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CLINICAL DECISION-MAKING CRITERIA FOR SWITCHING OR COMBINING ANTIHYPERTENSIVE MEDICATIONS: A PHYSICIAN-BASED SURVEY

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Abstract

Background: Hypertension remains a leading modifiable risk factor for cardiovascular morbidity and mortality. Despite the availability of various classes of antihypertensive drugs, optimal blood pressure control remains elusive in many patients, necessitating decisions about switching or combining therapies.

Objective: This study aims to assess the criteria physicians use to switch or combine antihypertensive medications in routine clinical practice.

Methods: A cross-sectional, questionnaire-based survey was conducted among 250 practicing physicians across tertiary and secondary healthcare centers in Eastern India. The questionnaire explored clinical, patient-related, and drug-related factors influencing treatment modification.

Results: Poor blood pressure control (92%), adverse drug reactions (68%), patient non-adherence (55%), and comorbidities (46%) emerged as major criteria for switching drugs. Drug combinations were preferred when monotherapy failed, especially in patients with Stage 2 hypertension (78%) or high cardiovascular risk (65%).

Conclusion: The study highlights prevalent decision-making patterns and reinforces the need for clear guidelines to optimize antihypertensive therapy adjustments in diverse clinical contexts.

Keywords: Hypertension, Drug Switching, Combination Therapy, Physician Survey, Clinical Decision-Making

Introduction

Hypertension, often dubbed the "silent killer," remains one of the foremost contributors to the global burden of disease. The World Health Organization (WHO) estimates that over 1.28 billion adults worldwide suffer from elevated blood pressure, with only about 1 in 5 hypertensive patients achieving adequate control. Persistent suboptimal control of blood pressure despite the availability of multiple effective antihypertensive agents points to multifactorial barriers, among which inappropriate treatment modification is significant[1,2].

In clinical practice, physicians frequently encounter scenarios where the initial antihypertensive regimen fails to achieve the target blood pressure. This failure may result from various factors, including drug inefficacy, patient non-adherence, adverse drug reactions, drug-drug interactions, and the presence of comorbidities necessitating special therapeutic considerations. In such contexts, the decision to switch from one drug to another or to combine two or more agents is pivotal in ensuring optimal patient outcomes[3-6].

Guidelines such as those from the American College of Cardiology/American Heart Association (ACC/AHA) and the European Society of Hypertension (ESH) provide frameworks for treatment escalation or modification. They generally recommend starting with monotherapy for Stage 1 hypertension and considering combination therapy for Stage 2 hypertension or when blood pressure is significantly above target[7]. However, real-world practice often diverges from these recommendations due to local practice patterns, physician preferences, patient socioeconomic factors, and drug availability[8].

In India, the scenario is particularly complex due to the diversity of patient populations, varying levels of healthcare infrastructure, and differences in physician training and practice environments. Previous studies have highlighted that Indian physicians often face challenges such as patient affordability, lack of patient education, and limited availability of certain drug classes, all of which influence treatment choices. Moreover, patients frequently consult multiple healthcare providers, resulting in inconsistent therapeutic approaches[9,10].

Understanding the clinical decision-making processes adopted by physicians for switching or combining antihypertensive drugs is essential for bridging the gap between guideline recommendations and real-world practice. While clinical trials offer insights into drug efficacy and safety, they often do not capture the nuanced reasoning that guides treatment modification in daily practice. A physician's choice is rarely based solely on numerical blood pressure readings; it is shaped by a blend of clinical judgment, patient preferences, drug tolerability, cost considerations, and anticipated adherence[11].

Few studies in India have systematically explored these aspects through direct physician input. While patient-based studies are abundant, physician-based surveys can uniquely illuminate the cognitive frameworks, priorities, and perceived challenges that shape treatment pathways for hypertension. Such insights can inform continuing medical education, guideline contextualization, and policy measures aimed at improving hypertension control rates[12].

Against this backdrop, this study was designed to capture physician perspectives on the criteria used to switch or combine antihypertensive drugs in clinical practice. By conducting a structured survey among physicians across secondary and tertiary care centers in Eastern India, we sought to identify the most influential clinical, patient-related, and drug-related factors driving these crucial treatment decisions. The findings are expected to shed light on prevailing trends, highlight gaps between evidence and practice, and support the development of context-appropriate interventions for improving hypertension management[8].

Ultimately, optimizing the approach to switching or combining antihypertensive medications is not merely a matter of pharmacology; it is central to addressing the broader challenge of uncontrolled hypertension. With the rising burden of cardiovascular diseases in India and other low- and middle-income countries, even incremental improvements in treatment adherence and efficacy can yield significant public health benefits. Therefore, understanding and refining the clinical decision-making

processes that underpin these treatment changes must be recognized as a priority area for research and policy action alike.

Materials and Methods

Study Design: This was a cross-sectional, questionnaire-based survey.
Study Population: 250 physicians practicing in secondary and tertiary healthcare centers across three Eastern Indian states participated in the study. Physicians from general medicine, cardiology, and internal medicine specialties were included.
Inclusion Criteria: Registered medical practitioners with at least three years of clinical experience in managing hypertensive patients.
Data Collection Tool: A pre-tested, semi-structured questionnaire was developed. It comprised three sections: demographic details, practice characteristics, and clinical scenarios assessing criteria for switching or combining antihypertensive medications.
Data Collection Procedure: Data were collected over a three-month period via in-person visits, emails, and secure online forms. Participation was voluntary, and informed consent was obtained.
Data Analysis: Data were coded and analyzed using SPSS version 26. Descriptive statistics were used to summarize frequencies and percentages. Chi-square tests were employed to examine associations between physician characteristics and decision-making criteria.

Results

Table 1. Physician Demographics and Practice Characteristics

Variable	Frequency (n)	Percentage (%)
Gender		
Male	180	72%
Female	70	28%
Years of Practice		
3–5 years	60	24%
6–10 years	100	40%
>10 years	90	36%
Specialty		
General Medicine	140	56%
Internal Medicine	80	32%
Cardiology	30	12%
Average No. of Hypertensive Patients per Month		
<50	40	16%
50–100	130	52%
>100	80	32%

Table 1 outlines the demographic and professional profile of participating physicians, indicating a balanced representation of experience levels and relevant specialties.

Table 2. Reported Criteria for Switching and Combining Antihypertensive Drugs

Decision-Making Criterion	Switching (%)	Combining (%)
Poor BP Control	92%	78%
Adverse Drug Reactions	68%	22%
Patient Non-Adherence	55%	18%
Presence of Comorbidities	46%	65%
Cost Issues	30%	15%
Drug-Drug Interactions	38%	12%
Physician Preference/Experience	25%	20%

Table 2 presents the distribution of various factors cited by physicians as influential in switching or combining antihypertensive drugs. Poor blood pressure control was the leading reason for both, followed by adverse reactions and comorbidities.

Discussion

The present study offers valuable insights into the real-world decision-making patterns of physicians regarding the modification of antihypertensive regimens. The results demonstrate that poor blood pressure control remains the predominant factor prompting both switching and combination of medications, corroborating existing literature which emphasizes treatment intensification as a cornerstone of effective hypertension management.

The high prevalence (92%) of switching due to suboptimal control reflects the gap between therapeutic goals and clinical outcomes. While guideline-directed management clearly stipulates reassessment and timely escalation of therapy, studies indicate that clinical inertia frequently delays necessary modifications[13]. Our findings suggest that physicians do recognize and act upon inadequate blood pressure control, which is encouraging for overall hypertension control efforts.

Adverse drug reactions were the second most reported reason for switching (68%). This aligns with global data showing that tolerability issues contribute significantly to non-adherence and treatment discontinuation. Side effects such as cough with ACE inhibitors, peripheral edema with calcium channel blockers, or electrolyte imbalances with diuretics often necessitate switching to better-tolerated alternatives. This highlights the need for patient education regarding possible side effects and regular follow-up to facilitate early detection and resolution[14].

Patient non-adherence (55%) emerged as another prominent factor for switching drugs. Non-adherence may arise from complex dosing schedules, high pill burden, or lack of perceived benefit. Interestingly, fewer physicians (18%) cited non-adherence as a reason for combining therapies. This may reflect an understanding that combination therapy, especially in fixed-dose formats, can sometimes enhance adherence by reducing pill burden—a nuance that underscores the interplay between pharmacological rationale and behavioral factors[15].

Comorbidities influenced decisions to both switch (46%) and combine (65%) medications. This is consistent with the recommendation that coexisting conditions such as diabetes, chronic kidney disease, or heart failure may necessitate tailored drug choices. For example, beta-blockers might be favored in patients with ischemic heart disease, whereas ACE inhibitors are beneficial for patients with diabetic nephropathy. The fact that a significant proportion of physicians reported comorbidities as a reason for combination therapy suggests adherence to evidence-based synergistic approaches, which is a positive finding[16].

Cost considerations and drug-drug interactions were less frequently cited but remain relevant, particularly in resource-constrained settings like India. While generic formulations have improved affordability, polypharmacy in elderly or multimorbid patients necessitates vigilance for interactions and cumulative adverse effects.

The study also reveals that physician preference or prior clinical experience influenced decisions in about a quarter of cases. This underscores the art of medicine, where empirical judgment complements evidence-based guidelines. However, it also raises the issue of potential variability in practice, highlighting the importance of continuous professional development to align practices with evolving evidence[17,18].

This research has certain limitations. As a self-reported survey, responses may be influenced by social desirability bias. Moreover, the study was geographically restricted to Eastern India, which may limit generalizability to other regions with differing healthcare contexts.

Nevertheless, the findings reinforce the need for updated, context-sensitive hypertension guidelines that address practical barriers to optimal therapy modification. Clear algorithms for when and how to switch or combine drugs, patient-centered counseling, and strategies to enhance adherence are critical to improving hypertension control rates. Additionally, promoting fixed-dose combinations could be an effective measure to simplify regimens and reduce non-adherence.

In conclusion, this study provides a snapshot of the complex decision-making landscape physicians navigate when modifying antihypertensive therapy. By illuminating key drivers and challenges, it offers actionable insights for practitioners, policymakers, and educators striving to bridge the gap between guideline recommendations and everyday practice.

Conclusion

This physician-based survey highlights that poor blood pressure control, adverse drug reactions, patient non-adherence, and comorbidities are key criteria for switching or combining antihypertensive medications. While physicians largely align with guideline-directed care, practical barriers persist. Contextualized guidelines, enhanced patient counseling, and strategies to improve drug tolerability and adherence are essential to achieving optimal hypertension management in real-world settings.

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