

## Study of patterns of antihypertensive drugs prescriptions in Shalamar hospital

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### Abstract

**Background:** Hypertension has been managed according to several guidelines, which serve as reference standards. Conversely, countless physicians apply their own knowledge and do not follow the usual guidelines.

**Objective:** To assess the pattern of antihypertensive drugs prescribed at Shalamar tertiary care hospital.

**Methodology:** This cross study was conducted from January to August 2018 on 200 outdoor hypertensive patients with and without, diabetes mellitus and asthma. Information obtained from patients included age, sex, economical status, history of diabetes mellitus, asthma and number and classes of antihypertensive medications used. The data collected was analyzed statistically, by using SPSS version 20.

**Results:** It was observed that 38% of hypertensive patients on monotherapy were controlled by calcium channel blocker (CCB) while 28% by Angiotensin Receptor Blocker (ARB), 20% by Angiotensin Converting Enzyme Inhibitor (ACEI) and 14% by beta blockers and 78% of Hypertensive patients on polytherapy were prescribed combination of CCB+ARB while 18% ARB+D (diuretics) and 4% CCB+ARB+D. In diabetes group, 32% of hypertensive patients with diabetes mellitus were prescribed CCB while 30% CCB+ARB, and 6% beta blockers. In asthma Group 56% of hypertensive with asthma was treated with CCB, 22% with ARB, 9% with CCB+ARB, 9% with ARB+D and 4% with ACE inhibitors. The most commonly prescribed drugs were amlodipine, lisinopril, losartan, valsartan, and hydrochlorothiazide.

**Conclusion:** The prescribing pattern for treatment of hypertension alone and with diabetes mellitus or asthma, in Shalamar tertiary care hospital Lahore, was found as per JNC8 and NICE guide lines. Primary care physicians can control their hypertensive patients with drugs mentioned above alone or in combinations with confidence.

**Key words:** Hypertension, Antihypertensives, guidelines, Diabetes, Asthma

### Introduction

Hypertension is the commonest cardiovascular illness and its proper management substantially reduces morbidity and mortality rates.<sup>1</sup> It is of course an important public health concern. Scientific and clinical evidence clearly shows that controlling blood pressure (BP) with suitable drugs lowers the risk of heart attacks, strokes, heart and renal failure in patients with hypertension.<sup>2</sup> By 2025, an estimated 1.56 billion persons will suffer from hypertension. The consistently rising trend in the frequency of hypertension and the huge amount of money involved in treatment leads to manipulation in prescribing patterns of much doctors.<sup>3</sup> Controlling blood pressure greatly improves the prognosis of patients with hypertension.<sup>4</sup> Moreover, Hypertension has been managed according to several guidelines which serve as reference standards

It is a well-known fact that treatment strategies of hypertension have wide variations in many countries. The initial drug of choice for

hypertension has changed from diuretic to Angiotensin Converting Enzyme Inhibitor (ACEI)/ Angiotensin Receptor Blocker (ARB)/ calcium channel blocker (CCB). Most of the doctors today prefer low dose combination single pill therapy instead of monotherapy.<sup>5</sup> According to the recent guidelines by the Joint National Commission (JNC8 guidelines) both calcium channel blockers as well as Angiotensin-converting enzyme inhibitors are recommend as first-line agents, along with diuretics.<sup>6</sup> Most of the clinicians now keep a record of their own prescribing pattern in treating patients with hypertension according to socioeconomic conditions of patients and their clinical experience. A critical review of such records of prescribing practices of physicians and their adherence to the standard guideline such as JNC 8 may yield very useful results.

The objective of this was to study the prescribing pattern of drugs used in the management of patients suffering from hypertension alone and hypertension with diabetes mellitus or asthma in Shalamar tertiary care hospital.

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## Methodology

An observational, cross sectional study was conducted from January to August 2018, among outdoor patients in Shalamar hospital Lahore. The patients of ages (20-80 yrs) and of both sexes were selected from medical outdoor clinics and indoor wards of Shalamar hospital Lahore. Comprehensive questionnaire was developed to find out socio-demographic data and prescribed drugs alone or in combinations, for hypertensive patients of following groups;

Group A- 50 patients of hypertension (receiving monotherapy).

Group B- 50 patient of hypertension (receiving polytherapy)

Group C-50 hypertensive patients with diabetes mellitus

Group D- 50 hypertensive patients with asthma

However hypertensive patients of complications like acute stroke, recent MI, advanced heart and kidney failure were excluded. Formal consent was taken from patients for interview and collection of data. The study was approved by IRB of Shalamar Medical and Dental College. The data was entered and analyzed by using SPSS version 20.

## Results

### Group A (Hypertensive patients receiving monotherapy)

It was found that 64% patients were females and 36% were males while 58% of patients were between 41-60 years of age, 30% were between 61-75% years, 6% were between 25-40 years and 6% were above 76 years. Most of the patients were belonging to middle class (64%) economically 20% were rich and 16% were belonging to low economical status.. 32% reported of cases were fresh while 68% of cases were old (already taking medicine). Majority of patients (38%) were prescribed CCB (amlodipine, diltiazim), 28% were prescribed ARBs (losartan, valsartan etc.), 20% were given ACEI (lisinopril, captopril) and 14% of patients were prescribed beta blockers (atenolol, bisoprolol, navibunolol, and propranolol). (Figure I)

### Group B (Hypertensive patients receiving polytherapy)

It was found that 64% patients were females and 36% were males while 58% of patients were between 41-60 years of age and 30% were

between 61-75 years 8% were between 25-40 years and 4% were above 76 years. Most of the patients were belonging to middle class (64%) economically, 16% were rich and 20% were belonging to low economical status and 24% of reported cases were fresh while 76% of cases were old (already taking medicine). Majority of patients (78%) were prescribed combination of calcium channel blockers and angiotension receptor blockers (CCB+ARB) Amlodipine+losartan/valsartan, 18% of patients were given combination of ARB+D (losartan+hydrochlorothiazide). Combination of CCB+ARB+D (amlodipine+valsartan+hydrochlorothiazide) was prescribed to 4% and CCB+BB (amlodipine+labetalol or bisoprolol) to 4% of patients and diuretics to 2% of patients. (Figure II) 64% of patients were satisfied with drug treatment while 36% patients were not satisfied.

### Group C (Hypertensive patients with diabetes mellitus)

It was found that 56% of patients were female and 44% were males. 64% patients were 41-60 years old while 32% were between 61-75 years and 4% were above 76 years. 68% of patients were belonging to middle class economically, 20% were rich and 12% were belonging to low economical status. 90% of reported cases were old while only 10% of cases were registered first time. On analysis of prescription it was found that 32% patients were prescribed CCB (amlodipine), 30% of patients were given CCB+ARB (amlodipine+valsartan), while 12% of patients were controlled by ARBs (losartan) and 10% by ACEI (lisinopril). 6% of patients were prescribed beta blockers (metoprolol, atenolol, bisoprolol) 6% of patients were given combination of ARB+D (losartan + hydrochlorothiazide) and 4% patients required combination of three drugs CCB+ARB+D (amlodipine/losartan/hydrochlorothiazide). (Figure III)

### Group D (Hypertensive patients with Asthma)

It was observed that 55% of patients in this group were female and 45% were male. 60% of patients were between age of 41-60 years, while 31% were between 61-75 years old and 9% were above 75 years. Majority of patients (98%) were belonging to middle class economically and 2% were belonging to low economical status. It was observed that 56% of patients were controlled only with CCB (amlodipine), 22% of patients were controlled by

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study. Moreover it is reported that First-line high-dose thiazides and beta blockers are inferior to first-line low-dose thiazides.<sup>15</sup>

## Conclusion

The prescribing pattern for treatment of hypertension alone and with diabetes mellitus or asthma, in Shalamar tertiary care hospital Lahore, was found as per JNC8 and NICE guide lines. Primary care physicians can prescribe their hypertensive patients with drugs mentioned above alone or in combinations with confidence.

**Authors Contribution:** **AK:** Conception of work, Acquisition of data, drafting, revising and final approval. **MR:** Interpretation of data, drafting and final approval. **ASAB:** Acquisition & analysis of data, revising, drafting and final approval. **MAS:** Acquisition of data, revising and final Approval. **QA:** Design of work, drafting and final approval. **SA:** Design of work, revising and final Approval.

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