CME FOUNDATION OF INDIA

# CARDIOLOGY EXPERT CONCLAVE

## ARBs vs. ACE-Inhibitors in Hypertension

**EVENT REPORT**

# CARDIOLOGY EXPERT CONCLAVE

## ARBs vs. ACE-Inhibitors in Hypertension

The cardiology expert conclave was held on 15th February 2025 in Varanasi's DoubleTree by Hilton hotel and was organized by the CME Foundation of India (CMEFI), designed to enhance the knowledge of the audience for the better management of hypertension.

The highly anticipated cardiology expert conclave featured an insightful presentation by Dr. Prof. K. K. Lohani on "**ARBs vs. ACE Inhibitors in Hypertension**." It was attended by a keen audience, eager to gain clinical insights on hypertension management.

The conclave focused on the discussion of whether ACE inhibitors or ARBs are better in the management of hypertensive patients. The key topics included were a fundamental understanding of the renin-angiotensin-aldosterone system (RAAS) and its inhibition as a cornerstone of hypertensive therapy, guideline recommendations, and the evidence for the use of ARB and ACE inhibitors in patients with hypertension, safety profile and the side effects of ACE and ARBs, comparative efficacy of ACE inhibitors vs. ARBs, studies and clinical outcomes of ACE inhibitors vs. ARBs in the management of hypertension, a brief on Telmisartan in the hypertension management and discussion on the prescribing pattern of ACE inhibitors and ARBs by physicians in the management of hypertension.

| Topic | Speaker | Venue | Date | No. of participants |
|---|---|---|---|---|
| ARBs vs. ACE Inhibitors in Hypertension | Dr. Prof. K. K. Lohani | DoubleTree by Hilton, Varanasi | 15th February 2025 | 24 |

# Agenda

**15th February, 2025** **7:00 pm to 9:00 pm**

| Topics | Speaker | Time |
|---|---|---|
| Welcome | | 5 min |
| Introduction | | 5 min |
| ARBs vs. ACE Inhibitors in Hypertension | Dr. Prof. K. K. Lohani | 60 min |
| Real-world Study on the Use of ACE Inhibitor vs. ARBs in the Treatment of Hypertension | Dr. Prof. K. K. Lohani | 45 min |
| Vote of Thanks | | 5 min |

## Summary of the Cardiology Expert Conclave

Dr. Prof. K. K. Lohani presented an insightful presentation on the use of ACE inhibitors and ARBs in the management of hypertension. He opened the discussion by providing a fundamental understanding of the renin-angiotensin-aldosterone system (RAAS) and its inhibition as a cornerstone of hypertension therapy. He introduced ACE inhibitors and ARBs as key components of RAAS inhibition, which is fundamental in modern antihypertensive therapy. He highlighted the distinct roles of AT1 (Angiotensin receptor 1) and AT2 (Angiotensin receptor 2) receptors. AT1 activation leads to vasoconstriction, sodium retention, and inflammation, whereas AT2 activation results in vasodilation, tissue regeneration, and anti-inflammation.

**Interpretation of the guidelines recommendation for the management of hypertension**

Dr. Prof. K. K. Lohani referenced the European guidelines and the blood pressure (BP) lowering study, emphasizing two key points:

- **Combination therapy is now standard** – once BP exceeds 150/95 mmHg, combination therapy is recommended, while monotherapy is used only for lower BP levels.
- **ACE inhibitors or ARBs are the first-line choice in most guidelines** – Apart from being a first-line choice, they are often combined with calcium channel blockers or diuretics. If two-drug therapy is insufficient, a third drug is added, and if three drugs fail, it is diagnosed as resistant hypertension, requiring a fourth or additional agents.

**Evidence from the key clinical trials on the use of ACE inhibitors and ARBs for the management of hypertension**

Dr. Prof. K. K. Lohani emphasized that RAAS modulation provides benefits beyond just lowering blood pressure, significantly improving cardiovascular and renal outcomes. He cited key clinical trials as below:

- HOPE study (Ramipril vs. placebo): 22% reduction in myocardial infarction, stroke, or cardiovascular death in high-risk patients.
- CONSENSUS study (Enalapril vs. placebo): 27% reduction in total mortality in severe heart failure.
- CHARM-Alternative study (ARBs in ACE inhibitor-intolerant patients): 23% reduction in cardiovascular death or heart failure hospitalization.
- LIFE study (Losartan vs. Atenolol): 13% reduction in death, myocardial infarction, or stroke in hypertensive patients over 55 years.

**Contraindications and side effects of using ACE inhibitors and ARB**

Dr. Prof. K. K. Lohani discussed the contraindications and side effects of ACE inhibitors and ARBs in hypertension treatment.

**ACE inhibitors**

Absolute contraindications include a history of angioedema and hypersensitivity. Additionally, ACE inhibitors carry an FDA black box warning against use in pregnancy (Especially in the second and third trimesters) and breastfeeding due to risks of fetal harm and neonatal hypotension. A persistent dry cough is a common issue, with incidence varying from 2% (Captopril/Enalapril) to 12% (Ramipril), and up to 35% in some formulations. While other side effects like dizziness, hyperkalemia, and hypotension are manageable, cough often leads to discontinuation.

**ARBs**

Similar to ACE inhibitors—angioedema, hypersensitivity, and avoidance in pregnancy and breastfeeding. ARBs do not cause cough, with incidence rates comparable to placebo. Dr. Prof. K. K. Lohani shared his 25 years of clinical experience, emphasizing that he has never had to discontinue an ARB due to cough, reinforcing their better tolerability. Also, he provided comparisons, noting that 40 mg of Azilsartan is equivalent to 40 mg of Telmisartan or 20 mg of Olmesartan. Overall, he highlighted ARBs as a safer alternative for patients who develop coughs with ACE inhibitors.

**Comparison between ACE inhibitors vs. ARBs for the treatment of hypertension**

Dr. Prof. K. K. Lohani introduced a key comparative discussion between ACE inhibitors and ARBs. He explained that ACE inhibitors and ARBs act through nearly identical mechanisms and are used for the same indications, leading to natural comparisons between the two drug classes. This debate intensified in the early 2000s, especially after Telmisartan and Olmesartan became widely available.

**2004 ACE inhibitors vs. ARBs control comparison study controversy**

A 2004 international study suggested that ARBs provided superior systolic (-3 mmHg) and diastolic (-1.5 mmHg) BP reduction across various patient groups, including those with metabolic syndrome, chronic kidney disease (CKD), and high cardiovascular risk. While statistically significant, the clinical relevance of this difference was debated. However, the study fueled discussions favoring ARBs due to:

- Slightly better BP reduction
- A more favorable side effect profile

**2006 meta-analysis study**

A 2006 meta-analysis comparing ACE inhibitors and ARBs found:

- Cardiovascular mortality prevention: Similar in both groups
- Myocardial infarction prevention: Slightly favors ACE inhibitors
- Stroke prevention: Slightly favors ARBs
- End-stage renal disease prevention: ARBs significantly better
- Drug withdrawal rates: ARBs had fewer discontinuations due to better tolerability

Dr. Prof. K. K. Lohani explained that while the debate between ACE inhibitors and ARBs continued for years, clinical practice developed a conventional approach:

- ACE inhibitors were often prescribed for cardiovascular conditions
- ARBs were preferred for renal protection

**The ongoing Telmisartan alone and in combination with ramipril global endpoint (ONTARGET) trial**

This landmark study directly compared Telmisartan (ARB) and Ramipril (ACE inhibitor) in hypertension management, concluding:

- Telmisartan was non-inferior to Ramipril.
- Both drugs were equally effective in reducing cardiovascular risk.
- Telmisartan had fewer side effects and lower discontinuation rates.

These findings settled much of the debate, reinforcing that ARBs and ACE inhibitors are equally effective, but ARBs offer better tolerability due to a lower incidence of side effects like cough.

**The 2021 landmark USA study**

After 14 years another landmark study from the USA was conducted to assess which among ACE inhibitors vs. ARBs is the better first-line therapy for hypertension management. The study found no significant difference in cardiovascular outcomes between ACE inhibitors and ARBs when used as first-line treatment for hypertension.

This study reaffirmed previous findings—ACE inhibitors and ARBs are interchangeable in terms of efficacy. The choice remains based on patient tolerance and side effect profile, with ARBs preferred due to better tolerability.

**Usage of Telmisartan in the management of hypertension**

Dr. Prof. K. K. Lohani highlighted the usage of Telmisartan in the management of Hypertension. Telmisartan in the management of hypertension was as effective as other ARBs and ACE inhibitors. The half-life of Telmisartan was >24 hours, ensuring sustained blood pressure control with once-daily dosing. Telmisartan prevents morning BP surge, reducing the risk of stroke and heart attack. Telmisartan shows minimal side effects reported over 25 years of clinical use. There were no recorded cases of intolerance or significant adverse events related to Telmisartan. Telmisartan is effective both as monotherapy & in combination therapy. It can be safely combined with beta-blockers (e.g., Metoprolol), calcium-channel blockers (e.g., Amlodipine), and diuretics (e.g., Hydrochlorothiazide). But never combine ARBs with ACE inhibitors due to an increased risk of side effects.

**Real-world study on the use of ACE inhibitors vs. ARBs in the treatment of hypertension**

Dr. Prof. K. K. Lohani discussed the survey results conducted during the event analyzing the prescription patterns among physicians. The following were the interpretations of the survey report.

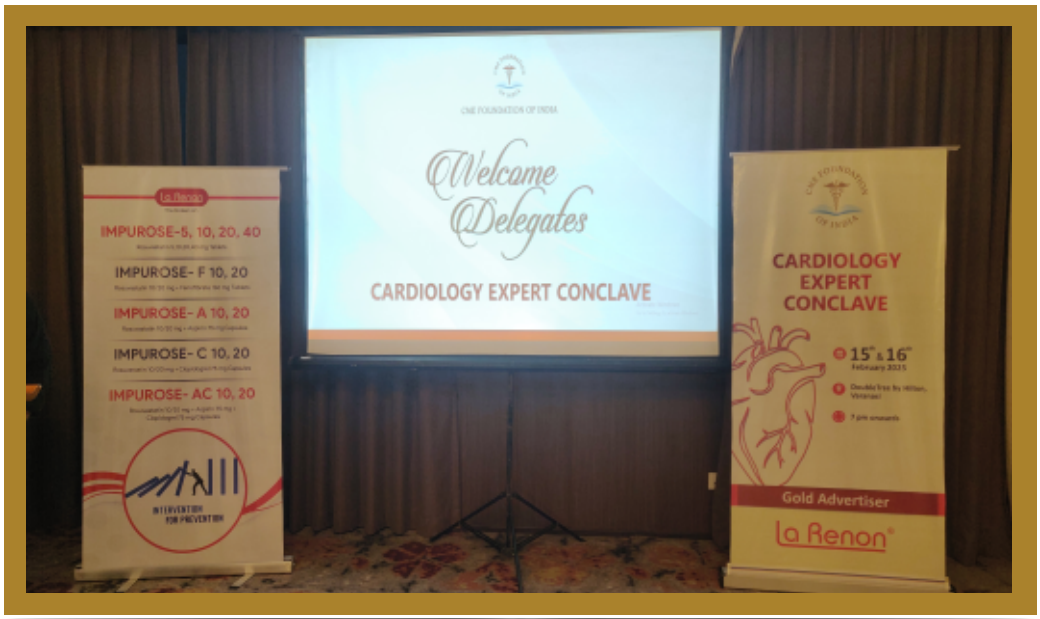
- **Treatment of hypertension in high systolic BP patient**
  More than 60% of doctors treated hypertensive patients when their systolic BP was more than 160 mmHg—suggesting the need for combination therapy.
- **Treatment naïve and risk factors of hypertension**
  As per 40% of doctors, 8 out of 10 patients were treatment naïve patients of hypertension which might be due to a lack of awareness among the patients. Also, as per 73% of doctors, the risk factors of hypertension were diabetes, obesity, and smoking.
- **Drug used in the treatment of hypertension in diabetes patients**
  In diabetes patients, 53% of doctors prefer ACE inhibitors for the treatment of hypertension. As per 47% of doctors, Ramipril is the preferred ACE inhibitor for the treatment of hypertension in diabetes patients. Also, in diabetes patients with hypertension, Telmisartan is the prescribed ARB as per 40% of doctors due to better efficacy and safety profile.
- **Drugs prescribed in hypertensive patients with ischemic heart disease, percutaneous coronary intervention, and post-myocardial infarction**
  ACE inhibitors are the preferred prescribing drug for hypertension patients with ischemic heart disease, percutaneous coronary intervention, or post-myocardial infarction as per 60% of doctors despite ARBs being equally effective.
- **Age groups for prescribing ACE inhibitors and ARBs**
  In 45-55 years old patients with hypertension, ACE inhibitor is prescribed by 40% of doctors and ARB is prescribed by 47% of doctors as most of the doctors are following the old **NICE guideline**s recommended strategy for the treatment of hypertension which indicates that initial treatment for hypertension can be initiated with—ACE inhibitors, ARBs or beta-blockers in the patients aged <55 years. In patients aged >55 years, initial treatment should be initiated with either calcium channel blockers or diuretics.

- **Side effects of ACE inhibitors in hypertension patients**
  As per 73% of doctors, 1 out of 10 patients who had been treated with an ACE inhibitor complained of cough. Also, as per 100% of doctors, the patients were shifted to ARB if the patient complained about ACE inhibitor-related cough. Moreover, as per 80% of doctors after switching patients from an ACE inhibitor-related cough to an ARB, they experienced relief from the cough. This is because ACE inhibitors inhibit the enzyme that causes bradykinin degradation which causes cough. However, ARBs do not inhibit bradykinin degradation which has a similar profile of cough as that of a placebo.
- **Tolerance, efficacy, and adherence to ACE inhibitors and ARBs**
  As per 53% of doctors, ARBs had better tolerance in patients with hypertension. Also, as per 73% of doctors, ARBs was more effective in lowering blood pressure as compared to ACE inhibitors. However, as per 60% of doctors, patients were more adhered to ACE inhibitors.

**At the end of the Conclave, the CME Foundation of India extended its sincere gratitude to the speaker and delegates for attending the conclave and acknowledged Aristo Ltd., the industry partner, for their valuable support and contribution to the success of the Conclave.**

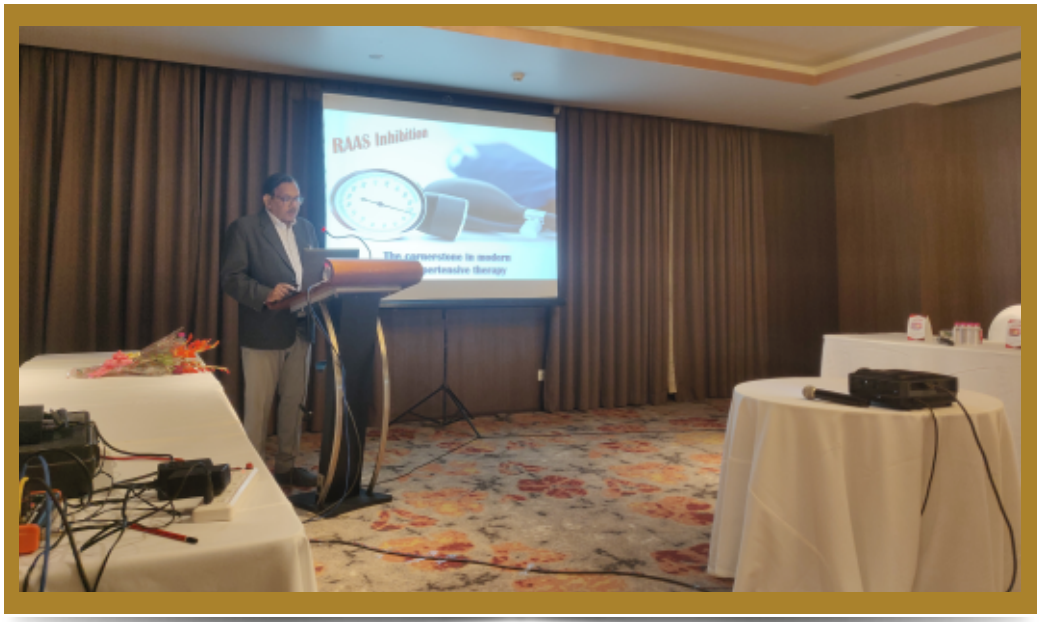
# Snapshots of Success

## Welcoming the Delegates

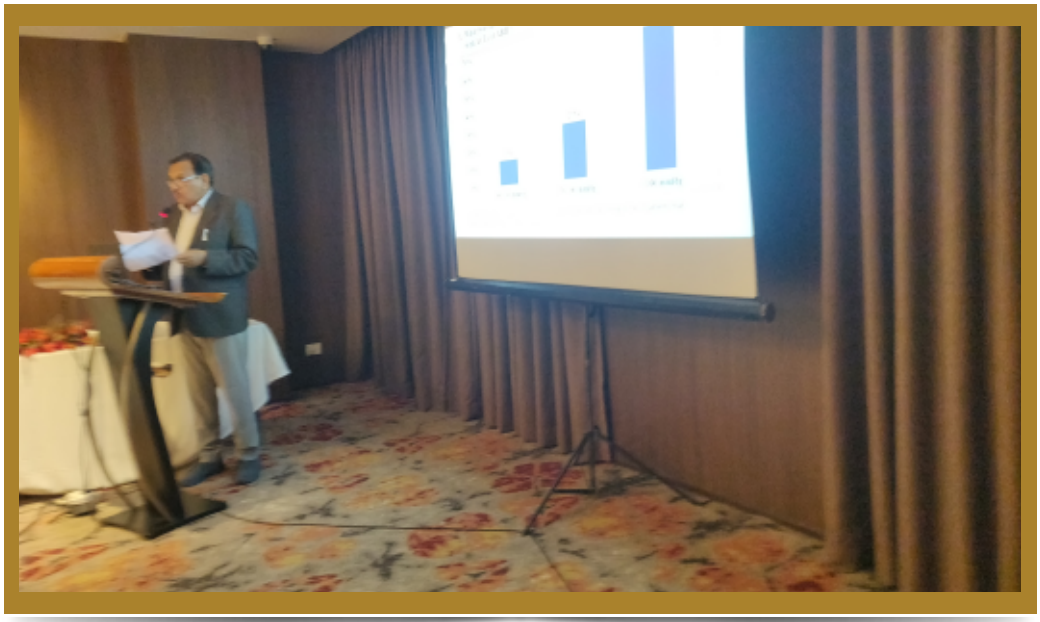



## Registration Counter

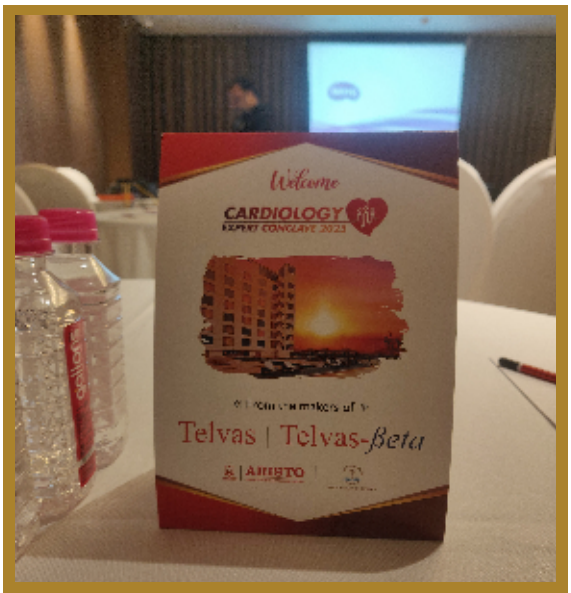
**Lecture on Angiotensin Receptor Blockers (ARBs)**
**vs. Angiotensin-Converting Enzyme (ACE) Inhibitors in Hypertension**

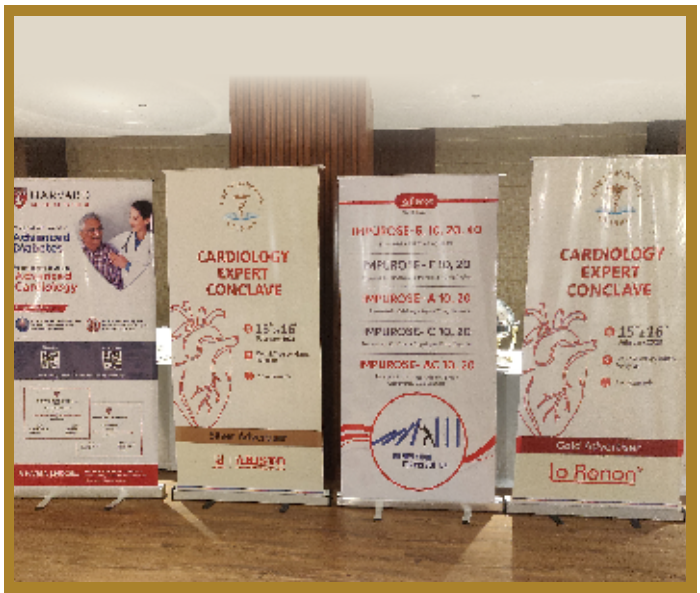


## Real-world Study on the Use of ACE inhibitors vs. ARB in the Treatment of Hypertension



## Branding Opportunity

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