



## Comparative evaluation of propofol and etomidate for laryngeal mask airway insertion and hemodynamic stability: A randomized controlled trial.

Dr. Haritha Gundeboyina<sup>1\*</sup>, Dr. Harikrishna Gulipalli<sup>1</sup>, Dr. Pigilam Siddarth<sup>2</sup>

<sup>1</sup>Assistant Professor, Department of Anaesthesiology, Visakha Institute of Medical Sciences, Visakhapatnam, Andhra Pradesh, India

<sup>2</sup>Senior Consultant Orthopaedic Surgeon and Limb Reconstructive Specialist, KIMS ICON Hospital, Visakhapatnam, Andhra Pradesh, India

### Abstract

#### Background

The laryngeal mask airway (LMA) is widely used in modern anesthesia practice, and successful insertion requires adequate suppression of airway reflexes with minimal hemodynamic disturbances. Propofol is considered the standard induction agent but is associated with hypotension, whereas Etomidate offers cardiovascular stability, though insertion conditions may be suboptimal.

**Aim:** To compare the ease of LMA insertion and hemodynamic responses following induction with intravenous Propofol and Etomidate.

#### Methods

This prospective randomized double-blind study included 62 ASA I–II patients aged 18–50 years, undergoing elective surgeries at CARE Hospitals, Visakhapatnam. Participants were randomly assigned to receive either Propofol (2 mg/kg; n=31) or Etomidate (0.3 mg/kg; n=31) for induction. Ease of LMA insertion was evaluated using predefined parameters (mouth opening, gagging, coughing, head/limb movements, and laryngospasm). Hemodynamic variables (heart rate, systolic and diastolic blood pressure) were recorded at baseline and 30 seconds post-induction.

#### Results

The mean age was  $32.1 \pm 8.0$  years; both groups were comparable in gender (Propofol 58% male vs. Etomidate 55% male), weight ( $61.2 \pm 9.6$  kg vs.  $60.4 \pm 8.8$  kg), and ASA status (Grade I: 67.7%, Grade II: 32.3%). Propofol achieved better insertion conditions with higher adequate mouth opening (93.5% vs. 71.0%,  $p=0.02$ ), absence of gagging (90.3% vs. 61.3%,  $p=0.01$ ), and first-attempt success (93.5% vs. 74.2%,  $p=0.04$ ). However, Propofol caused significant post-induction hypotension (SBP  $124 \rightarrow 98$  mmHg;  $p<0.001$ ), while Etomidate maintained stable hemodynamics.

#### Conclusion

Propofol provides better ease of LMA insertion with higher first-attempt success but is associated with significant hypotension. Etomidate, although hemodynamically stable, offers less favorable insertion conditions. The choice between the agents should therefore balance airway insertion ease against cardiovascular safety.

#### Recommendations

Propofol is preferred for healthy patients; Etomidate is recommended in cardiovascularly vulnerable individuals to balance airway management and hemodynamic stability.

**Keywords:** Propofol, Etomidate, Laryngeal mask airway, Hemodynamics, Airway insertion, Anesthesia

**Submitted:** June 20, 2025 **Accepted:** August 29, 2025 **Published:** September 30, 2025

**Corresponding author:** Dr. Haritha Gundeboyina\*

**Email ID:** [haritha89998@gmail.com](mailto:haritha89998@gmail.com)

Assistant Professor, Department of Anaesthesiology, Visakha Institute of Medical Sciences, Visakhapatnam, Andhra Pradesh, India

#### Introduction

The laryngeal mask airway (LMA), introduced by Brain in 1981, is regarded as one of the most important

innovations in airway management. It bridges the gap between face mask ventilation and endotracheal intubation, offering a less invasive alternative associated with reduced airway stimulation and improved

hemodynamic stability during insertion [1]. Successful placement of the LMA, however, requires adequate suppression of airway reflexes, sufficient jaw relaxation, and smooth insertion without complications such as gagging, coughing, or laryngospasm [2].

A wide range of anesthetic agents has been evaluated for facilitating LMA insertion, including thiopentone, propofol, sevoflurane, and etomidate [3]. Propofol, a non-barbiturate intravenous anesthetic, is considered the agent of choice due to its rapid onset, predictable recovery, and reliable suppression of airway reflexes [4]. Despite these advantages, propofol is associated with dose-dependent hypotension and respiratory depression, which may be undesirable in patients with limited cardiovascular reserve [5].

Etomidate, in contrast, is a short-acting hypnotic with excellent cardiovascular stability and minimal respiratory depression [3]. These properties make it particularly useful in patients at risk of hemodynamic compromise. Nonetheless, its use has been linked to myoclonus, pain on injection, and relatively less favorable insertion conditions, which can limit its applicability for LMA placement [2,4].

Given the contrasting pharmacological profiles of these two agents, it is clinically relevant to compare their effectiveness in achieving optimal insertion conditions for LMA, while balancing hemodynamic stability [1–5]. The present randomized double-blind study was undertaken to evaluate these parameters with intravenous propofol and etomidate in adult patients undergoing elective surgeries.

## Methodology

### Study design and setting

This prospective, randomized, double-blind study was conducted in the Department of Anesthesiology, CARE Hospitals, Visakhapatnam, between November 2012 and June 2014.

### Study population

Sixty-two adult patients, aged 18–50 years, with American Society of Anesthesiologists (ASA) physical status I or II, scheduled for elective surgical procedures under general anesthesia were included.

### Inclusion criteria

- Age between 18 and 50 years
- ASA grade I or II
- Patients undergoing elective surgeries under general anesthesia
- Provision of informed written consent

### Exclusion criteria

- ASA grade III or IV
- Patients with significant comorbidities (hypertension, ischemic heart disease, cerebrovascular disease, diabetes mellitus)
- Morbid obesity
- Heavy smokers with irritable airways
- Risk of aspiration (hiatus hernia, gastroesophageal reflux disease)
- Anticipated difficult airway or inability to open mouth >1.5 cm

### Randomization and blinding

Patients were randomly allocated into two equal groups (n=31 each) using a computer-generated randomization sequence. The allocation sequence was prepared in advance by an independent statistician and secured in sequentially numbered, sealed, opaque envelopes to ensure allocation concealment. Participant enrollment was performed by a senior anesthesiologist who was not involved in either drug administration or data collection. Immediately before induction, the primary anesthesiologist opened the assigned envelope and administered the designated study drug Etomidate (Group A) or Propofol (Group B). The investigator responsible for assessing the ease of LMA insertion and recording hemodynamic variables remained blinded to group allocation. All patients were also blinded to the intervention they received.

### Interventions

All patients were kept fasting overnight and premedicated with oral alprazolam (0.5 mg) and ranitidine (150 mg) on the night before surgery. Standard intraoperative monitoring included heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial pressure (MAP), pulse oximetry, and end-tidal CO<sub>2</sub>.

Premedication included intravenous midazolam (0.03 mg/kg) and fentanyl (2 µg/kg). Induction was performed with either:

**Etomidate group (n=31):** 0.3 mg/kg Etomidate (diluted to 1 mg/ml)

**Propofol group (n=31):** 2 mg/kg Propofol

After 30 seconds, an LMA of appropriate size was inserted by the blinded investigator.

### Outcome measures

#### Primary outcomes



Ease of LMA insertion (adequate mouth opening, absence of gagging/coughing, absence of head/limb movement, absence of laryngospasm) and overall insertion score.

### Secondary outcomes

Page | 3 Number of attempts required for successful insertion, and changes in hemodynamic parameters (HR, SBP, DBP, MAP) before and 30 seconds after induction.

### Sample size calculation

Based on previous comparative studies evaluating Propofol and Etomidate for LMA insertion, a minimum of 31 patients per group was calculated to achieve a statistical power of 90% and a confidence level of 95%, considering an expected 25% difference in insertion ease and hemodynamic variability between the groups [10,11].

### Statistical analysis

Data were analyzed using Minitab version 16. Continuous variables were expressed as mean  $\pm$  SD and compared using the Student's t-test. Categorical variables were expressed as frequencies and percentages and analyzed using the Chi-square or Fisher's exact test. A p-value  $<0.05$  was considered statistically significant.

### Ethical considerations

Ethical committee approval was obtained from the Institutional Ethics Committee of CARE Hospitals,

Visakhapatnam, and written informed consent was secured from all participants before enrollment.

### Results

#### Participant flow and recruitment

During the study period from November 2012 to June 2014, a total of 70 patients scheduled for elective surgeries under general anesthesia at CARE Hospitals, Visakhapatnam, were screened for eligibility. Of these, 8 patients were excluded: 4 did not meet the inclusion criteria, 2 declined to participate, and 2 had anticipated difficult airways. The remaining 62 eligible participants were randomly assigned to one of two groups:

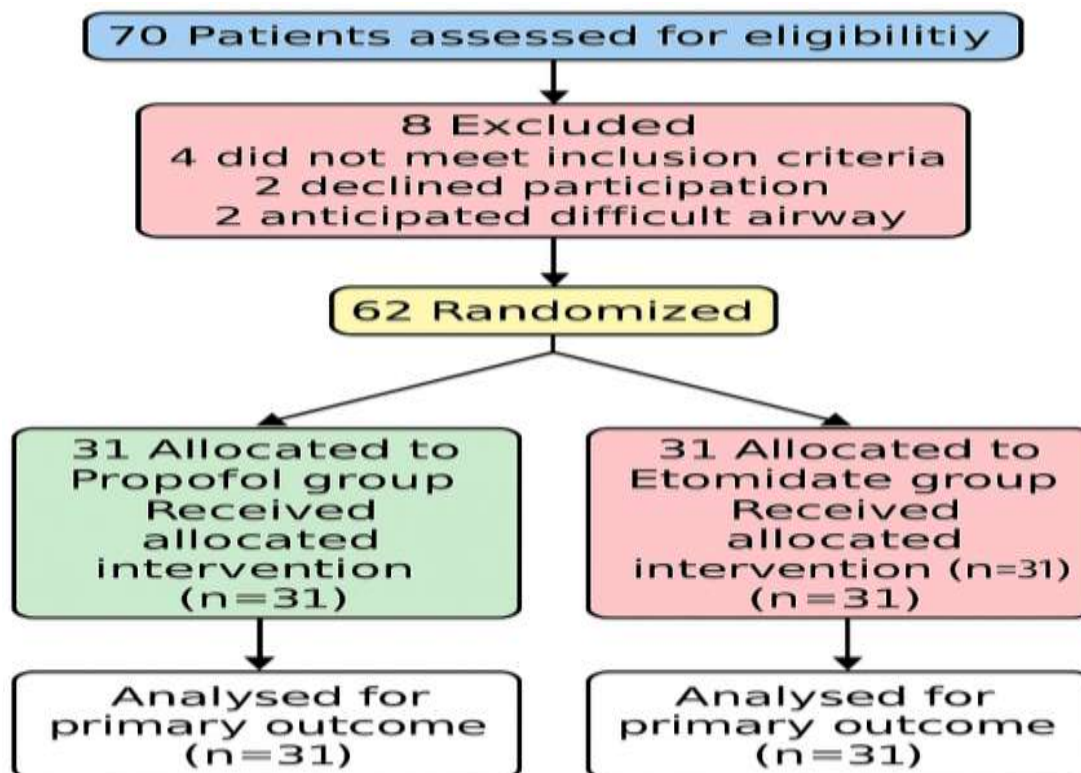
**Propofol group (n = 31):** Received intravenous Propofol 2 mg/kg

**Etomidate group (n = 31):** Received intravenous Etomidate 0.3 mg/kg

All randomized participants received the allocated intervention and were analysed for the primary outcome (ease of LMA insertion) and secondary outcomes (hemodynamic responses). There were no dropouts or protocol deviations, and all data were included in the final analysis (Figure 1).

#### Follow-up

Intra-operative hemodynamic parameters were recorded up to 30 seconds post-induction; there was no postoperative follow-up phase since the study outcomes were immediate and intra-operative.



**Figure 1. Participant flow diagram**

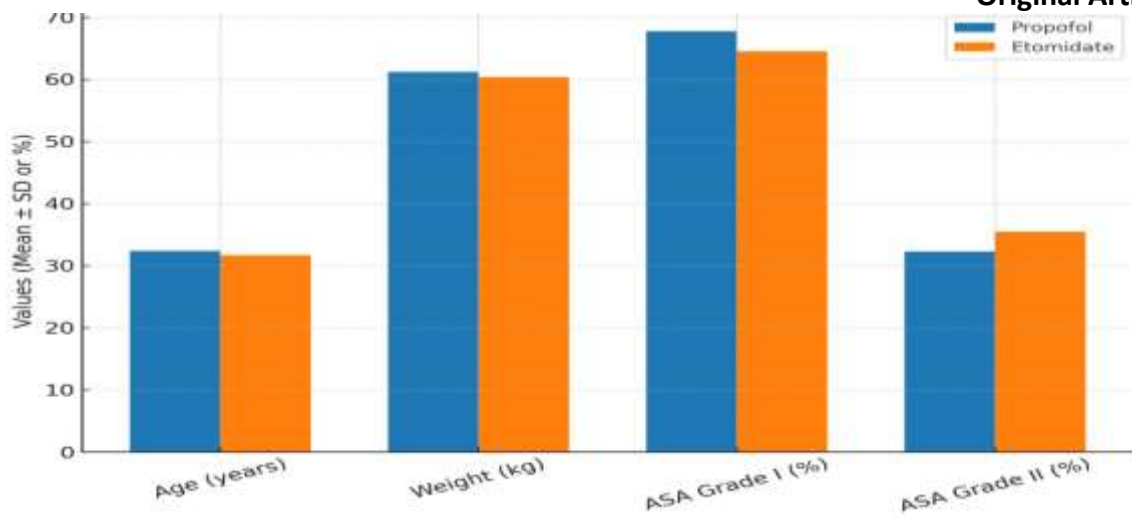
A total of 62 patients were enrolled and randomly allocated into two groups: Propofol (n=31) and Etomidate (n=31). Both groups were comparable with respect to demographic characteristics, including age, gender

distribution, weight, and ASA physical status (Table 1, Figure 2). No statistically significant differences were observed, confirming that the groups were homogenous at baseline.

**Table 1. Demographic profile of study participants (n = 62)**

| Variable                   | Propofol Group (n=31) | Etomidate Group (n=31) | p-value |
|----------------------------|-----------------------|------------------------|---------|
| Age (years, Mean $\pm$ SD) | 32.4 $\pm$ 8.2        | 31.7 $\pm$ 7.9         | 0.72    |
| Gender (M/F)               | 18 / 13               | 17 / 14                | 0.79    |
| Weight (kg, Mean $\pm$ SD) | 61.2 $\pm$ 9.6        | 60.4 $\pm$ 8.8         | 0.65    |
| ASA Grade I / II           | 21 / 10               | 20 / 11                | 0.84    |

*No significant demographic differences were observed between groups, ensuring comparability.*



**Figure 2: Demographic profile of study participants**

### Ease of LMA insertion

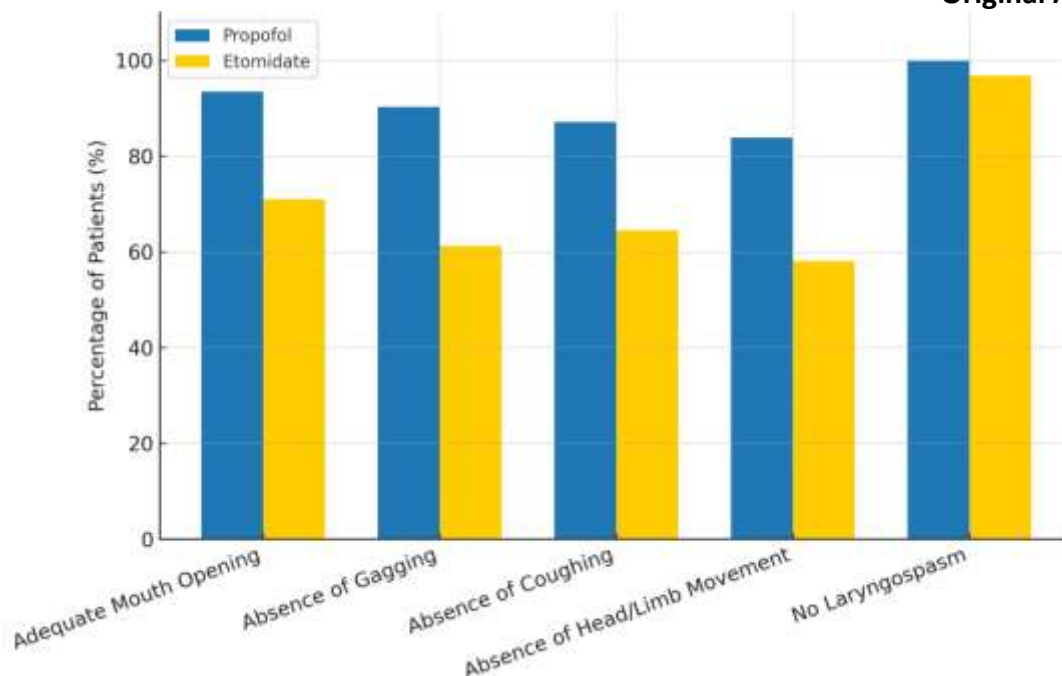
Assessment of insertion conditions demonstrated that Propofol provided more favorable conditions compared with Etomidate. Adequate mouth opening was achieved in 93.5% of patients in the Propofol group versus 71.0% in

the Etomidate group ( $p=0.02$ ). Similarly, absence of gagging (90.3% vs. 61.3%,  $p=0.01$ ), absence of coughing (87.1% vs. 64.5%,  $p=0.03$ ), and absence of head or limb movements (83.9% vs. 58.1%,  $p=0.04$ ) were significantly more common with Propofol. Laryngospasm was rare in both groups, with no significant difference (Table 2, Figure 3).

**Table 2. Ease of LMA insertion parameters**

| Insertion Condition        | Propofol Group (n=31) | Etomidate (n=31) | Group | p-value |
|----------------------------|-----------------------|------------------|-------|---------|
| Adequate Mouth Opening     | 29 (93.5%)            | 22 (71.0%)       |       | 0.02*   |
| Absence of Gagging         | 28 (90.3%)            | 19 (61.3%)       |       | 0.01*   |
| Absence of Coughing        | 27 (87.1%)            | 20 (64.5%)       |       | 0.03*   |
| Absence of Head/Limb Move. | 26 (83.9%)            | 18 (58.1%)       |       | 0.04*   |
| No Laryngospasm            | 31 (100%)             | 30 (96.8%)       |       | NS      |

*Propofol showed significantly better insertion conditions compared with Etomidate.*



**Figure 3. Ease of LMA insertion parameters**

### Number of attempts and overall ease score

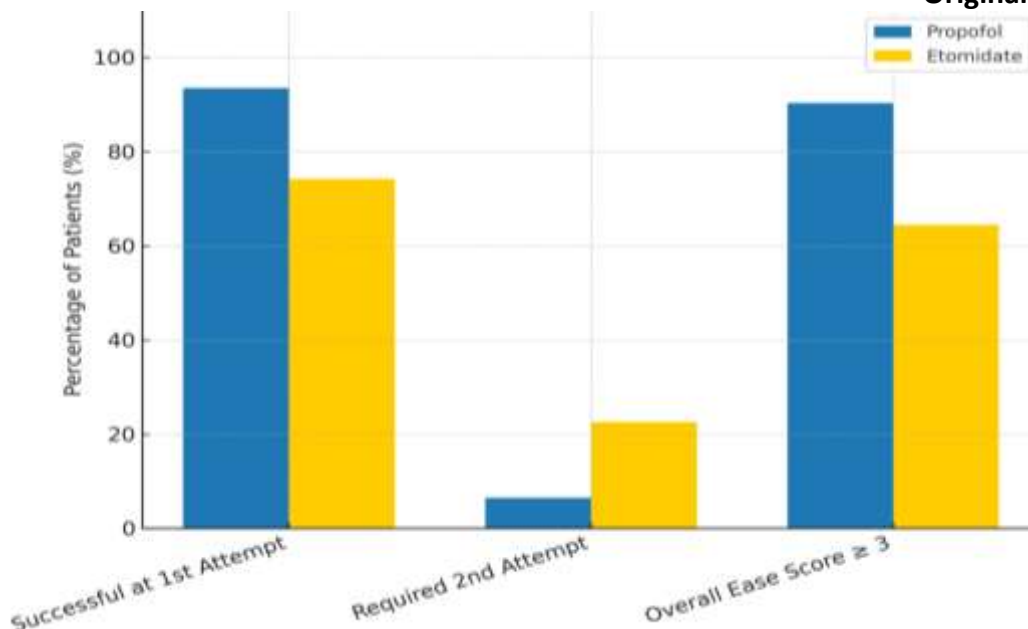
First-attempt success of LMA insertion was higher in the Propofol group (93.5%) compared to the Etomidate group (74.2%) ( $p=0.04$ ). A second attempt was required in only

6.5% of Propofol patients, whereas 22.6% of Etomidate patients needed a repeat attempt ( $p=0.03$ ). The overall ease of insertion score ( $\geq 3$ ) was also significantly better in the Propofol group (90.3% vs. 64.5%,  $p=0.02$ ) (Table 3, Figure 4).

**Table 3. Number of attempts and overall ease score**

| Variable                    | Propofol Group (n=31) | Etomidate (n=31) | Group | p-value |
|-----------------------------|-----------------------|------------------|-------|---------|
| Successful at 1st attempt   | 29 (93.5%)            | 23 (74.2%)       |       | 0.04*   |
| Required 2nd attempt        | 2 (6.5%)              | 7 (22.6%)        |       | 0.03*   |
| Overall Ease Score $\geq 3$ | 28 (90.3%)            | 20 (64.5%)       |       | 0.02*   |

*Ease of LMA insertion was significantly higher with Propofol, with fewer repeat attempts needed.*



**Figure 4. Number of attempts and overall ease score**

### Hemodynamic parameters

Hemodynamic monitoring revealed contrasting patterns between the two agents. Propofol was associated with a marked and statistically significant reduction in both

systolic and diastolic blood pressure post-induction ( $p < 0.001$  for both). Conversely, Etomidate maintained near-baseline values, with no significant decline observed in SBP or DBP. Heart rate remained stable in both groups, without significant intragroup variation (Table 4).

**Table 4. Hemodynamic parameters**

| Parameter (Mean ± SD)      | Baseline | Post-Induction (30 sec) | p-value (within group) |
|----------------------------|----------|-------------------------|------------------------|
| Propofol – SBP (mmHg)      | 124 ± 12 | 98 ± 10 ↓               | <0.001*                |
| Etomidate – SBP (mmHg)     | 123 ± 11 | 118 ± 12                | 0.08 (NS)              |
| Propofol – DBP (mmHg)      | 78 ± 8   | 64 ± 7 ↓                | <0.001*                |
| Etomidate – DBP (mmHg)     | 77 ± 9   | 74 ± 8                  | 0.12 (NS)              |
| Propofol – HR (beats/min)  | 84 ± 9   | 88 ± 10                 | 0.09 (NS)              |
| Etomidate – HR (beats/min) | 83 ± 8   | 85 ± 9                  | 0.14 (NS)              |

*Propofol caused a significant fall in systolic and diastolic blood pressure, whereas Etomidate maintained stable hemodynamics.*

### Discussion

This prospective, randomized, double-blind study compared Propofol and Etomidate for ease of laryngeal mask airway (LMA) insertion and peri-induction hemodynamic responses in adult patients undergoing elective procedures. The findings reveal a clear balance between airway management efficacy and cardiovascular

stability: Propofol ensured easier LMA insertion, whereas Etomidate preserved superior hemodynamic stability.

### Ease of LMA insertion

Propofol consistently produced better insertion conditions, characterized by greater jaw relaxation, minimal gagging, and fewer movement responses. These advantages stem

from its strong depressant effect on airway reflexes, which enhances oropharyngeal compliance and facilitates smooth insertion [6,8]. Etomidate, in contrast, showed less favorable insertion conditions, likely due to its weaker suppression of airway reflexes and the presence of excitatory motor activity such as myoclonus [9,11].

The higher first-attempt success rate with Propofol (93.5% vs. 74.2%) underscores its clinical advantage, particularly where rapid and atraumatic airway establishment is crucial. Consistent findings across multiple controlled trials further validate Propofol's reliability in producing optimal conditions for LMA insertion [9,11].

### Hemodynamic stability

Although Propofol demonstrated superiority in insertion ease, it was associated with significant reductions in systolic and diastolic blood pressures after induction, consistent with its known vasodilatory and myocardial depressant properties [6,8,10]. These effects arise from inhibition of sympathetic vasoconstrictor activity and decreased myocardial contractility. While well-tolerated in healthy individuals, these changes may pose risks in patients with limited cardiovascular reserve.

Etomidate maintained near-baseline hemodynamic parameters throughout the peri-induction period, owing to its minimal effect on sympathetic tone and myocardial function [7,12]. This stability renders it a preferred choice for induction in patients with ischemic heart disease, impaired ventricular function, or hemodynamic fragility [7].

### Clinical implications

In young, normotensive patients undergoing elective procedures, Propofol remains the preferred agent for its superior insertion profile and higher first-attempt success rate. However, in individuals with cardiovascular compromise or predisposition to hypotension, Etomidate provides a safer alternative with acceptable insertion conditions.

An evolving approach involves co-induction or drug combination regimens aimed at balancing airway reflex suppression and hemodynamic stability. Protocols combining Etomidate with Propofol or ketamine ("Ketofol") have shown promising results in maintaining cardiovascular equilibrium while achieving adequate insertion conditions [7,8,10]. Future investigations into these balanced regimens may help tailor induction strategies to individual patient needs and procedural requirements.

### Generalizability

The findings of this study can be generalized primarily to adult patients aged 18–50 years with ASA physical status I–II undergoing elective procedures. Since individuals with significant comorbidities, elderly patients, and those at higher anesthetic risk were excluded, the applicability of results to broader populations remains limited. Further multicentric studies with diverse age groups and comorbidity profiles are warranted to validate and expand these conclusions across different clinical settings.

### Conclusion

This randomized double-blind study demonstrated that Propofol provides superior conditions for laryngeal mask airway (LMA) insertion, with significantly higher first-attempt success rates and smoother insertion parameters compared to Etomidate. However, these advantages were accompanied by a marked reduction in systolic and diastolic blood pressures, reflecting Propofol's propensity to cause hypotension. In contrast, Etomidate preserved cardiovascular stability but was associated with suboptimal insertion conditions, requiring more attempts for successful placement. Thus, Propofol may be the induction agent of choice in healthy, hemodynamically stable patients, whereas Etomidate offers a safer alternative in individuals at risk of hypotension or with cardiovascular compromise.

### Limitations

The present study was limited to ASA I–II patients aged 18–50 years, excluding those with major comorbidities. Thus, the generalizability of findings to elderly or high-risk populations is limited. Recovery characteristics and postoperative adverse effects such as nausea, vomiting, or myoclonus were not systematically assessed. Future studies with larger sample sizes and broader patient populations are warranted.

### Recommendations

Based on the study findings, Propofol should be preferred as the induction agent in young, healthy individuals undergoing elective surgeries, as it ensures smoother laryngeal mask airway insertion and higher first-attempt success rates. However, clinicians must remain cautious of its significant hypotensive effects, particularly in patients with compromised cardiovascular status. In contrast, Etomidate is recommended for individuals with ischemic heart disease, hypovolemia, or those at risk of peri-induction hypotension, given its ability to maintain hemodynamic stability. An individualized approach, considering patient comorbidities, surgical context, and



anesthetic risks, is advised. Combination regimens may further optimize insertion ease and cardiovascular safety.

### Acknowledgements

Page | 9

The authors sincerely acknowledge the support of the Department of Anaesthesiology, CARE Hospitals, Visakhapatnam, for providing the necessary facilities and guidance to conduct this study. Our heartfelt thanks go to all the patients who willingly participated in this study. We also appreciate the assistance of nursing staff and colleagues, whose cooperation and encouragement contributed significantly to the smooth conduct and successful completion of this research.

### Abbreviations

**ASA** – American Society of Anesthesiologists

**DBP** – Diastolic Blood Pressure

**HR** – Heart Rate

**LMA** – Laryngeal Mask Airway

**MAP** – Mean Arterial Pressure

**SBP** – Systolic Blood Pressure

### Source of funding

The Study has no funding

### Conflict of interest

The Author declares no conflict of interest.

### Author contributions

**HG**-Concept and design of the study, results interpretation, review of literature, and preparing the first draft of the manuscript. Statistical analysis and interpretation, revision of manuscript.

**HG**-Concept and design of the study, results interpretation, review of literature, preparing the first draft of the manuscript, and revision of the manuscript.

**PS**-Review of literature and preparing the first draft of the manuscript. Statistical analysis and interpretation.

### Data availability

Data available on request

### Author biography

Dr. Haritha Gundeboyina completed her MBBS from Narayana Medical College, Nellore (2003–2009) and DNB in Anaesthesiology from CARE Hospitals, Visakhapatnam (2012–2015). She has served as Senior Resident in the Department of Anaesthesiology at Andhra

Medical College (2015–2016) and Consultant Anaesthesiologist at CARE Hospitals, Visakhapatnam (2016–2018). Subsequently, she worked as a Senior Resident and later as an Assistant Professor in Anaesthesiology at GITAM Medical College (2018–2022). Since January 2022, she has been serving as an Assistant Professor in the Department of Anaesthesiology at Visakha Institute of Medical Sciences, Visakhapatnam. Her clinical expertise spans advanced trauma, cardiac, neonatal, and transplant anaesthesia, with significant experience in managing multi-specialty and super-specialty cases. ORCID ID: <https://orcid.org/0009-0006-7643-1300>

**Dr. Harikrishna Gulipalli** is an experienced anaesthesiologist with more than 18 years in cardiac anaesthesia and critical care. He earned his MBBS from Andhra Medical College, Visakhapatnam (2000) and Diploma in Anaesthesia (2006), followed by DNB Anaesthesia (2019) and an MBA in Health Care Services (2017). He has worked extensively in tertiary care hospitals, including Manipal Hospitals, My Cure Hospital, Care Hospitals, and ANU Institute of Neuro and Cardiac Sciences, Visakhapatnam. Currently, he is an Assistant Professor of Anaesthesiology at Visakha Institute of Medical Sciences and Consultant Anaesthesiologist at Vrindaa Super Specialty Hospital, Visakhapatnam. His expertise covers cardiac, thoracic, vascular, paediatric, and transplant anaesthesia, as well as advanced airway management, invasive procedures, and perioperative critical care. ORCID ID: <https://orcid.org/0009-0001-3533-951X>

**Dr. Pigilam Siddarth** obtained his MBBS from Narayana Medical College, Nellore (2001–2006) and MS in Orthopaedics from Dr. Pinnamaneni Siddhartha Medical College, Vijayawada (2009–2012), where he was awarded the Dr. NTR Health University Prof. Ethili Raju Orthopaedic Gold Medal. He subsequently completed a fellowship in Limb Reconstructive Surgery and Trauma at Ganga Hospital, Coimbatore, under Dr. MGR University. He has held positions as Senior Registrar and Orthopaedic Consultant at Ganga Hospital, Senior Resident at ASRAM Medical College, Eluru (2012–2017), and currently serves as Senior Consultant Orthopaedic Surgeon and Limb Reconstructive Specialist at KIMS ICON Hospital, Visakhapatnam (since 2017). His clinical interests include limb reconstruction, deformity correction, polytrauma, upper limb surgery, and navigation-assisted joint replacement. ORCID ID: <https://orcid.org/0009-0002-3690-5226>

### References

1. Lin YJ, Chen SL, Zheng XL, Yu S, Lu LY. Dose-response study of propofol combined with two different



doses of esketamine for laryngeal mask airway insertion in women undergoing hysteroscopy. *Heliyon*. 2024 Apr 30;10(9):e30511. Doi: 10.1016/j.heliyon.2024.e30511. PMID: 38765139; PMCID: PMC11101821.

2. Shetabi H, Montazeri K, Ghoojani Y. A Comparative Study of the Effect of Anesthesia Induction with the Use of Four Drug Combinations Including "Propofol," "Etomidate-Propofol," "Thiopental," and "Midazolam-Thiopental" on Hemodynamic Changes during the Insertion of Laryngeal Mask in Eye Surgery. *Adv Biomed Res*. 2022 Feb 28;11:11. <https://doi.org/10.4103/abr.abr.152.20> PMID:35386541 PMCID:PMC8977609

3. Jayaram K, Gurajala I, Kumar A, Durga P, Tejasri K. Effect of etomidate and propofol on airway mechanics during induction - A prospective randomized trial. *J Anaesthesiol Clin Pharmacol*. 2023 Jul-Sep;39(3):482-487. <https://doi.org/10.4103/joacp.joacp.534.21> PMID:38025560 PMCID:PMC10661644

4. Tang S, Lu J, Xu C, Wei L, Mei S, Chen R, Meng QT. Feasibility and Safety of Remazolam versus Propofol When Inserting Laryngeal Masks Without Muscle Relaxants During Hysteroscopy. *Drug Des Devel Ther*. 2023 May 1;17:1313-1322. <https://doi.org/10.2147/DDDT.S408584> PMID:37152102 PMCID:PMC10162397

5. Wan C, Hanson AC, Schulte PJ, Dong Y, Bauer PR. Propofol, Ketamine, and Etomidate as Induction Agents for Intubation and Outcomes in Critically Ill Patients: A Retrospective Cohort Study. *Crit Care Explor*. 2021 May 24;3(5):e0435. <https://doi.org/10.1097/CCE.0000000000000435> PMID:34046636 PMCID:PMC8148417

6. Giri SK, Mohapatra PS, Senapati LK, Mishra K. A Comparison of Hemodynamic Changes Between the Use of Etomidate and Propofol as Induction Agents for

Anesthesia in Daycare Surgeries. *Cureus*. 2022 Dec 12;14(12):e32421. doi: 10.7759/cureus.32421. PMID: 36644056; PMCID: PMC9832317.

7. Baradari AG, Alipour A, Habibi MR, Rashidaei S, Emami Zeydi A. A randomized clinical trial comparing hemodynamic responses to ketamine-propofol combination (Ketofol) versus etomidate during anesthesia induction in patients with left ventricular dysfunction undergoing coronary artery bypass graft surgery. *Arch Med Sci*. 2017 Aug;13(5):1102-1110. doi: 10.5114/aoms.2016.63193. Epub 2016 Oct 25. PMID: 28883852; PMCID: PMC5575215.

8. Hosseinzadeh H, Golzari SE, Torabi E, Dehdilani M. Hemodynamic Changes following Anesthesia Induction and LMA Insertion with Propofol, Etomidate, and Propofol + Etomidate. *J Cardiovasc Thorac Res*. 2013;5(3):109-12. doi: 10.5681/jcvtr.. 2013.023. Epub 2013 Oct 5. PMID: 24252986; PMCID: PMC3825398.

9. Saricaoglu F, Uzun S, Arun O, Arun F, Aypar U. A clinical comparison of etomidate-lipuro, propofol, and admixture at induction. *Saudi J Anaesth*. 2011 Jan;5(1):62-6. <https://doi.org/10.4103/1658-354X.76509> PMID:21655019 PMCID:PMC3101756

10. Kadu N, Agaskar RD. Comparative evaluation of propofol and etomidate for ease of insertion of the laryngeal mask airway and hemodynamic stability. *Int J Pharm Clin Res*. 2024;16(2):896-902.

11. Ghafoor HB, Afshan G, Kamal R. General anesthesia with laryngeal mask airway: etomidate vs propofol for hemodynamic stability. *Open J Anesthesiol*. 2012;2(4):161-5.

<https://doi.org/10.4236/ojanes.2012.24036>

12. Forman SA. Clinical and molecular pharmacology of etomidate. *Anesthesiology*. 2011 Mar;114(3):695-707. <https://doi.org/10.1097/ALN.0b013e3181ff72b5> PMID:21263301 PMCID:PMC3108152



Student's Journal of Health Research Africa

e-ISSN: 2709-9997, p-ISSN: 3006-1059

Vol.6 No. 9 (2025): September 2025 Issue

<https://doi.org/10.51168/sjhrafrica.v6i9.2121>

Original Article

#### PUBLISHER DETAILS

Page | 11

### **Student's Journal of Health Research (SJHR)**

(ISSN 2709-9997) Online

(ISSN 3006-1059) Print

Category: Non-Governmental & Non-profit Organization

Email: [studentsjournal2020@gmail.com](mailto:studentsjournal2020@gmail.com)

WhatsApp: +256 775 434 261

Location: Scholar's Summit Nakigalala, P. O. Box 701432,  
Entebbe Uganda, East Africa

