

## Prescribing Pattern of Antihypertensive Medications at Outpatient Department of Medicine in a Medical College Hospital of Dhaka city

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### Abstract

**Background:** Hypertension is a global problem which endangers an individual for cardiovascular and cerebrovascular mortality, morbidity as well as renal decompensation. Irrationality in treating hypertension is creating physical and economic burden. To facilitate the rational use of drugs it is important to assess the prescription patterns over time. **Objective:** To evaluate the prescribing pattern of anti-hypertensive medication at outpatient department of Medicine in a medical college hospital of Dhaka city. **Materials and Methods:** A cross sectional study was carried out at the OPD of medicine in a medical college hospital of Dhaka city to approach the prescribing pattern of antihypertensive medications during the period of June 2022 to August 2022. **Results:** In the present study, 48.3% patients receive monotherapy while 51.6% receive combination therapy; calcium channel blockers were most commonly prescribed, similarly angiotensin receptor blocker + calcium channel blocker were most frequently used combination therapy. **Conclusion:** In the study it was found that calcium channel blockers and angiotensin receptor blockers were the most commonly prescribed antihypertensive drugs as monotherapy and combination therapy.

**Keywords:** Anti-hypertensive, Angiotensin receptor blocker, Calcium channel blocker.

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### Introduction

Hypertension is a long term medical condition without producing any overt sign symptoms which endanger an individual for cerebrovascular and cardiovascular mortality and morbidity as well as renal decompensation. Hypertension is diagnosed when there is sustained elevation of systolic blood pressure  $\geq 140$  mm-Hg accompanied by diastolic blood pressure  $\geq 90$  mm-Hg. According to International Society of Hypertension blood pressure is classified into 4 categories that is normal ( $<130/85$

mm-Hg), high-normal (130-139/85-89 mm-Hg), grade1 (140-159/90-99 mm-Hg) and grade2 ( $\geq 160/100$  mm-Hg).<sup>1</sup> The risk of cardiovascular events among hypertensive patients varies greatly depending on the number of co-existing risk factors. Among individuals with hypertension 40% of the coronary events in men and 68% of the coronary events in women observed.<sup>2</sup> It was found that 13% of men and 20% of women presented with isolated hypertension.<sup>3</sup> Updated treatment of hypertension with monotherapy and combination therapy is interchanging time to time according to Joint National Committee I to VII guideline.<sup>4</sup>

### Materials and methods

A cross sectional study was conducted in Medicine department of Ad-din Women's Medical College Hospital Dhaka from 01.06.22 to 31.08.22 to approach the antihypertensive prescribing pattern. Total number of hypertensive patient was 89. Among them 49 were male and 40 were female. The age group of the patient; 17 were  $<40$  year, 27 were  $<41-49$  year, and 45 were  $>65$  year.

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Regarding comorbidity 21 having concomitant disease while 68 without any other comorbidity.

## Results

During the study total number of sample was 89 in which 49 (55%) were male and 40 (45%) were female. 43 patient were treated with monotherapy (Table-1), on the other hand 46 were treated with combination therapy. As monotherapy Calcium Channel Blocker (28%) was the most commonly prescribed drug, second most common antihypertensive was Angiotensin Receptor Blocker (22%) followed by Angiotensinogen Converting Enzyme Inhibitor (13%) as monotherapy. As combination therapy 5 (5.6%) were treated with Calcium Channel Blocker + beta blocker, 6 (6.7%) treated with Angiotensin Receptor Blocker + Calcium Channel Blocker. Similarly 4 (4.4%) patient treated with combination of diuretics + Calcium Channel Blocker, while 3(3.3%) were treated with Angiotensin Receptor Blocker + beta blocker. Meanwhile combination of alpha blocker+ beta blocker and alpha blocker + Calcium Channel Blocker was not prescribed (Table-2). In this study, mild to moderate hypertensive patient were treated mostly with

**Table: I Characteristics of the Study Sample (n=89)**

Variables	Number	Percentages (%)
Male	49	55
Female	40	45
<b>Age group</b>		
<40 Years	17	19.1
41-49 Years	27	30.3
>60 Years	45	50.6
Antihypertensive monotherapy	43	48.3
Antihypertensive combination therapy	46	51.6
Comorbidities (Present)	21	23.6
Comorbidities (Absent)	68	76.4

monotherapy, and patient with moderate to severe hypertension and patient who have not controlled with single drug were treated with combination therapy (Table-3).

**Table: II Prescribing pattern of Anti-hypertensive medication**

Group of Anti-hypertensive	Number	Percentages (%)
Calcium Channel Blocker	25	28
Angiotensin Receptor Blocker	20	22
Angiotensinogen Converting Enzyme Inhibitor	12	13
Diuretics	07	7.8
Angiotensin Receptor Blocker + Calcium Channel Blocker	06	6.7%
Beta blocker	05	5.6%
Calcium Channel Blocker + Beta Blocker	05	5.6%
Diuretics+ Calcium Channel Blocker	04	4.5%
Angiotensin Receptor Blocker+ Beta blocker	02	3.3%
Alpha Blocker	01	3.3%
Alpha Blocker + Beta Blocker	00	0.0%
Alpha Blocker+Calcium Channel Blocker	00	0.0%

**Table: II Prescribing pattern of Anti-hypertensive medication**

Grade of Hypertension	Frequency of Mono/ Combination Therapy	Percentages (%)
Mild to Moderate Hypertension	Mono therapy =71	80
Moderate to Severe Hypertension	Combination Therapy=18	20

**Mild Hypertension:** Systolic: 140-159 mmHg and Diastolic: 90-99 mmHg, **Moderate Hypertension:** Systolic: 160-179 mmHg and Diastolic: 100-109 mmHg, **Severe Hypertension:** Systolic:  $\geq 180$  mmHg and Diastolic:  $\geq 110$  mmHg.

### Discussion:

In This study the antihypertensive user male patient prevalence was 55% and female patient prevalence was 45%. So male prevalence is more in comparison to female which match up with previous study done by Rajeev et al.<sup>5</sup> In present study combination therapy is most commonly prescribed. However it was observed that monotherapy is more common than combination therapy which correlates with the study done by Kuchake et al.<sup>6</sup> It is seen that patient who were not controlled with monotherapy is treated with combination therapy which result was better.<sup>7</sup> In this study as monotherapy agent Calcium Channel Blocker was most commonly used which correlates with the previous study done by Noahjarari et al.<sup>8</sup> and other antihypertensive agent as monotherapy is Angiotensin Receptor Blocker, Angiotensinogen Converting Enzyme Inhibitor, diuretics, beta blocker and alpha blocker. These agents are used according to presence or absence of comorbidities like diabetes, bronchial asthma, heart failure etc. Prescription oriented survey is considered to be one of the most effective methods to assess and evaluate the prescribing attitude of

physician.<sup>9</sup> Continuous supervision of systematic audit is necessary which provides feedback from the physician and helps promote rational use of drugs.<sup>10</sup>

### Conclusion

In the study it was found that calcium channel blockers and angiotensin receptor blockers were the most commonly prescribed antihypertensive drug as monotherapy and combination therapy. Large scale study with regular interval and institutional comparison is advocated of improvement of anti-hypertensive prescribing.

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