



A PROSPECTIVE STUDY ON EFFECT OF VITAMIN D3 LEVEL ON BENIGN PROSTATIC HYPERPLASIA: OUR INSTITUTION EXPERIENCE

Urology

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ABSTRACT

Aim & Objectives: To study the effect of vitamin d3 level on benign prostatic hyperplasia patients in our institution. We also did the following parameters work up in the study population . Vitamin d3 level, prostate volume by TRUS, S.PSA, uroflowmetry and IPSS SCORE. **Materials and Methods:** We conducted prospective observational case study from October 2022 to August 2023 in 150 BPH cases in Department of Urology, Government Stanley medical college. Study population > 50 YEARS with LUTS divided into two groups with normal vitamin d3 and vitamin d3 deficient . Routine clinical examination , prostate USG, TRUS, laboratory tests were performed. Inclusion criteria: age > 50 years; LUTS symptoms Exclusion criteria: Nodular prostate, Elevated BPH, other malignancies, other causes for LUTS. **Results:** The mean age of the participants was 63 (50-77) years . GROUP I: 47 (31.4)% GROUP II: 103 (68.6%). The mean prostate volume was higher in group II: 44.7cc(31-65cc), the mean S PSA was higher in group II: 3.28ng/ml, IPSS score was higher in group II : 18 . **Conclusion:** The results of our study support the effect of vitamin d3 in reducing prostate volume , S PSA level, and BPH symptom improvement.

KEYWORDS

BPH: benign prostatic hyperplasia IPSS –international prostate symptom score, PSA- prostate specific antigen, TRUS – trans rectal ultrasound, LUTS – lower urinary tract symptoms

INTRODUCTION

Benign prostatic hyperplasia (BPH) is a most common cause of lower urinary tract symptoms (LUTS). BPH is prostate gland enlargement secondary to hyper proliferation of stromal and glandular cells with predominance of mesenchymal cells. Aging and the presence of androgens are necessary for the development of BPH, But the pathogenesis of BPH is still unresolved. Haghsheno et al reported that low vitamin d3 might be an important factor contributing to BPH development. In addition vitamin d deficiency (55%) is highly prevalent among adult men in the United States.

AIMS:

To study the effect of vitamin d3 level on BPH patients in our institution.

The following parameters are also noted in the study population

Prostate volume by TRUS

S.PSA,

IPSS score

uroflowmetry

vitamin d3 level

MATERIALS & METHODS:

Prospective observational study of 150 BPH patients conducted in department of urology, Government Stanley Medical College from October 2022 to August 2023 with Inclusion criteria: age > 50 years, LUTS, Exclusion criteria: nodular prostate, elevated PSA, other malignancy, other etiology for LUTS.

Statistical Analysis :

The data was entered in excel and analysed in STATA 16. Descriptive statistics was used to summarise the individual characteristics

RESULTS:

Group I : 40ng/ml (31-49ng/ml) Mean age was 63 years (50-77 years)

Total patients: 150

Group I (normal vit d3 level): 47 (31.4%)

Group II (vit d deficiency): 103 (68.6%)

Mean prostate volume

Group I: 28.4cc (16-44cc)

Group II: 44.7cc (31-65cc)

Mean IPSS score

Group I: 14 (9-19)

Group II: 18 (14-22)

Mean mean vit d level

Group 2: 23.2ng/ml (17-29ng/ml)

Table I: Distribution Of Various Parameters Between Two Groups In Study Population

Parameter	Normal VIT- D3 (n=47)	VIT-D3 Deficient (n=103)
Mean age (years)	64±13.1	62±11.8
Mean prostate volume(CC)	28.4±12.5	44.7±15.7
Mean PSA value (ng/ml)	2.55±1.32	3.28±0.52
Mean max flow rate (ml/sec)	10.4±3.9	8.3±3.6
Mean IPSS score	14±5	18±4
Mean VIT-D3 value (ng/ml)	40.3±9.7	23.2±6.5

DISCUSSION:

Inflammation and proliferation are the cause of benign prostatic hyperplasia. Delongchamps et al described vitamin d deficiency might increase prostate volume through inflammation. Firstly, prostate epithelial cells can produce the biologically more active 1,25-OH vitamin D3 from 25-OH vitamin D3. Also, normal and prostate cancer epithelial cells express vitamin D receptor. By binding to vitamin D receptor, vitamin d can increase cell differentiation, decrease cell proliferation and increase apoptosis. It is indicated that Bsm1 polymorphism in VDR (vitamin d receptor) gene plays a significant role in protection against BPH. In another study VDR agonist elocalcitol inhibits IL-8 dependent benign prostatic hyperplasia, stromal cell proliferation and inflammatory response by targeting the RhoA/Rho kinase and NF- κ B pathway. Bxl628, a VITAMIN d3 analog, was able to arrest prostate growth within 12 weeks in men aged > 50 years with prostate volume > 40ml.

CONCLUSION

The results of our study support the impact of vitamin d deficiency is associated with higher prostate volume, S.PSA, IPSS Score and lower

Q MAX compared to group with normal vitamin d levels. Vitamin d3 may be used as a therapeutic target for patients with BPH in future. Further subsequent longitudinal studies are necessary to determine the role of vitamin D3 on BPH in our population.

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