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Original Research Article

Optimizing hypertension care in the real world: a physician survey on telmisartan-based combination therapy

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ABSTRACT

Background: Hypertension is a leading cause of global cardiovascular morbidity and mortality and most patients require combination therapy to achieve recommended blood pressure targets and reduce cardiovascular risk.
Methods: This cross-sectional, questionnaire-based survey was conducted among 98 physicians attending a scientific meeting organized by the Cardiological society of India (CSI). The survey evaluated real-world hypertension management, including BP targets, use of combination therapy, preferred drug combinations and factors influencing telmisartan selection.
Results: Most physicians reported frequent use of combination therapy at the time of treatment initiation, with 46% indicating its use in 20-40% of patients and 38% in 40-60% of patients. Blood pressure targets varied, with nearly half of respondents (48%) aiming for <130/80 mm Hg, while 30% targeted <140/90 mm Hg. Telmisartan plus amlodipine emerged as the most preferred first-line combination (48%), followed by telmisartan plus chlorthalidone (31%). The telmisartan–amlodipine combination was commonly selected for patients with uncontrolled blood pressure (44%) and those presenting with stage 2 hypertension (41%). Triple therapy with telmisartan, cilnidipine, and chlorthalidone was predominantly reserved for resistant hypertension (57%). Regression of left ventricular hypertrophy (31%) and the presence of microalbuminuria (29%) were key factors influencing preference for telmisartan.
Conclusions: The survey highlights a growing preference among clinicians for early combination therapy, intensive BP targets and therapies providing sustained 24-hour BP control. Telmisartan-based combinations were widely preferred, reflecting their complementary mechanisms and cardio-renal protective benefits. These findings suggest increasing adoption of guideline-directed strategies in real-world hypertension management.

Keywords: Hypertension, Telmisartan, Combination therapy, Blood pressure control, Physician survey, Cardiovascular risk

INTRODUCTION

Hypertension remains one of the leading contributors to global cardiovascular morbidity and mortality, affecting more than 1.2 billion individuals worldwide.[1] Despite the availability of effective antihypertensive therapies, blood pressure (BP) control rates remain suboptimal, with a substantial proportion of patients failing to achieve recommended targets. According to the 2025 American Heart Association/American College of Cardiology (AHA/ACC) hypertension guidelines, the recommended blood pressure treatment goal for most adults with hypertension is less than 130/80 mm Hg, with individualized considerations based on overall

cardiovascular risk, comorbidities, and patient characteristics.[2]

The multifactorial pathophysiology of hypertension, involving complex and overlapping regulatory mechanisms, often necessitates the use of multidrug therapy to achieve optimal BP control. In India, hypertension represents a major and rapidly growing public health challenge. Epidemiological studies estimate that nearly one in four adults is hypertensive, with prevalence continuing to rise due to urbanization, population aging, lifestyle transitions and increasing rates of obesity and metabolic disorders.[3] Hypertension affects 28.1% of adults in Indian population; however, only 36.9% are diagnosed and 44.7% of those diagnosed receive treatment. Blood pressure control is achieved in just 52.5% of treated individuals, leading to a high burden of uncontrolled hypertension (91.5%). Uncontrolled hypertension remains prevalent in both urban (88.8%) and rural (92.9%) populations.[4]

Evidence accumulated over the past two decades indicates that monotherapy is sufficient for only a limited proportion of hypertensive patients.[5] Clinical data suggest that approximately one-third of patients achieve adequate BP control with a single antihypertensive agent, whereas the majority require escalation to combination therapy involving two or more agents to attain target BP levels.[6] Current evidence suggests that most patients with hypertension benefit from combination therapy, particularly when delivered as a single-pill combination, which can improve adherence and simplify treatment. However, nearly one-third of patients may require triple-drug therapy to achieve optimal blood pressure control, with studies showing greater blood pressure reductions compared with dual therapy.[7]

In the RECORD registry, combination therapy achieved significant blood pressure reductions over one year, demonstrating effective long-term BP control with combination therapy.[8] Combination regimens targeting complementary physiological pathways have been shown to be approximately five times more effective in lowering BP compared with dose escalation of a single agent, underscoring the limitations of monotherapy-based strategies.[9]

Consequently, contemporary hypertension guidelines have shifted toward early initiation of combination therapy. The European Society of Cardiology/European Society of Hypertension (ESC/ESH) guidelines recommend initiating treatment with a two-drug combination in most patients, particularly those with higher baseline BP levels or elevated cardiovascular risk, as monotherapy is often insufficient to achieve timely BP control.[10] Evidence suggests that early intensification from dual to triple single-pill combination therapy provides substantial additional benefits in patients with uncontrolled hypertension. Escalation to triple therapy has been associated with greater blood pressure reduction (19.9 vs. 13.3 mm Hg) and improved cardiovascular risk reduction (36% vs. 26%) compared with dual therapy, supporting timely treatment escalation when targets are not achieved.[11]

Current evidence-based hypertension management algorithms recommend escalation to triple-drug therapy when blood pressure remains uncontrolled despite initial dual therapy. A single-pill combination of an ACEI/ARB, a calcium channel blocker and a thiazide/thiazide-like diuretic is the preferred strategy, offering a practical and effective approach to achieving blood pressure targets.[12]

Despite strong guideline recommendations, real-world physician preferences and clinical decision-making regarding the initiation of combination therapy and the selection of specific drug combinations remain incompletely characterized. Understanding these practice patterns may provide valuable insights into the translation of guideline recommendations into routine clinical practice. Therefore, the present survey was undertaken to evaluate clinician perspectives on hypertension management and the use of telmisartan-based combination therapies in real-world settings.

METHODS

Study design

This was a cross-sectional, questionnaire-based survey conducted to evaluate cardiologists' prescribing preferences and clinical decision-making patterns regarding telmisartan-based antihypertensive combination therapies in real-world clinical practice.

Study setting and period

The study was carried out during a scientific meeting organized by the Cardiological society of India (CSI) in December 2025. The survey was administered over the duration of 3 days of the conference period.

Study population and selection criteria

Participants included practicing clinicians, primarily cardiologists and physicians involved in the management of hypertension. Study included physicians attending the CSI scientific meeting who were actively involved in hypertension management and were willing to participate and complete the questionnaire. A total of 98 fully completed responses were included in the final analysis.

Study procedure

The study procedure involved the use of a structured, pre-designed questionnaire consisting predominantly of multiple-choice questions to capture real-world clinical practices. The questionnaire was physically distributed to eligible participants during the conference. The survey assessed key domains including the proportion of patients

requiring combination therapy at treatment initiation, preferred blood pressure targets, commonly prescribed antihypertensive drug combinations, clinical situations favoring telmisartan-based dual therapy, indications for triple-drug therapy, and patient profiles influencing the choice of telmisartan-based treatment regimens.

Ethical considerations

The study did not involve patient data, clinical interventions, or identifiable personal information; therefore, ethics committee approval was not required. Participation was voluntary and anonymous and completion of the questionnaire was considered to imply informed consent for use of the data in aggregated analysis and reporting. No incentives were provided to participants.

Statistical analysis

Data were analyzed using descriptive statistics. Responses were summarized as frequencies and percentages.

RESULTS

A total of 98 physicians participated in the survey evaluating clinical decision-making patterns in hypertension management. All respondents were actively engaged in the routine care of hypertensive patients across multiple centers in India, thereby reflecting real-world prescribing practices.

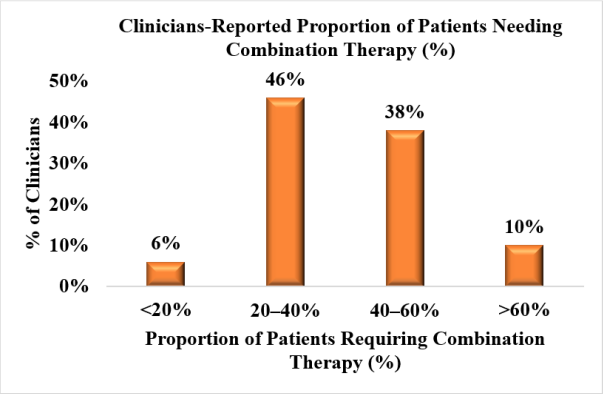


Figure 1: Proportion of hypertensive patients requiring combination therapy at treatment initiation.

A majority of physicians reported frequent use of combination therapy at treatment initiation. Approximately 46% of respondents indicated that 20-40% of their hypertensive patients require combination therapy at presentation, while 38% reported its use in 40-60% of patients. These findings highlight that early initiation of multidrug therapy is commonly required in routine clinical practice (Figure 1). With regard to blood pressure thresholds for initiating combination therapy, most physicians preferred a target of <130/80 mm Hg (48%), followed by <140/90 mm Hg (30%). A smaller proportion reported initiating treatment at <120/80 mm Hg (13%), while 9% indicated that therapeutic targets varied according to individual patient characteristics. These findings suggest a clinical inclination toward relatively intensive blood pressure control, in line with contemporary hypertension management approaches.

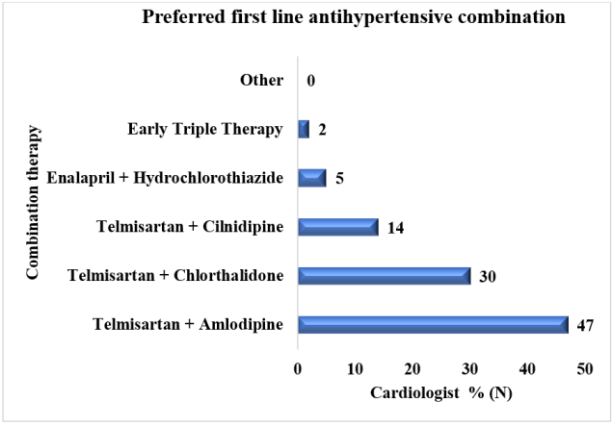


Figure 2: Preferred first-line telmisartan-based antihypertensive combinations.

Among first-line antihypertensive treatment options, telmisartan-based combinations were predominantly preferred. The combination of telmisartan plus amlodipine was the most commonly selected regimen (47%), followed by telmisartan plus chlorthalidone (30%). This pattern reflects a preference for combining renin–angiotensin system blockade with agents acting via complementary mechanisms to achieve effective blood pressure reduction (Figure 2).

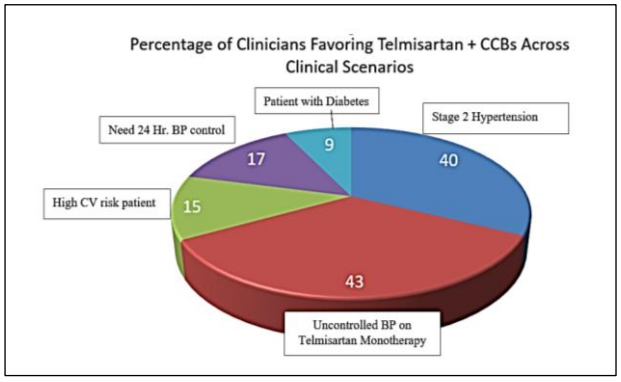


Figure 3: Clinical scenarios supporting use of telmisartan plus calcium channel blockers.

In specific clinical scenarios, telmisartan plus calcium channel blockers was most frequently selected for patients with uncontrolled blood pressure despite telmisartan monotherapy (43%), followed by those presenting with stage 2 hypertension (40%). Additional considerations included the need for sustained 24-hour blood pressure control (17%) and management of patients at high cardiovascular risk (15%). These findings highlight the role of this combination in treatment escalation and in managing patients with higher baseline risk (Figure 3).

For patients requiring intensified therapy, triple-drug regimens comprising telmisartan, cilnidipine, and chlorthalidone were most commonly preferred for resistant hypertension despite dual therapy (56%). Other important indications included the presence of diabetes or renal comorbidities (24%), followed by elderly patients with morning blood pressure surge (22%). This suggests that intensified regimens are primarily reserved for difficult-to-control or high-risk patient populations (Figure 4).

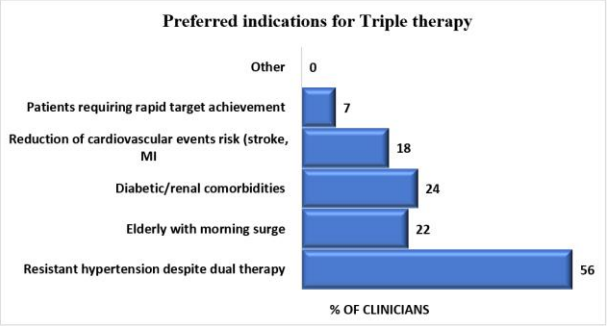


Figure 4: Clinical indications for use of triple-drug therapy with telmisartan, cilnidipine and chlorthalidone.

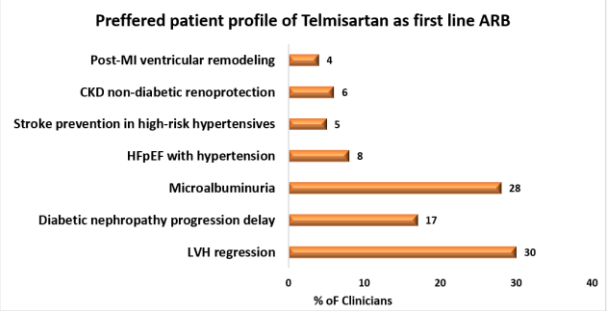


Figure 5: Cardio-renal considerations driving physician preference for telmisartan.

When evaluating patient profiles favoring telmisartan as the preferred angiotensin receptor blocker, regression of left ventricular hypertrophy (30%) and the presence of microalbuminuria (28%) emerged as the leading considerations. Delay in the progression of diabetic nephropathy was also reported as an important factor (17%). These findings indicate that clinicians frequently prioritize cardio-renal protective benefits when selecting antihypertensive therapy (Figure 5).

Finally, in assessing clinically relevant blood pressure parameters, the majority of physicians (62%) identified both morning and nocturnal blood pressure as the most important indicators for guiding hypertension management, while 23% prioritized morning blood pressure alone. This reflects increasing recognition of circadian blood pressure variability and the importance of sustained 24-hour blood pressure control in routine clinical practice.

DISCUSSION

The present cross-sectional survey provides important real-world insights into physicians' perspectives and prescribing patterns in hypertension management, with particular emphasis on telmisartan-based combination therapies. The findings demonstrate a clear preference among clinicians for early initiation of combination therapy, relatively intensive blood pressure (BP) targets, and treatment strategies aimed at achieving sustained 24-hour BP control. Collectively, these observations suggest that real-world clinical practice is increasingly aligning with contemporary guideline-directed recommendations for hypertension management.

Additionally, physicians reported selective use of triple combination therapy in patients with resistant or difficult-to-control hypertension. Such multidrug regimens, including combinations such as telmisartan, cilnidipine and chlorthalidone, enable simultaneous targeting of multiple pathophysiological mechanisms and may facilitate improved BP control in high-risk patient populations requiring treatment intensification.

One of the most notable observations from this survey was the widespread adoption of combination therapy at treatment initiation. A substantial proportion of physicians indicated that many hypertensive patients require multidrug therapy early in the course of treatment. This practice is consistent with current European and American hypertension guidelines, which recommend initiating treatment with a two-drug combination in most patients, particularly those with higher baseline BP or increased cardiovascular risk.[2,10] Evidence from meta-analyses indicates that combining antihypertensive agents from different classes is more effective than dose escalation of a single agent, with recent systematic reviews further confirming the superiority of low-dose combination therapy over monotherapy for achieving optimal blood pressure control with good tolerability.[13,14]

Another important finding from the survey was physicians' preference for relatively intensive BP targets. Nearly half of the respondents reported initiating combination therapy with a BP goal of <130/80 mm Hg, reflecting a shift toward tighter BP control in clinical practice. Contemporary hypertension guidelines and outcome-based clinical trials increasingly emphasize the benefits of intensive BP lowering in appropriate patient populations. Recent guideline updates continue to support individualized BP targets, particularly <130/80 mm Hg in high-risk individuals, while emphasizing safety and tolerability of intensive treatment strategies.[2,10] The observed preference for lower BP targets among surveyed physicians therefore suggests increasing integration of evidence from large outcome trials into routine clinical decision-making.

Telmisartan-based combinations emerged as the most frequently preferred first-line therapeutic approach,

particularly the telmisartan–amlodipine combination, followed by telmisartan–chlorthalidone. An Indian expert consensus recommends telmisartan as the preferred ARB for patients with hypertension and metabolic syndrome (MetS), owing to its proven efficacy in blood pressure reduction and renal protection. Combination therapy with telmisartan is frequently required to achieve optimal blood pressure control in this high-risk population.[15] These preferences likely reflect the complementary pharmacological actions of these agents. Combining an ARB with a calcium channel blocker provides complementary vasodilation and greater BP reduction while reducing adverse effects such as peripheral edema. Addition of chlorthalidone further enhances efficacy by addressing volume overload, and single-pill combinations improve adherence, supporting sustained BP control.[16]

Another notable observation from the survey was the preference for telmisartan in patients with clinical conditions requiring target-organ protection, particularly left ventricular hypertrophy and microalbuminuria. These findings highlight the importance clinicians place on cardio-renal protection beyond BP reduction alone. Angiotensin receptor blockers have demonstrated benefits in regression of left ventricular hypertrophy and reduction of albuminuria, both of which are important predictors of cardiovascular risk.[17] In patients with grade 2 hypertension and hypertension-mediated organ damage (HMOD), early initiation of intensive combination therapy is recommended to achieve rapid blood pressure control and limit further target organ damage. Preferred regimens include an ACEI/ARB, a calcium channel blocker and a thiazide/thiazide-like diuretic with additional agents added as needed.[18]

Finally, the majority of physicians identified both morning and nocturnal BP as clinically important parameters in hypertension management. This observation reflects increasing awareness of circadian BP variability and its prognostic significance. Evidence from ambulatory BP monitoring studies indicates that nighttime and early morning BP patterns are strong predictors of cardiovascular outcomes. Consequently, antihypertensive therapies that provide consistent round-the-clock BP control are increasingly prioritized in modern clinical practice.[19] This aligns with growing emphasis on 24-hour BP monitoring and chronotherapy approaches in recent hypertension research.[20]

Overall, the findings of this survey suggest that real-world hypertension management among practicing clinicians increasingly reflects guideline-directed principles, including early use of combination therapy, individualized risk-based treatment selection, and emphasis on sustained BP control and target-organ protection. These trends indicate progressive translation of evidence-based recommendations into routine clinical practice. This survey has certain limitations. The modest sample size may not fully represent prescribing practices across all physicians in India. Additionally, reliance on self-reported data introduces potential for recall and reporting bias, and the cross-sectional design reflects practices at a single point in time. Despite these limitations, the study provides valuable insights into real-world physician preferences for telmisartan-based combination therapy in hypertension management.

CONCLUSION

This cross-sectional physician survey provides real-world insights into contemporary hypertension management. Clinicians increasingly favor early initiation of combination therapy and relatively intensive blood pressure targets, reflecting closer alignment with current guidelines. Telmisartan-based combinations, particularly telmisartan plus amlodipine, emerged as the preferred first-line strategy. Triple-drug therapy was mainly reserved for uncontrolled hypertension and patients with cardiometabolic comorbidities. Physicians emphasized sustained 24-hour blood pressure control and target-organ protection in treatment selection, underscoring a shift toward individualized, risk-based hypertension management.

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Ethical approval: Not required

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