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ORIGINAL ARTICLE

Frequency of Cardiovascular Problems in Patients with Benign Prostate Enlargement

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ABSTRACT

Background: Males often suffer from the genitourinary disorder known as benign prostatic hyperplasia (BPH) also known as benign prostate enlargement (BPE). Various studies observed association between cardiac problems and benign prostate enlargement.

Objective: To find out frequency of cardiovascular problems in patients with benign prostate enlargement

Methodology: The current study was cross sectional carried out at the Urology Department, Fauji Foundation Hospital Peshawar Cantt. The study duration was twelve months from January 2021 to January 2022. All the collection of data was done by using pre-designed Performa. A consultant cardiologist assessed all the enrolled patients for the cardiovascular problems. All the data analysis was done by SPSS version 23.

Results: In the current study, the frequency of hypertension was 28 (23.33%) patients. Out of 28 hypertensive patients, cardiovascular problems were observed in 13 (46.43%) patients. Decreased ejection fraction was observed in 4 (30.77%) patients, left ventricular hypertrophy in 3 (23.08%), left ventricular failure in 2 (15.38%), ischemic heart disease in 3 (23.08%) and non- significant ECG change was observed in only 1 (7.69%) patient.

Conclusion: Our study concludes that the frequency of hypertension and cardiovascular problems are high in patients with benign prostate enlargement. To avoid unintended cardiovascular events, such individuals should be thoroughly evaluated.

Keywords: Cardiovascular problems; Benign prostate enlargement; Morbidity

INTRODUCTION

Males often suffer from the genitourinary disorder known as benign prostatic hyperplasia (BPH) also known as benign prostate enlargement (BPE). Lower urinary tract symptoms (LUTS) and blockage of the bladder outlet are frequent complications of BPH, which is defined by a non-malignant increase in the size of the prostate gland [1]. It seems to be reliant on androgen due to the fact that it does not develop in males who are castrated before adolescence and it does not advance as fast in males who use anti-androgens [2, 3]. BPH itself may be regarded as a kind of asymptomatic inflammatory prostatitis, with a wide range of potential causes and paths for its etiology. The immune system may become sensitive and autoimmune reactions may begin as a result of the release of prostatic self-antigens after tissue injury [4]. The enlarged prostate is the most frequent cause of LUTS in older males. Their frequency rises with age, reaching 50% at age 60 years and 90% at age 80 years [5]. Currently, more ageing males suffer with LUTS owing to an increase in total life expectancy [6]. The development and progression of LUTS related to enlarged prostate may be influenced by a disordered lipid profile, diabetes mellitus, and metabolic syndrome. These conditions may produce inflammatory mediators [7]. Another research revealed that the most significant risk factors for developing metabolic syndrome, which results in an enlarged prostate, are obesity, an abnormal lipid profile, and old age [8]. Additionally, it should be emphasized that individuals with LUTS brought on by an enlarged prostate often have cardiovascular conditions such as hypertension, angina, a reduced ejection fraction, and alterations in electrocardiography [9]. According to recommendations made by the European Association of Urology, these individuals should have their histories of myocardial infarction, hypertension, drug use, way of life, recent history of stroke and CAD (coronary artery disease) carefully examined before having surgery [8, 9]. Despite the fact that these illnesses are distinct, they have a shared route of risk with advancing age [10, 11]. According to studies from both the United States and the United Kingdom, between 55% and 70% of people over 60 have high blood pressure [11]. Additionally, it is well recognized that people with an enlarged prostate and hypertension are undiagnosed [12, 13].

One of the most typical lower urinary tract symptoms is nocturia, which may lead to frequent awakenings, voiding episodes, weariness throughout the day, and a reduced level of overall well-being. This causes the sympathetic nervous system to become more active and may disrupt blood pressure rhythmicity, both of which raise the risk of cardiovascular diseases like myocardial infarction and angina pectoris [14].

Based on literature search, very limited data is available about the cardiac problems in patients of benign prostate enlargement. Therefore this study was carried out to determine the frequency of cardiovascular problems in patients with benign prostate enlargement.

MATERIALS AND METHODS

The current study was cross sectional carried out at the Urology Department, Fauji Foundation Hospital Peshawar Cantt. The study duration was twelve months from January 2021 to January 2022. The study approval was taken from the research and ethical committee of the hospital. A total of 120 patients with benign prostate enlargement were included in the current study. The inclusion criteria for our study was all the patients of benign prostate enlargement having age ranged from 45-80 years having problems like cardiovascular pathology and hypertension and willing to participate in our study. The exclusion criteria for our study were all the patients with active urinary tract infection, prostate cancer, chronic kidney failure, diabetes and patients not willing to participate in our study. All the collection of data was done by using pre-designed Performa. The data includes symptoms of benign prostate enlargement such as frequency, weak stream, intermittency and urgency, straining during voiding and incomplete emptying of urinary bladder. Data of history of symptoms of > 6 months, history of urinary retention and failure of treatment for the management of benign prostate enlargement was

also recorded. A consultant cardiologist assessed all the enrolled patients for the cardiovascular problems like hypertension and others. Patients were classified as having hypertension if their blood pressure was consistently higher than 140/90 mm Hg for more than two visits. The resident employed a proforma to record their observations of the patient; the proforma contained demographic information such as the patient's age, duration of symptoms, and Hypertension. All the data entry was done in SPSS version 23 and then analyzed by the same software.

RESULTS

Totally 120 patients with benign prostate enlargement were enrolled in the current study. In the current study age was ranged from 49 to 78. The frequency of hypertension in our study was 28 (23.33%) patients out of 120. (Figure 1) The blood pressure of these 28 patients was > 140 – 90 mmHg and the maximum observed blood pressure was 190 – 120 mmHg. Out of 28 hypertensive patients, cardiovascular problems were observed in 13 (46.43%) patients. Decreased ejection fraction was observed in 4 (30.77%) patients, left ventricular hypertrophy in 3 (23.08%), left ventricular failure in 2 (15.38%), ischemic heart disease in 3 (23.08%) and non- significant ECG change was observed in only 1 (7.69%) patient. (Figure 2) Out of 13 patients with cardiovascular problems, 9 (69.23%) were managed with surgery while in 3 (30.77%) patients, surgery was not done due to very low ejection fraction of <20%. (Figure 3)

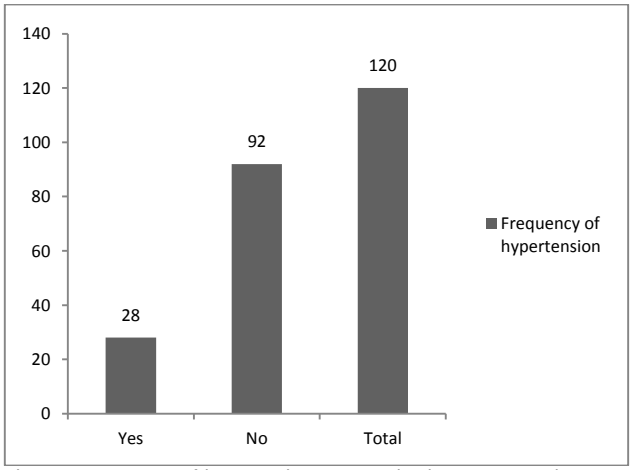

Figure 1: Frequency of hypertension amongst benign prostate enlargement patients

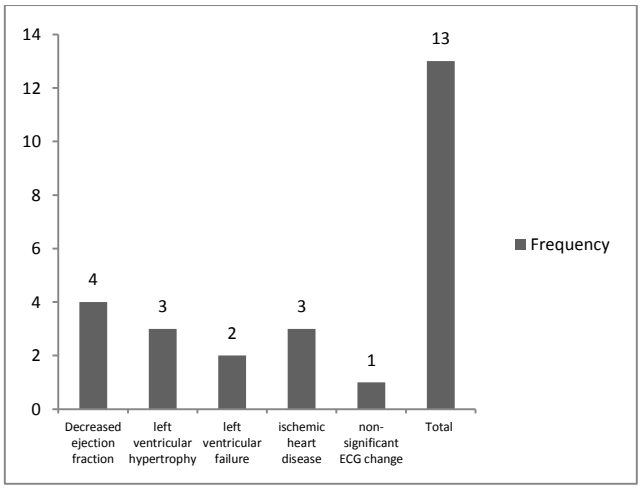

Figure 2: Frequency of cardiovascular problems among hypertensive patients

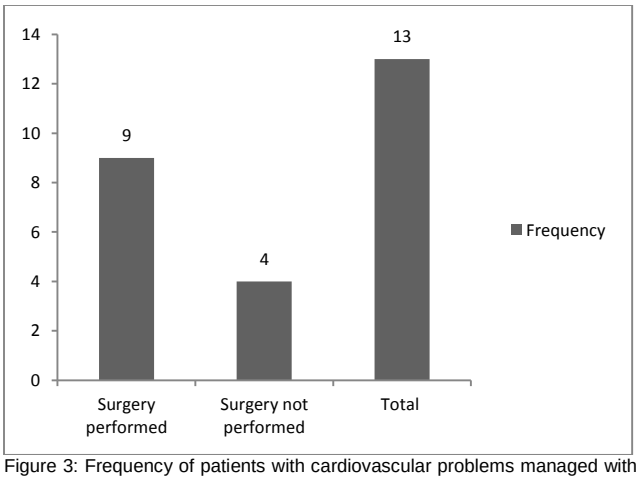

Figure 3: Frequency of patients with cardiovascular problems managed with surgery

DISCUSSION

Estrogen reduces the risk of coronary artery disease in women both before and after menopause; however, one study questioned the usefulness of oral estrogen for the secondary prevention of CAD in postmenopausal women owing to the increased risk of early thromboembolic events [15-17]. Instead of changes in serum lipids, the long-term beneficial impact of estrogen is mostly due to its direct actions on target vascular tissues [18]. Atherosclerosis is more likely to affect males than women. Several studies looked at how androgens affected serum lipids [19]. Since many cardiac incidents happen in people with little to no rise in blood lipids, a comprehensive explanation for the higher risk in males has yet to be established [20].

In our study, the frequency of hypertension in our study was 28 (23.33%) patients out of 120. Out of 28 hypertensive patients, cardiovascular problems were observed in 13 (46.43%) patients. Decreased ejection fraction was observed in 4 (30.77%) patients, left ventricular hypertrophy in 3 (23.08%), left ventricular failure in 2 (15.38%), ischemic heart disease in 3 (23.08%) and non-significant ECG change was observed in only 1 (7.69%) patient. A previous study carried out by Bouwman et al. reported comparable results to our study. They reported that the frequency of cardiac problems in 30% patients of benign prostate enlargement while reported 12% prevalence of cardiac problems in patients with no enlarged prostate [12].

In a previous research conducted by Bruno and Summers on a group of fifty patients with an average age of 73.53 years, out of the fifty patients, 27 (54%) died unexpectedly, including 12 from myocardial infarction and 3 from arteriosclerosis [13]. He observed that the glands of the 30% of individuals who died from ischemic heart disease were larger as compared to other patients. This was a significant finding according to the statistics (p 0.001) [13]. This is similar to our research; however Bruno and Summers' study was retrospective, with findings observed after deaths and included diabetes mellitus as a risk factor, whereas our investigation was prospective in patients who were still living, with the limitation that we did not mention diabetes mellitus [13]. Weisman et al. reported similar results in participants aged 65-80 years (average age of cases 72.2 years SD 4.2 and control 71.6 years, SD 5.1), and they observed that the prevalence of coronary artery disease was 29 % in patients and 9 % in controls, correspondingly [21]. In another research by Berger et al., it was shown that prostatic volume was greater (39 cc) in patients with coronary artery disease than controls (24 cc) in 23 coronary artery disease participants and 31 normal controls [22]. The two studies' findings are similar to our results however one limitation of our investigation is that we did not assess prostate size in relation to an elevated risk of cardiovascular co-morbidity. Increased prostate volume and prostatic specific antigen are linked to an increased frequency of

cardiovascular symptoms, according to Inci et al [23]. Both of these factors are absent from our analysis. But it is clear from all of the debate that an enlarged prostate is strongly associated with cardiovascular co-morbidity. To lower morbidity and mortality in individuals with an enlarged prostate related to cardiovascular risk factors, more research should be done to determine its origin and promptly treat or manage it.

CONCLUSION

Our study concludes that the frequency of hypertension and cardiovascular problems are high in patients with benign prostate enlargement. To avoid unintended cardiovascular events, such individuals should be thoroughly evaluated.

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