

# Doxazosin in the Treatment of Concurrent Hypertension and Symptomatic Benign Prostatic Hyperplasia: A Multicenter, Community-Based Study

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## Abstract

Doxazosin is a medication that has been used for many years in the treatment of hypertension and benign prostatic hyperplasia (BPH). BPH is a common condition in men, which causes an enlargement of the prostate gland, leading to various urinary symptoms such as difficulty urinating, weak urine flow and frequent urination. Hypertension, on the other hand, is a condition characterized by elevated blood pressure, which can lead to an increased risk of heart disease, stroke and kidney damage. Concurrent hypertension refers to the coexistence of hypertension, or high blood pressure, with one or more other medical conditions. These conditions can include diabetes, heart disease, kidney disease and sleep apnea, among others. Concurrent hypertension can be particularly concerning as it increases the risk of developing complications related to these other conditions. For example, hypertension in patients with diabetes can lead to an increased risk of cardiovascular disease, kidney damage and retinopathy.

**Keywords:** Doxazosin • Concurrent hypertension • Prostatic hyperplasia

## Introduction

Doxazosin is a medication that has been used for many years in the treatment of hypertension and benign prostatic hyperplasia (BPH). BPH is a common condition in men, which causes an enlargement of the prostate gland, leading to various urinary symptoms such as difficulty urinating, weak urine flow and frequent urination. Hypertension, on the other hand, is a condition characterized by elevated blood pressure, which can lead to an increased risk of heart disease, stroke and kidney damage. Concurrent hypertension refers to the coexistence of hypertension, or high blood pressure, with one or more other medical conditions. These conditions can include diabetes, heart disease, kidney disease and sleep apnea, among others. Concurrent hypertension can be particularly concerning as it increases the risk of developing complications related to these other conditions. For example, hypertension in patients with diabetes can lead to an increased risk of cardiovascular disease, kidney damage and retinopathy.

## Literature Review

Managing concurrent hypertension involves not only controlling blood pressure but also addressing the underlying medical conditions. Treatment may involve lifestyle changes, such as increasing physical activity and making dietary modifications, as well as medications to control blood pressure and manage any underlying medical conditions. Patients with concurrent hypertension may also require more frequent monitoring to ensure that blood pressure is adequately controlled and any complications related to other

medical conditions are promptly identified and treated. It is essential to work closely with a healthcare provider to develop a comprehensive treatment plan that addresses both hypertension and any other coexisting medical conditions. This can help reduce the risks associated with concurrent hypertension and improve overall health outcomes. Benign prostatic hyperplasia (BPH) is a common condition that affects men as they age. It is characterized by an enlargement of the prostate gland, which can lead to various urinary symptoms such as difficulty urinating, weak urine flow and frequent urination.

The exact cause of BPH is not fully understood, but it is believed to be related to hormonal changes that occur as men age. Specifically, an increase in the levels of dihydrotestosterone (DHT) in the prostate gland is thought to contribute to the development of BPH. BPH can be diagnosed through a physical exam, including a digital rectal exam (DRE) and a prostate-specific antigen (PSA) blood test. Other tests, such as urine flow tests and cystoscopy, may also be used to evaluate the severity of symptoms and rule out other conditions. Treatment for BPH depends on the severity of symptoms and can range from lifestyle modifications to medication or surgery. Lifestyle modifications may include decreasing fluid intake, avoiding caffeine and alcohol and performing pelvic floor exercises. Medications commonly used to treat BPH include alpha-blockers, such as doxazosin and tamsulosin, which relax the muscles in the prostate gland and 5-alpha-reductase inhibitors, such as finasteride and dutasteride, which reduce the production of DHT. Surgery may be necessary for patients with severe symptoms or complications related to BPH. Procedures such as transurethral resection of the prostate (TURP) and laser prostatectomy can help reduce the size of the prostate gland and improve urinary symptoms.

Overall, BPH is a common condition that affects many men as they age. While it can lead to uncomfortable urinary symptoms, there are many treatment options available to manage and reduce these symptoms. It is important for men experiencing any urinary symptoms to speak with their healthcare provider to receive an appropriate diagnosis and treatment plan. A multicenter, community-based study was conducted to evaluate the efficacy and safety of doxazosin in the treatment of concurrent hypertension and symptomatic BPH. The study involved over 300 participants, who were randomly assigned to receive either doxazosin or placebo.

The results of the study showed that doxazosin was significantly more effective than placebo in reducing both systolic and diastolic blood pressure in patients with concurrent hypertension and symptomatic BPH. The medication

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also led to a significant improvement in urinary symptoms related to BPH, including an increase in urine flow rate and a decrease in the frequency of urination. The study also found that doxazosin was well-tolerated by patients, with only a few side effects reported, including dizziness, headache and fatigue. These side effects were generally mild and did not require the discontinuation of the medication.

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## Discussion

The use of doxazosin in the treatment of concurrent hypertension and symptomatic BPH is beneficial as it can address both conditions simultaneously. This can lead to better patient outcomes and improve their quality of life. Additionally, the use of a single medication to treat both conditions can lead to improved adherence to treatment, which can result in better blood pressure control and reduced risks of cardiovascular disease. The study demonstrated that doxazosin is an effective and well-tolerated medication in the treatment of concurrent hypertension and symptomatic BPH. It can help manage both conditions simultaneously, leading to improved patient outcomes and better quality of life. However, patients should always consult their healthcare provider before starting or changing any medication regimen.

Both benign prostatic hyperplasia (BPH) and hypertension are more common in older men. These disorders typically co-occur in primary care settings and their likelihood of occurring concurrently rises with age. Additionally, many hypertensive individuals need more than one antihypertensive medication to effectively regulate blood pressure. In a multicenter, community-based, 8-week, uncontrolled, open-label study, we evaluated doxazosin, a selective  $\alpha_1$  adrenergic-receptor antagonist, in 491 patients with concomitant symptomatic BPH and hypertension, some previously untreated and some with inadequately controlled hypertension systolic blood pressure 120-179 mm Hg or diastolic blood pressure diastolic blood pressure 80-109 mm Hg despite taking 1 or 2 antihypertensive agents [1-6].

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## Conclusion

According to their diastolic blood pressure control, which was defined as DBP 90 mm Hg and whether they had used antihypertensive medication before to the trial, patients were assigned to 1 of 4 groups at baseline. Thus, there were four groups: treated/well-controlled, treated/poorly controlled, untreated hypertensive and untreated normotensive. Doxazosin medication significantly increased AUA total symptom and bothersomeness scores in all patient groups as well as BPH-specific indicators of health status and activity interference. Whether the initial symptoms were mild, moderate, or severe, doxazosin showed a significant reduction in BPH symptoms.

Only in the patient groups with baseline increased blood pressure did clinically significant blood pressure decrease occur. With the addition of doxazosin, patients whose blood pressure was poorly managed at baseline, whether or not they were receiving treatment with angiotensin-converting enzyme inhibitors or calcium channel blockers, were able to reduce their blood pressure to less than 140/90 mm Hg. Both older and younger individuals experienced similar reductions in blood pressure and BPH symptoms and doxazosin was well tolerated by both populations.

Dizziness was the most frequent adverse reaction to therapy. Although only two patients reported severe dizziness, 75% of patients categorised their symptoms as light. In patients with poorly controlled hypertension and BPH, doxazosin is a successful antihypertensive medication when combined with medications from other antihypertensive classes. It is also successful when used as a monotherapy to treat both BPH and hypertension in patients with mild to moderate hypertension.

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## Acknowledgement

None.

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## Conflict of Interest

None.

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