancer among Nigerian men. There is, therefore, the need to screen men at high risk of prostate Cancer to reduce Morbidity and Mortality.
This study was a 5-year prospective study to screen patients at risk attending surgical outpatients' clinics at Abia State Specialist Hospital Umuahia over a 5 year period spanning from Jan 2011 to Dec 2015.
Those who met the Inclusion Criteria were counseled about prostate cancer screening, and consent was obtained for PSA measurement. The screening was done, and those who had more than 10 ng per ml of abnormal PSA were further evaluated using digital rectal examination and prostate biopsy. A total of 3718 men were screened within the said duration, with the year 2015 having the more significant number of having 866 men screened, 320 with PSA greater than 10ng per ml. From the study, we found that PSA screening increased prostate cancer awareness and was used as a veritable screening tool in Umuahia, Abia State.

Keywords: *Prostate Cancer, PSA, Screening, Umuahia*

1. Introduction

Prostate Cancer screening means looking for prostate cancer before the onset of overt symptoms. The aim is to find cancer with a high risk of spreading if not treated and to find them early before they spread. The overall goals are:

- To lower the number of people who die from the disease or eliminate death from prostate cancer altogether.
- To lower the number of people who develop the disease.

It is difficult to predict the tumors that will grow slowly and those that will grow rapidly and spread. Therefore, prostate cancer screening using PSA, especially for patients with symptoms, results in early detection, diagnosis, and early institution of treatment, thereby reducing Morbidity and Mortality.

However, prostate cancer screening has been controversial, especially screening men without symptoms, as it is said not to satisfy JUNGERS CRITERIA for a good screening programme whose conditions are:

- The condition sought should be an important health problem to the individual and community.
- There should be an accepted treatment or useful intervention for the patients with the disease.
- The natural history of the disease should be adequately understood.
- There should be a latent or early symptomatic stage.
- There should be a suitable acceptable treatment screening test or examination.
- Facilities for diagnosis and treatment should be available.
- There should be an agreed policy on whom to treat as a patient.
- Treatments started at an early stage should be of more benefit than treatment started later.
- The cost should be economically balanced concerning possible expenditure on medical care as a whole.
- Case finding should be a continuous process rather than once and for all projects.

In this study, we were restricted to men between 40 and 89 years with symptoms.

More so, the American Urological Association and the American Cancer Society recommend that men be counseled about the risks and benefits of screening to grant them the opportunity for informed decisions about screening.

This was done in this study as the patients were counseled on the risks and benefits to enable them to make informed decisions.

1.1. Aim and Objective

The aim and objective of the study is to determine the incidence of men at risk of prostate cancer in Abia Specialist Hospital Umuahia, southeast Nigeria.

2. Methodology

This was a 5-year prospective study between January 2011 and December 2015 at Abia state Specialist hospital Umuahia, South Eastern Nigeria.

2.1. Inclusion Criteria

Inclusive were men between the ages of 40yrs and 89yrs who had:

- Lower Urinary Tract Symptoms
- Lower Back Pains
- Haematuria
- Gross weight loss
- Strong Family History of Prostate Cancer.

Men who met the inclusion criteria were counseled about prostate cancer, and consent was obtained for screening.

Those who refused consent after counseling were excluded from the study.

The screening tool was PSA measurement, and those who had PSA of more than 10ng per ml were further evaluated using digital rectal examination and prostate biopsy.

2.2. Exclusion Criteria

- Men with symptoms but refused consent for screening
- Men without symptoms

3. Results

A total of [n=3718] men aged between 40 and 89 years were screened within a five-year interval spanning from 2011 to 2015.

The year 2011 had 572 [15.38%] men screened 2012 had 688 [18.5%] men screened, 2013 had [20.65%] men screened, 2014 had [22.7%] men screened, and 2015 had [23.3%] men screened. From the above figures, it was apparent that there was a steady increase in the number of men screened every year.

From table 2, the predominant clinical presentation was Lower Urinary Tract Symptoms (LUTS), with a rise in incidence. In 2011, there were 250 cases, in 2012 there were 298 cases, in 2013 there were 313 cases, in 2014 there were 400 cases and in 2015, the no. of cases jumped to 866.

Next to it was lower back pain, with 2011 at (200), 2012 at (230), 2013 at (255), 2014 and 2015 at (282) and (290), respectively.

Gross weight loss and heamaturai were also seen, with a positive family history at least on presentation.

2015 had the highest number of men screened, as seen in table 3, with 866 cases, with 396(45.73%) men having normal PSAS range (0-4) ng per ml and 320(36.96%) recording PSA greater than 10ng per ml.

Thus, from the study, it is found that there was an increased incidence of men at risk of cancer of the prostate; hence the need for screening to detect those at high risk of prostate cancer to reduce morbidity and mortality in our environment further.

S/N	Year	Age Range	No. of Patients	Percentage
1.	2011	40-89	572	15.38%S
2.	2012	40-89	668	18.5%
3.	2013	40-89	768	20.65%
4.	2014	40-89	844	22.7%
5.	2015	40-89	866	23.24%

Table 1: Showing Number of Patients per Year

From the table above, it can be found that there is a steady increase in the number of patients who consented to PSA measurement.

S/N	Year	No. of Patients	Lower Urinary Tract Symptoms (Luts)	Lower Back Pain	Haematuria	Gross Weight Loss	Positive Family History
1.	2011	572	250 43.7%	200 34.9%	72 12.6%	35 6%	15 2.6%
2.	2012	668	298 44.6%	230 34.5%	80 11.9%	40 5.9%	20 2.9%
3.	2013	768	313 40.8%	255 33.2%	100 13%	65 8.4%	35 4.6%
4.	2014	844	400 47.4%	282 33.4%	70 8.3%	52 6.2%	40 4.7%
5.	2015	866	405 46.7%	290 33.4%	80 9.2%	60 6.9%	31 3.6%

Table 2: Showing Patterns of Clinical Presentations

From the table above, lower urinary tract symptoms were the most common presentations each year, followed closely by lower Back pains, and positive family history was the least indication each year.

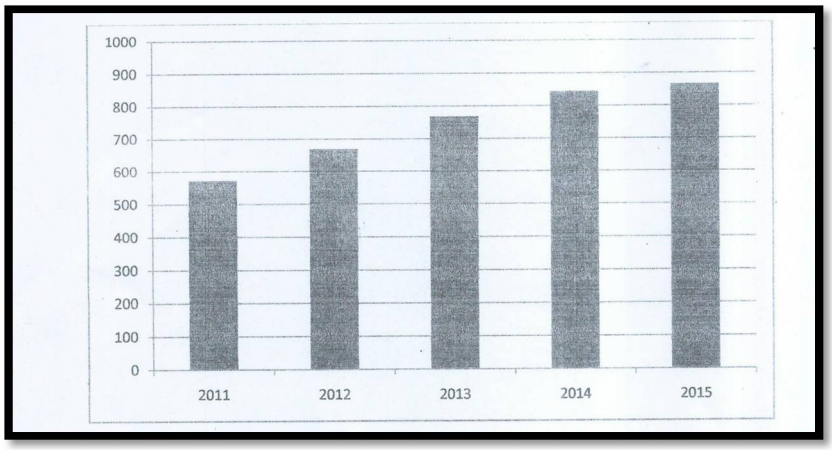

Figure 1: Illustrative Histogram 1

S/N	Months	0.4	4.1-10	10.1-20	20.1-50	50.1-100	>100ng Per ml	Total
1.	Jan/Feb	24	30	20	12	18	14	128
2.	March/April	80	22	12	10	4	10	136
3.	May/June	102	18	32	12	3	16	188
4.	July/August	66	26	16	8	4	8	130
5.	September/October	44	20	16	8	10	16	114
6.	November/ December	70	34	24	14	10	18	170
7.	Total	394	150	120	64	54	82	866

Table 3: Showing PSA Ranges and No. of Patients Every 2 Months in 2015

The table shows that those with a normal PSA range of 0-4ng per ml were 396 [45.73%], and those with an elevated PSA range above 4.1 but below 10ng per ml were 150 [17.32%]. Those with PSA above 10ng per ml were 320 [36.96%], and these were the ones subjected to further evaluation.

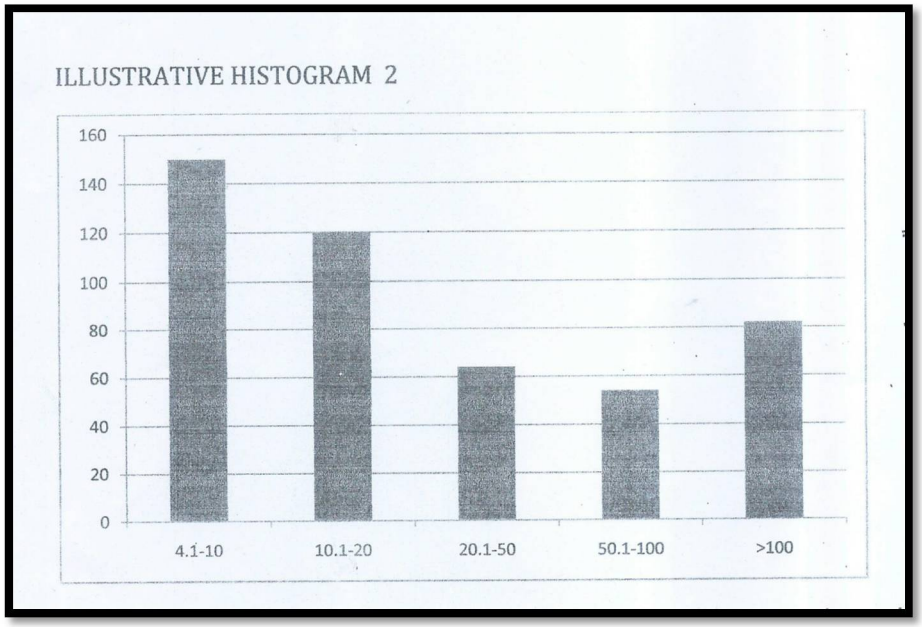

Figure 2: Illustrative Histogram 2

With PSA Values above 10ng per ml, patients had a digital rectal examination and prostate biopsy. However, in our study, not everyone with more than 10ng per ml of PSA accepted prostate biopsy after counseling.

However, positive biopsies correlated with high PSA levels for those who consented.

In some cases, a normal digital rectal examination came out with positive biopsies.

Those with inconclusive results like High-Grade PIN and a Typical small acinar proliferation had repeat biopsies after six months.

Age was not a strong point for PSA levels or biopsies as some men in their 50s and 60s had high PSA and positive biopsies, while some in their 70s had normal PSA and negative biopsies.

4. Discussion

PSA is a necessary screening tool for prostate cancer. However, there are controversies about using PSA as a screening tool for prostate cancer, especially where there are no symptoms.

The US preventive services Taskforce (USPSTF) recommends that adults between 55 and 69 years should discuss the pros and cons of PSA screening with their Physicians.

The American Society of Clinical Oncology (ASCO) recommends that people with no symptoms of prostate cancer and those who are expected to live below 10 years do not need PSA screening. However, those expected to live longer than 10 years should discuss with their physicians to know if the test is appropriate for them.

The American Urological Association and the American Cancer Society recommend that people be told the risks and benefits of testing before PSA screening to make informed decisions.

The National Comprehensive Cancer Network (NCCN) considers a patient's age, PSA Value, Digital rectal examination results, and other factors in recommendations.

The benefits of PSA screening include the following:

- Finding prostate cancers that are at high risk of spreading so that they can be treated before they spread. This can lower the chance of death in some men.
- Some men prefer to know their prostate cancer status.
- Some men never experience symptoms before a major complication of the disease, and only screening will prevent such catastrophic experience.
- Screening for prostate cancer is a major tool for creating awareness of the disease.

The Harmful effects of PSA screening arise from screening, diagnosis, and treatment, including the following:

From screening, False-positive results may be obtained. In addition, screening may detect indolent cancers which may never manifest in a patient's lifetime, and treatment given to such a patient may develop complications. This is called OVER DIAGNOSIS.

Harms from treatment include Urinary incontinence, erectile dysfunction, Bowel problems such as incontinence, etc.

It is a known fact that some cancers are indolent and slow-growing and that not all cancers need treatments, even as some treatments have side effects. However, PSA screening helps detect early-stage cancers, and early-stage prostate cancer is easier and amenable to curative therapies, whereas late-stage cancer is amenable only to palliative therapies.

It is also true that there may be false positive and false negative PSA results, and there may also be anxiety in those with high PSA results. However, PSA testing is simple, and knowing one's PSA status is better than not knowing until symptoms appear.

More so, the number of prostate cancer deaths has decreased with increased PSA Testing. However, prostate cancer awareness is low even among the educated population, which is why most patients are still seen at the advanced stage of the disease.

This is the importance of employing PSA testing, which creates awareness and helps early cancer detention.

Other workers have found out that awareness and PSA testing are low. A study by Ogundele et al. in a metropolitan setting in Nigeria had only 47% awareness, whereas a similar work, done in a rural setting in Ogun State, Nigeria, had 39.2% awareness.

In another work by Agbugui et al. in 2013, 71.6% of the respondents had heard about prostate cancer in a metropolitan setting in Nigeria, while only 22% were aware of PSA, and only 4.5% had undergone PSA testing.

A similar work by Uche et al. in Aba, South Eastern Nigeria, found that 77.8% of health workers had a good knowledge of PSA testing, but sadly, 71.1% had no previous PSA testing.

5. Conclusion

The use of PSA measurement among men attending surgical outpatient clinics in Abia Specialist hospital, Umuahia, between 2011 and 2015, caused an increased Prostate Cancer awareness and increased Prostate Cancer Screening.

Therefore, PSA Testing is a major source of awareness creation for Prostate Cancer and a veritable tool for detecting early-stage prostate cancer, which can result in late presentation, increased morbidity, and increased mortality.

6. References

i. Ikuerowo S. O., Omisango O.A, Esho J.O. (2013). Prevalence and characteristics of prostate cancer among participants of a community-based screening in Nigeria using serum prostate-specific antigen and digital rectal examination. Pan Afr Med J 15:129
ii. Ogundele S.O., Ikueworo S.O (2015). A survey of the awareness of prostate and its screening among men attending the outpatient clinics of a tertiary health centre in Lagos, NIGERIA. Niger J Surg 21:115-8
iii. Ododina F.T, Ogunbiyi J .O, Ukoli F.A, (2006). Roots of prostate cancer in Africa- America men. J Natl Med Assoc, 98, (4): 539-43.
iv. Ogunbiyi J.O., Shittu O.B (1999). Increased incidence of prostate cancer in Nigerian. J Natl Med Assoc, 91: 159-64.
v. Mohamed Maali Gumaa Mohamed and Suad Mohamed Alil (2015). Assessment of Knowledge, attitude, and practice of makes about prostate cancer, screening, and early detention in East Nile Locality, Khartoum Sudan. International Journal of Current Research vol 7, issue 12, 24311-24315.
vi. Delong champs N.B, Singh A, Haas G.P (2007). Epidemiology of prostate cancer in Africa: Another step in understanding the disease? Curr Probl Cancer, 31 (30, 226-36.
vii. Terwase J.M, Asuzu C.C. Mtsor J.A, (2014). Knowledge Attitude and Screening Behavior of Benue State University Male student towards prostate cancer Awareness. Intl J Cancer Clin Res I.I.
viii. Titilola O. Akinrem, I, Chidiebere N Ogo, Ayodeji O. Oluntunde (2011). Review of prostate cancer research in Nigeria. Infectous Agents and Cancer, 6 (Suppl 2):S8.
ix. Ukoli F. Osime U. Akereyeni F. Okunzuma O. Kittles R, Adams Campbell (2003). Prevalence of elevated seum prostate-specific antigen in rural Nigeria. Int J Urol 10:315-22.
x. Haas G.P, Sakr W: A (1997). Epidemiology of prostate cancer. CA Cancer J Clin: 47:273-87.
xi. Atulomah N.O, Motunrayo F.O, Ademola M.A, Omotoyosi A (2010). Level of Awareness, Perception and Screening Behavior regarding Prostate cancer among men in a Rural Community of Ikenne Local Government Area, Nigeria. Primary Prevention Insights2:11-20
xii. Asuzu C, Obeke G. Knowledge of prostate cancer among the male staff of the University of Ibadan, Nigeria. GHF Poster Presentation. Research Project.
xiii. Akinremi T.O, Adeniyi A, Oduniyi A, Ogo C.N. (2014). Need for the relevance of prostate cancer screening in Nigeria. Ecancermedical science.8:457.
xiv. Ajape A.A, Babata A, Abiola O.O. Knowledge of prostate cancer screening among native African urban population in Nigeria. Nig QJ Hosp Med 2010, 20:94-6
xv. Akinrewu T.O, Ogo C.N, Olutunde A.O (2011). Review of prostate cancer research in Nigeria. Infectious Agents and Cancer, 6(Suppl 2):58.
xvi. Akran H. Awadalla, Bader Eldien H, Elabid Abdelgader A Almugadam (2012). Evaluation of prostate Specific Antigen and Early Prostate cancer Antigen 2 as Diagnostic markers for prostate cancer among Sudanese with prostate enlargement. A study in Khartium State, Sudan. Sudanese Journal of Public Health vol 7 No. 2.
xvii. Rogers .A. Enemugwem, Beatrice. A. Eze, Atafaka Tobin
xviii. Prostate cancer screening: assessment of Knowledge and willingness to screen among men in Obio-Akpor LGA, Rivers State. Nigeria.
xix. African Journal of Urology 25 article number 11(2019).