Original Research Paper

General Surgery

A STUDY OF RISK FACTORS, PREDICTIVE OF ACUTE URINARY RETENTION IN BENIGN PROSTATE HYPERPLASIA PATIENTS

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ABSTRACT **Summary:** Benign prostate hyperplasia(BPH) is a very common problem that occurs among the elderly men. The commonest complication of it being acute urinary retention(AUR) which is one of the most problematic, painful and uncomfortable issues. The study aimed at assessing the risk factors associated with AUR in patients with BPH presenting in surgery OPD of TMMC &RC. **Subject And Methods:** This was an observational and cross sectional study design carried out on 65 patients of BPH with AUR from July 2021 to June 2022. **Result:** out of 65patients of BPH, mean age group of presentation of AUR is 61-70 years. Parameters such as smoking(46%,n=65),prostatitis(46.2%,n=65) and high IPSS score show an evident association in the occurrence of AUR. There was a major association found among smokers. **Conclusion:** the study conclusively shows that a lot many factors does play an important role in the patients of BPH for an event of AUR to occur. This study will be helpful for patient awareness and education as they can be pre-informed about the associated risks which will help in timely management and medication thus decreasing the complications.

KEYWORDS : benign prostate hyperplasia(BPH), acute urinary retention(AUR),prostatitis, IPSS scoring

INTRODUCTION

Benign Prostate Hyperplasia is considered to be the enlargement of the prostate in a benign way that takes place among individuals who are among 60 to 70 years of age.

The incidence of benign prostate hyperplasia also keeps on increasing with the increase of age and it reaches to 92.97% and 93.3%.[1],[2]

It is very important to carry out the treatment of benign prostate hyperplasia as when it is left as untreated the following complications arises:

1. Renal failure because of obstructive uropathy
2. Bladder stones
3. Degradation of the bladder function
4. Infections in urinary tract
5. Haematuria
6. Acute urinary retention
7. Urinary tract infection. [2]

The acute urinary retention can be defined as the sudden and instant inability of passing the urine and voiding the initiation for emptying the bladder. Mostly the issue in an unexpected manner and besides being inconvenient it is also painful. This inability also necessitates immediate decompression through the catheterization. [3,4,5]

Some more risk factors that gets added up with the acute urinary retention as followed[6,7]:

1. High levels PSA
2. Age of the patients
3. Larger size of the prostate
4. Having any previous history of acute urinary retention
5. High levels of residual urine
6. Intravesical prostatic protrusion.[8,9]

Statistics have shown that the reporting incidence of the acute urinary retention among the patients suffering from benign prostate hyperplasia usually very strong 24% to 42%.[10,11]

The following factors can promote acute urinary retention in the patients and they are as followed:

• Smoking
• Experiencing prostate inflammation. [12,13]
• High voidal volumes
• IPSS higher score
• High prostate size
• Etc..

The studies have also shown that the following effects were present in the quality of life of the cases experience in benign process hyperplasia and they are as followed[14,15]:

1. Having a compromised sense of the well being
2. Reduced level of mobility
3. Dealing with anxiety
4. Not having proper sleep
5. Interference with day to day activities
6. Interference with leisure activities.[16,17]

Multiple studies have been done which indicate different risk factors for the development of AUR in patients of BPH and still there is a need to closely assess these vivid parameters for better quality of life of BPH patients . [18,19]

Subject and Methods: This was a observational and cross sectional study design from July 2021 to June 2022 on 65 patients of BPH with AUR presenting to TMMC & RC.

Inclusion criteria: All the patients of BPH presenting with AUR in emergency room and general surgery OPD.

Statistical Analysis: All analysis was performed using SPSS version 20. Mean and standard deviation were calculated for quantitative data and frequency & percentages were calculated for qualitative data. The Chi-square test or Fixer Exact Test were used to find the association between categorical variables and to compare the Mean we use Independent T-test. The level of significance was considered as < 0.05 or 5%.

Result:
Table1: – Representation of frequency distribution of cases with respect to Age Interval.

Age Interval	No of cases	Percentage
≤50 Year	8	12.3
51-60 Year	19	29.2
61-70 Year	34	52.3
>70 Year	4	6.2
Total	65	100.0

Table 1 shows the frequency distribution of Age interval, where 8 subjects were found in ≤50 Year i.e. 12.3%, 19 subjects were found in 51-60 Year i.e. 29.2%, 34 subjects were found in 61-70 Year i.e. 52.3% and 4 subjects were found in >70 Year i.e. 6.2%

Table2: – Representation of frequency distribution of cases with respect to PROSTATITIS.

PROSTATITIS	No of cases	Percentage

YES	30	46.2
NO	35	53.8
Total	65	100.0

Table 2 shows the distribution of PROSTATITIS in 30 patients(46.2%)

Table 3: - Representation of frequency distribution of cases with respect to H/O SMOKING. .

H/O SMOKING	No of cases	Percentage
YES	53	81.5
NO	12	18.5
Total	65	100.0

Table 3 shows the distribution of H/O SMOKING, where 53(81.5%) subjects were found to be smokers.

Table 4: - Represent the mean of the cases according to Variables with IPSS scoring.

Variables	N	Descriptive Statistics				
		Range	Minimum	Maximum	Mean	Std. Deviation
AGE	65	31	44	75	61.69	7.408
PVR VOLUME ON PREVIOUS USG (ml)	48	220	40	260	133.38	44.233
S. PSA LEVEL(ng/ml)	65	13.00	2.20	15.20	7.7225	2.73497
PROSTATE SIZE ON USG (cc)	65	45	30	75	49.18	9.411
IPSS SCORE	65	18	7	25	12.98	4.804

Table 4 shows the mean Variable, where the Mean Age was 61.69±7.408 in which maximum was 75 and minimum was 44, the Mean PVR VOLUME ON PREVIOUS USG (ml) was 133.38±44.233 in which maximum was 260 and minimum was 40, the Mean S. PSA LEVEL(ng/ml) was 7.7225±2.73497 in which maximum was 15.20 and minimum was 2.20, the Mean PROSTATE SIZE ON USG (cc) was 49.18±9.411 in which maximum was 75 and minimum was 30 and the Mean IPSS SCORE was 12.98±4.804 in which maximum was 25 and minimum was 7

DISCUSSION

From table 1 it can be assessed that total percentage of less than 50 years was 12.3%, for 51-60 age group was 29.2%, 61-70 age group was 52.3% and finally only 6.2% for subjects that were above the age group of 70 years. So, it can be said that the individuals among the age group of 61-70, will have to be a little more careful regarding their lifestyle and also opt for frequent prostate check ups, so that the whole situation can be kept under a close watch. This observation corresponds to the results not unlike (Inamura, et. al, 2020).[20]

It was also seen that patients with an event of prostatitis(46%,n=65) had a strong association in experiencing AUR.this association is also found in the literature amongst (Gambhir, et. al, 2020)[21]

The next table helps us associate about the strong history of smoking in precipitation of AUR event in BPH patients(46.2%,n=65) Smoking is still one of the prime causes leading to this medical condition. According to experts, nicotine in cigarettes has been proven to be one of the leading factors to rising DTH level in the prostate and also leading to increased sympathetic nervous system disfunction. This contributes highly to BPH and LUTS (Liu, et. al, 2019)[22]

As per the clinical study(Mathey,et. al, 2022)[23], it can be chances are much higher in the cases of smokers and researches tend to believe the earlier individuals quit smoking. Furthermore, (Kim, S.J, et. al, 2019)[24]studied around 81.5% subjects were discovered to be regular smokers and the rest 18.5% turned out to be non-smokers.

The next discussion pertains to identifying the mean of the cases according to the derivative. Among the age group of 65 the range was 31 with a minimum of 44 and a maximum of 75 and this calculated the mean to 61.69% and the standard deviation to 7.408%. Furthermore, the PVR volume on previous usages of USG (ml) where the value of N

was 48, the range was 220 with a minimum of 40 and a maximum of 260. Here the mean came out as 133.38 and the standard deviation was 44.23%. Next calculation was regarding S.PSA level, where the value of N was 65 and the range was 13. The minimum was 2.2 and the maximum was 15.20, with mean of 7.72 and a standard deviation of 2.74 (approx). The mean prostate size on USG (measured in CC) came to 49.18±9.411, where the maximum was 75 and te minimum was 30. Finally, the mean IPSS score was 12.98 (mean) and 2.74 (approx) was the standard deviation, where the minimum was 7 and the maximum was 25, within a range of 18 and the value of N was 65 (Venkatesan, et. al, 2020)[25] (Malde, 2021)[26]

CONCLUSION

This study conclusively shows that a lot many factors does play an important role in the patients of BPH for an event of AUR to occur. This study will be helpful for patient awareness and education as they can be pre-informed about the associated risks which will help in timely management and medication thus decreasing the complications.Based on all the risk factors included in the study we can conclude from the study that life style modifications , such as smoking cessation, keeping a check its inflammation if any and having low IPSS score can help the patients of BPHyperplasia to prevent an episode of AURetention (Billet and Windsor, 2019)[27].

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