



Effect of Losartan in Reducing Microalbuminuria on Hypertensive Patient

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Abstract

This study aimed to assess the effect of Losartan in reducing microalbuminuria in hypertensive patients. The research was conducted on 36 diagnosed hypertensive patients with microalbuminuria, aged between 40 to 60 years, from outpatient clinics in the Rajshahi and Kushtia districts of Bangladesh, between July 2023 and June 2024. Baseline microalbuminuria levels were measured, and participants were administered 50 mg of Losartan daily for six weeks. After six weeks, a follow-up assessment was performed. Prior to treatment, the urinary albumin level was $\mu \pm \text{SEM} = 100 \pm 0.37$, and following Losartan therapy, it decreased to $\mu \pm \text{SEM} = 77 \pm 0.53$. The results indicated a significant reduction in microalbuminuria after Losartan treatment.

Keywords: Losartan, Microalbuminuria, Hypertensive Patients

Introduction

Losartan, an angiotensin receptor blocker (ARB), was patented in 1986¹ and approved for medical use in the United States in 1995. It is primarily prescribed for managing hypertension, but it is also effective in treating diabetic kidney disease, heart failure, and left ventricular hypertrophy. Hypertension is often linked to endothelial dysfunction and elevated cardiovascular risk. Furthermore, hypertension frequently coincides with microalbuminuria, a crucial marker of kidney function.

Microalbuminuria is characterized by albumin excretion levels between 30 and 300 mg/24 hours, or concentrations in spot urine samples between 30 and 300 mg/L². It serves as an important indicator of cardiovascular risk^{3,4}, with studies suggesting a relationship between high urinary albumin excretion and left ventricular hypertrophy⁵. The antihypertensive effects of Losartan are well-documented, with fewer adverse effects compared to ACE inhibitors⁶, and its potential to reduce microalbuminuria could benefit hypertensive patients significantly.

Objectives: The primary objectives of this study were to evaluate the safety, efficacy, and potential adverse effects of Losartan in reducing microalbuminuria in hypertensive patients.

Significance: The significance of this article lies in its exploration of losartan's efficacy in reducing microalbuminuria in hypertensive patients, a critical factor in preventing kidney damage and cardiovascular complications. By analyzing losartan's role in improving renal function, this study contributes to the growing body of evidence supporting angiotensin II receptor blockers (ARBs) in hypertension management. The findings have important clinical implications for early intervention, guiding physicians in

optimizing treatment strategies for patients at risk of chronic kidney disease. This research underscores the necessity of targeted antihypertensive therapy in reducing renal complications and improving long-term health outcomes.

Materials and Methods: The study was conducted in outpatient clinics in Rajshahi and Kushtia districts of Bangladesh from July 2023 to June 2024. A total of 36 hypertensive patients (both male and female), aged 40 to 60 years, with microalbuminuria were selected for the study. Patients with severe complications were excluded. After obtaining informed consent, a thorough medical history and physical examination were documented. Spot urine tests were conducted, and patients with microalbuminuria were

Table 1: Occupational Distribution of Patients (n=30)

Occupation	Percentage
Service Holder	50%
Businessman	20%
Housewife	20%
Others	10%

Table 2: Albuminuria Levels Before and After Losartan Therapy (n=30)

Before Losartan Therapy	After Losartan Therapy	P-Value
$\mu \pm \text{SEM} = 100 \pm 0.37$	$\mu \pm \text{SEM} = 77 \pm 0.53$	$P < 0.05$

Discussion: Several studies have demonstrated that microalbuminuria is a significant predictor of cardiovascular complications^{7,8}. Our study supports these findings, showing a reduction in albuminuria after Losartan therapy. Similar research has documented the positive effects of Losartan on microalbuminuria, particularly in diabetic patients^{9,10,11}. Notably, Losartan, as an ARB, is safer compared to ACE inhibitors and offers renoprotective benefits. The reduction in microalbuminuria observed in our hypertensive patient group further emphasizes its potential value in managing both hypertension and kidney function.

Conclusion: Microalbuminuria is an important marker of cardiovascular and renal health in hypertensive individuals. Losartan effectively reduces albuminuria without significant adverse effects, suggesting its therapeutic potential in managing hypertensive patients with microalbuminuria. Further studies with larger sample sizes are needed to confirm these findings and explore the broader clinical applications of Losartan in hypertension and kidney disease management.

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