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# EXPERT OPINION ON THE CLINICAL USE OF TELMISARTAN AND ITS COMBINATIONS FOR MANAGING HYPERTENSION IN INDIAN SETTINGS

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## Abstract

**Objective:** To assess clinicians' perspectives on hypertension management in India, with a particular focus on the use of telmisartan and its combinations.

**Methods:** This cross-sectional study was conducted among clinicians across India, focusing on hypertension management and the use of telmisartan and its combinations. Participants independently completed a 23-item questionnaire after providing informed consent. Data was analyzed using descriptive statistics, with categorical variables presented as percentages and visualized through pie and bar charts in Excel.

**Result:** This study included 814 participants, with 67% identifying stress, sedentary lifestyle, lack of awareness, and non-compliance with medication as key contributors to the rising prevalence of hypertension. A significant majority (87%) of clinicians agreed that the average resting heart rate in the Indian population was 80 beats per minute, exceeding the ideal rate of 72 beats per minute. Regarding treatment options, 74% of clinicians emphasized the benefits of fixed-dose combinations (FDCs) for hypertension, citing reduced pill burden, better tolerability, complementary mechanisms of action, and improved patient adherence. Among angiotensin receptor blockers (ARBs), 95% of participants preferred telmisartan for managing uncontrolled hypertension. For young hypertensive patients, 59% favored the combination of telmisartan with amlodipine, while 67% preferred telmisartan with chlorthalidone for

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uncontrolled hypertension in this group. For patients with high cardiovascular risk and uncontrolled hypertension, 56% of clinicians selected the combination of bisoprolol and telmisartan. Additionally, 74% of participants preferred a 12.5 mg dose of chlorthalidone in FDCs.

**Conclusion:** The study highlighted stress, sedentary lifestyles, and medication non-compliance as key factors driving hypertension in India. Clinicians favor FDCs, particularly telmisartan-based treatments, for managing uncontrolled hypertension. The findings emphasize the need for tailored treatment strategies, improved patient adherence, and addressing lifestyle factors to better manage hypertension.

**Keywords:** Hypertension, sedentary lifestyle, fixed-dose combinations, telmisartan, patient adherence.

## Introduction

Hypertension poses a significant public health burden for both genders and is a major modifiable risk factor for cardiovascular diseases (CVD) and all-cause mortality worldwide.[1,2] It is a leading contributor to premature death, with an estimated 1.28 billion adults aged 30–79 years affected globally. Despite its high prevalence, awareness and control remain suboptimal. About 46% of adults with hypertension are unaware of their condition, and less than half (42%) receive a diagnosis and treatment. Among those diagnosed, only 21% achieve effective blood pressure (BP) control. The rising global prevalence of hypertension is attributed to an aging population and increased exposure to lifestyle risk factors such as unhealthy diets (high sodium, low potassium) and a lack of physical activity.[2,3] In India, the overall prevalence of hypertension is 22.6%, with a higher prevalence in men (24.1%) than in women (21.2%). The prevalence increases with age, reaching 48.4% among individuals aged 60 years and above.[1]

Telmisartan, an angiotensin II receptor blocker, plays a key role in hypertension management by selectively blocking type 1 angiotensin II receptors, thereby reducing vasoconstriction, aldosterone secretion, and sodium retention. By inhibiting angiotensin II, a potent vasoconstrictor that also stimulates aldosterone secretion, telmisartan reduces systemic vascular resistance and lowers blood pressure. Unlike other antihypertensives, it does not affect the angiotensin-converting enzyme (ACE), hormone receptors, or ion channels.[4] Telmisartan combinations enhance BP control through complementary mechanisms, improved adherence,

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and better tolerability. They offer sustained 24-hour efficacy, cardiovascular and renal protection, and are preferred in high-risk and special populations.[5,6,7]

The present cross-sectional study aims to evaluate clinicians' perspectives on hypertension management in India, with a particular focus on the use of telmisartan and its combination therapies.

## Methodology

A cross-sectional study was carried out among clinicians specialized in managing hypertension in the major Indian cities from June 2024 to December 2024.

### Questionnaire

The questionnaire booklet titled TelmiCo (Telmisartan Combinations-What is preferred, When and Why?) study was sent to the doctors who were interested in participating in this study. The survey consisted of 23 questions aimed at collecting feedback, clinical observations, and experiences related to hypertension management, with a specific focus on telmisartan and its combinations. The study was performed after obtaining approval from Bangalore Ethics, an Independent Ethics Committee, which was recognized by the Indian Regulatory Authority, the Drug Controller General of India.

### Participants

An invitation was sent to professionals across India based on their expertise and experience in treating hypertension in the month of March 2024 for participation in this Indian survey. About 814 clinicians from major cities of all Indian states, representing the geographical distribution, shared their willingness to participate and provide necessary data. Clinicians were instructed to complete the questionnaire independently without consulting colleagues. Written informed consent was obtained from each participant before the study began.

### Statistical analysis

The data were analyzed using descriptive statistics, with categorical variables presented as percentages to illustrate their distribution. The frequency and percentage of each variable were calculated, and pie and bar charts were generated in Microsoft Excel 2013 (version 16.0.13901.20400) to visually represent these distributions.

## Results

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The study included 814 participants, and 67% identified stress, sedentary lifestyle, lack of awareness, and non-compliance with medication as the primary factors contributing to the burden of hypertension in India (Table 1).

**Table 1: Distribution of responses to the key factors contributing to the growing burden of hypertension in India**

| Factors | Response rate (n=814) |
|---|---|
| Stress | 10% |
| Sedentary lifestyle | 16% |
| Non-compliance to medication | 2% |
| Lack of awareness | 5% |
| All of the above | 67% |

Around 55% of clinicians noted that certain patient subgroups, such as young hypertensives, elderly individuals with uncontrolled hypertension, hypertensive patients with CKD, and those with metabolic conditions, pose unique challenges in hypertension management. Medication non-compliance was cited by 42% of participants as a significant limitation in current treatment options for hypertension. The majority (87%) of the clinicians agreed that the Indian population typically has an average resting heart rate of 80 beats per minute, which is higher than the ideal rate of 72 beats per minute.

With regard to BP monitoring, approximately 53% of participants preferred home BP monitoring for patients with uncontrolled hypertension. Around 45% of clinicians indicated that they recommend home BP monitoring for 11–20% of patients. Regarding treatment options, around 74% of clinicians stated that fixed-dose combinations (FDCs) for hypertension are advantageous due to a reduced pill burden, better tolerability, complementary mechanisms of action, and improved patient adherence (Table 2).

**Table 2: Distribution of responses to the advantages of hypertension treatments**

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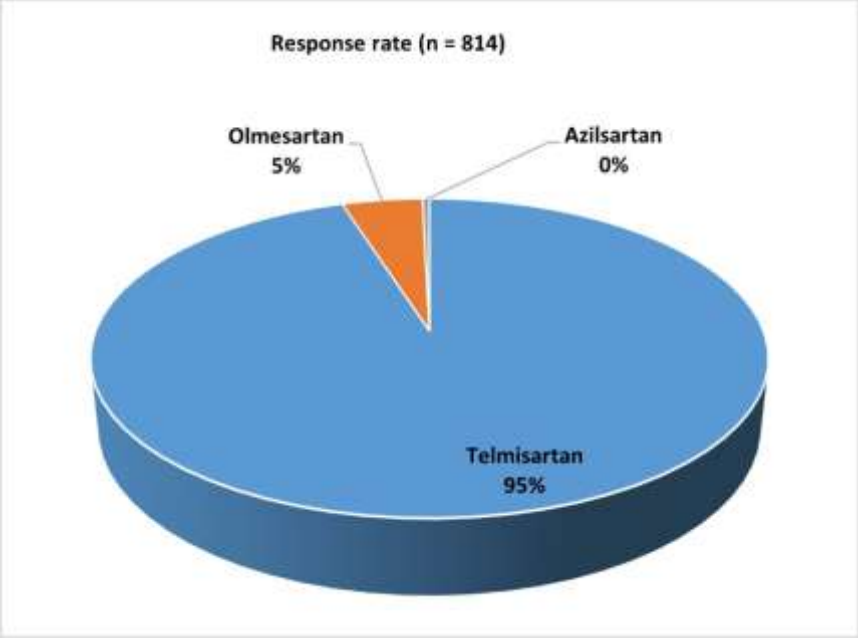
| Advantages | Response rate (n=814) |
|---|---|
| Improved patient adherence | 6.51% |
| Reduced pill burden | 10.32% |
| Better tolerability | 5.04% |
| Complementary mechanism of action | 4.3% |
| All of the above | 73.83% |

Nearly 48% reported that 25–50% of patients with uncontrolled hypertension are on a dual-drug FDCs, while 47% stated that 11–20% of such patients are on a triple-drug FDCs. In terms of treatment guidelines, 48% of clinicians followed the American College of Cardiology/ American Heart Association (ACC/AHA) hypertension guidelines. When prescribing angiotensin receptor blockers (ARBs), around 95% of participants preferred telmisartan for patients with uncontrolled hypertension (Fig. 1).

**Fig. 1: Distribution of responses to the most commonly preferred ARB for managing patients with uncontrolled hypertension in routine practice**




Among elderly patients over 60 years, nearly half (49%) of clinicians preferred to prescribe a combination of telmisartan and calcium channel blockers (CCB). For young hypertensive patients, more than half (58.6%) of the respondents preferred telmisartan in combination with amlodipine (Table 3). Furthermore, 45% of clinicians preferred the FDC of telmisartan and

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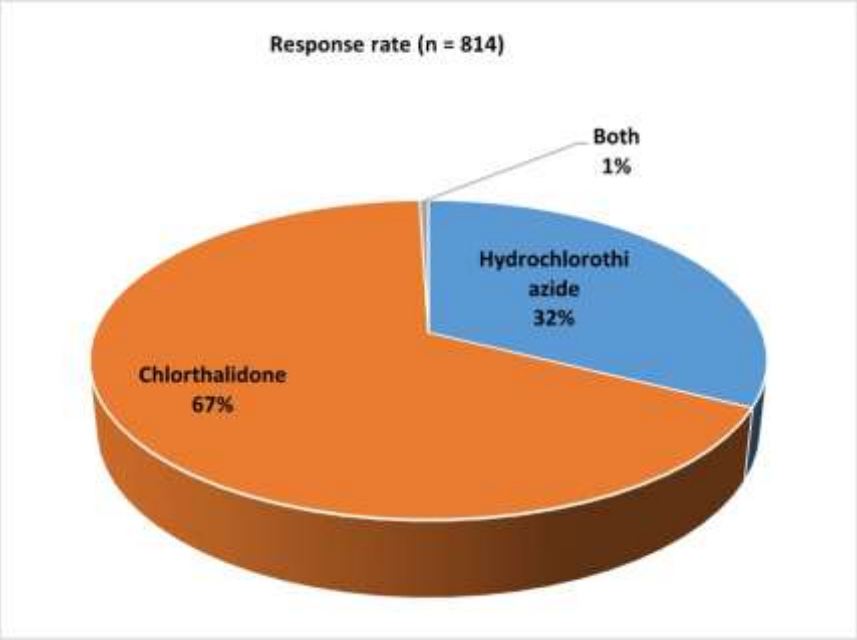
amlodipine for 25–50% of their patients with uncontrolled hypertension, and 67% favored combining telmisartan with chlorthalidone in young patients with uncontrolled hypertension (Fig. 2).

**Table 3: Distribution of responses to the most commonly prescribed CCB with telmisartan in young patients with uncontrolled hypertension**

| Combination | Response rate (n=814) |
|---|---|
| Telmisartan + amlodipine | 58.6% |
| Telmisartan + cilnidipine | 38.5% |
| Telmisartan + benidipine | 2% |
| Telmisartan + azelnidipine | 0.7% |
| Telmisartan + efonidipine | 0.1% |

**Fig. 2: Distribution of responses to the preferred diuretic in combination with telmisartan for young patients with uncontrolled hypertension**




For patients with co-morbid diabetes, 56% of clinicians reported that the most commonly prescribed combination therapy is telmisartan and a CCB. Similarly, 55% of clinicians noted that 11–25% of patients with uncontrolled hypertension were prescribed a combination of telmisartan and bisoprolol (Table 4).

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**Table 4: Distribution of responses to the proportion of patients with uncontrolled hypertension using telmisartan + bisoprolol in clinical practice**

| Patients (%) | Response rate (n=814) |
|---|---|
| 11-25 | 54.7% |
| <10 | 31.6% |
| 26-50 | 13.6% |

For patients with high cardiovascular risk factors and uncontrolled hypertension, 56% of clinicians favored a combination of bisoprolol and telmisartan (Fig. 3), as this combination is believed to improve cardiovascular risk, provide organ protection, and enhance BP reduction. The triple-drug combination of telmisartan, CCBs, and beta-blockers was cited by 51% of participants as the most commonly used regimen, while 52% preferred a FDC of telmisartan, metoprolol, and chlorthalidone for 11–20% of patients with uncontrolled hypertension. When considering the strength of chlorthalidone in FDCs, 74% of participants preferred a 12.5 mg dose (Fig. 4). About 40% of clinicians emphasized that using multiple strategies to improve patient adherence, along with optimizing treatment and diet, is the most effective way to achieve BP goals.

**Fig. 3: Distribution of responses to the patient subsets preferred for the bisoprolol and telmisartan combination**

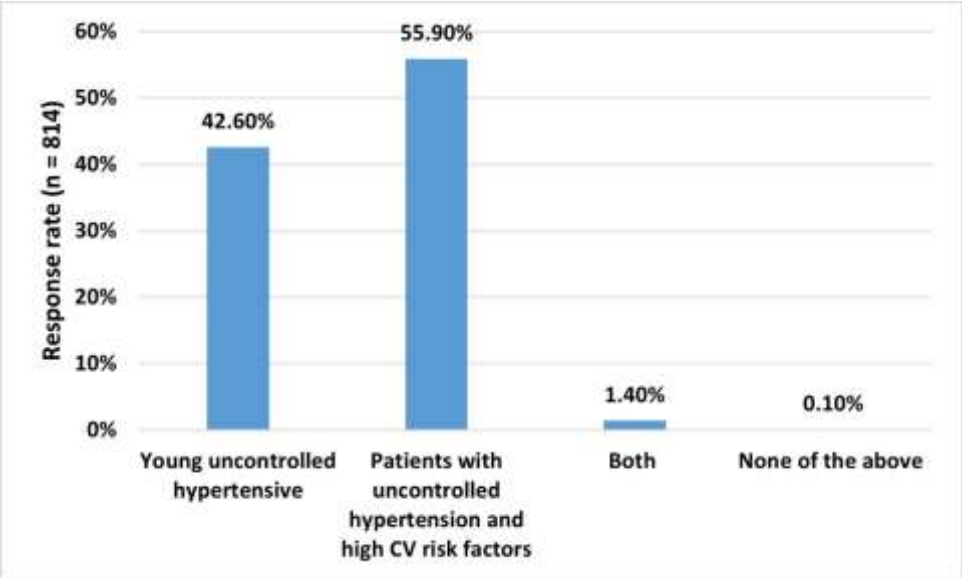

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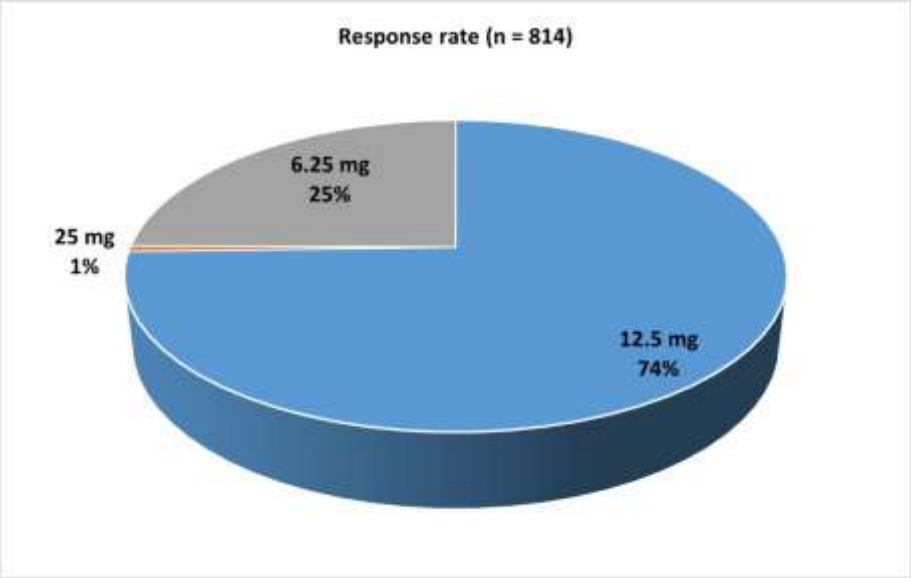
**Fig. 4: Distribution of responses to preferred chlorthalidone strength for FDC in clinical practice**




## Discussion

The present study identified stress, sedentary lifestyles, lack of awareness, and non-compliance with medication as key contributors to the growing burden of hypertension in India. Adeola et al. highlighted that stress, poor medication adherence, reliance on traditional remedies, and misconceptions about lifestyle changes hinder effective hypertension management. They also emphasized the importance of disease awareness, family support, and governmental initiatives in facilitating optimal management.[8] Ojangba et al. further emphasized that medication non-adherence has long been recognized as a significant challenge in treating hypertension.[9]

Most of the survey clinicians indicated that FDCs are often considered advantageous due to their reduced pill burden, better tolerability, complementary mechanisms of action, and improved adherence. Guerrero-García and Rubio-Guerra highlighted that FDCs, which combine two drugs in a single tablet, improve adherence by 24%, simplify indications, and may reduce costs.[10] Barrios and Escobar also acknowledged that FDCs can increase antihypertensive efficacy by targeting different mechanisms of action and help reduce adverse effects due to the lower doses used. Their studies suggest that FDCs play a key role in facilitating treatment compliance.[11] Similarly, Verma et al. noted that FDC therapy among older adults initiating combination antihypertensive treatment led to significantly lower risks of composite clinical outcomes, likely owing to better adherence.[12]

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Regarding specific medications, the majority of clinicians in the current survey favored telmisartan for patients with uncontrolled hypertension. Ohishi et al. noted that telmisartan's long half-life of approximately 24 hours enables once-daily dosing, ensuring sustained blood pressure control and improved adherence.[13] Neldam et al. further supported this, suggesting that switching patients with uncontrolled blood pressure to a FDC of telmisartan with other agents, such as amlodipine, is more effective than increasing the dose of monotherapy.[14] Additionally, Sharpe et al. confirmed that telmisartan is a useful therapeutic option for managing hypertension, with tolerability and safety comparable to other major therapeutic agents.[15]

The combination of telmisartan with amlodipine was particularly favored by more than half of the current respondents. Ahrens and Bramlage pointed out that this combination is effective for difficult-to-control hypertensive patients, including those with CVD risks, diabetes, or obesity, and those intolerant to ACE inhibitors.[16] Carmen Suárez further emphasized that combining telmisartan with amlodipine helps reduce the incidence of amlodipine-induced edema, making it a preferred choice for hypertension treatment.[17] When considering younger patients with uncontrolled hypertension, the majority of the current respondents preferred combining telmisartan with chlorthalidone. A prospective, open-label study by Sagarad et al. demonstrated that this combination was effective in patients who remained uncontrolled despite being on a telmisartan and hydrochlorothiazide (HCTZ) regimen.[6]

More than half of the respondents observed that 11-25% of patients with uncontrolled hypertension were using a combination of telmisartan and bisoprolol. Sawhney et al. found that bisoprolol, when combined with telmisartan, is a useful option for managing hypertension, especially in patients with co-morbidities.[18] In their study, Wander et al. found that both the new FDC telmisartan +bisoprolol and the existing TMS combination therapy offer comparable efficacy, tolerability, and safety in managing stage 1 and stage 2 hypertension.[19]

The survey clinicians favored the combination of bisoprolol and telmisartan for managing hypertension in patients with high cardiovascular risk factors. Sawhney et al. highlighted that bisoprolol, when combined with telmisartan, is particularly beneficial for patients with co-morbidities, offering an effective approach to hypertension management.[20] In a previous study conducted by the current author, approximately 84% of respondents preferred the combination of telmisartan and bisoprolol as the ARB and beta-blocker therapy for managing hypertension in patients with cardiovascular conditions. This combination therapy of bisoprolol and

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telmisartan has been recognized as an effective treatment option for hypertension management in India. Bisoprolol and telmisartan work through complementary mechanisms to effectively lower blood pressure. Bisoprolol, a beta-blocker, reduces heart rate and contractility, while telmisartan, an ARB, blocks angiotensin II, promoting vasodilation and reducing fluid retention. Together, they target multiple pathways involved in blood pressure regulation, enhancing overall hypertension control.[21,22] With reference to chlorthalidone, most participants preferred a 12.5 mg dose in FDCs. The ACC/AHA guidelines also recommend a 12.5 mg starting dose for effective hypertension management.[23]

The key strengths of the survey include its large sample size of 814 clinicians and nationwide representation, enhancing the generalizability of its findings on telmisartan-based combinations in hypertension management. It comprehensively captures real-world clinical practices and preferences, using a well-designed questionnaire that addresses various aspects. However, the study's reliance on self-reported data may introduce response bias, and the lack of detailed participant demographics limits its applicability. As a cross-sectional study, it captures data at a single point in time, missing long-term trends. Additionally, the study focuses on clinician perspectives, excluding patient feedback, and its findings may not be directly applicable to healthcare systems in other countries.

## Conclusion

The study highlights that stress, sedentary lifestyles, lack of awareness, and non-compliance with medication are key factors contributing to the rise of hypertension in India. FDCs are favored by clinicians for their benefits in reducing pill burden, improving tolerability, and enhancing patient adherence. Telmisartan, often combined with amlodipine or bisoprolol, is the preferred choice for treating uncontrolled hypertension. The findings emphasize the importance of personalized treatment strategies, improving patient adherence, and addressing lifestyle factors to enhance hypertension management outcomes, particularly in high-risk patient groups.

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