

# Shiv-mix for perioperative hemodynamic stability and analgesia: A new paradigm for limited resource centres



Submission: 19-01-2023

Revision: 31-01-2023

Publication: 01-03-2023

Dear editor,

A very interesting article has been published in your esteemed journal titled “*Effect of pre-emptive intravenous paracetamol, magnesium sulfate, and lignocaine on hemodynamic variables during perioperative period in pre-eclampsia patients scheduled for lower segment cesarean section under general anesthesia: A prospective randomized study*” by Kothari et al.,<sup>1</sup> (December 2022|Vol 13|Issue 12). Research is not complete unless it reaches to its potential audience.<sup>2</sup> We, firstly, would like to congratulate the authors and the journal for publishing their research on such a very important topic. Authors have described their findings in a clear and scientific manner. Randomized and double-blinded studies provide inferences which are considered more authentic.<sup>3</sup> Authors in this study used envelop method for allocating patient in the two groups; the intervention and the control. Findings of this study will definitely help readers and practitioners in providing safe and stable anesthesia to their patients. In this prospective randomized study, authors concluded that combination of paracetamol, magnesium sulfate, and lignocaine is effective in attenuating hemodynamic responses to laryngoscopy and intubation. They also found better hemodynamic stability during intraoperative and post-operative period in pre-eclampsia patients scheduled for lower segment cesarean section under general anesthesia. Finally, they opined that when paracetamol, magnesium sulfate, and lignocaine are given together effective and prolonged post-operative analgesia can be obtained.

Authors discussed efficacy and safety of various medications (Lignocaine, fentanyl, esmolol, and magnesium sulfate) comparing with placebo and different combinations used to attenuate laryngoscopy and intubation response.<sup>4,9</sup> However, in last paragraph of introduction and in discussion, authors wrote that they could not find any single study using all three drugs (intravenous paracetamol, magnesium sulfate, and lignocaine) simultaneously for attenuation of hemodynamic changes during laryngoscopy and intubation.

We would like to draw your kind attention published work that have utilized the same combination with similar effects and this study support the conclusions of those studies. We do agree that these were nor RCTs but case series. Two related articles are discussed here. Khan and Singh in their narrative review described efficacy, safety, and patient satisfaction of various combinations of paracetamol, tramadol, magnesium sulfate, and lignocaine (Shiv-mix 1, 2, and 3). Authors found the described opioid free anesthesia (OFA) regimen (Shiv-mix) very effective in attenuating laryngoscopic and intubation response. In their case series, they also found stable intraoperative hemodynamics and absence of some commonly seen post-operative complications such as PONV and shivering.<sup>10</sup> In another case series by Ansari et al., using similar OFA describing ten cases of laparoscopic cholecystectomy, the authors found that OFA using Shiv-Mix (A combination of paracetamol, tramadol, magnesium sulfate, and lignocaine) infusion preoperatively was a safe, opioid-sparing, and feasible option that provide good perioperative analgesia, stable hemodynamics, and an uneventful recovery profile.<sup>11</sup>

We again support the findings of the study by Kothari et al.<sup>1</sup> We hope that this discussion will help researchers

**Access this article online****Website:**<http://nepjol.info/index.php/AJMS>

DOI: 10.3126/ajms.v14i3.51594

E-ISSN: 2091-0576

P-ISSN: 2467-9100

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and practitioners to provide effective and safe perioperative course of their patients and opening new horizons for multimodal analgesia.

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## REFERENCES

1. Kothari D, Bansal A and Sunny SA. Effect of pre-emptive intravenous paracetamol, magnesium sulfate, and lignocaine on hemodynamic variables during perioperative period in pre-eclampsia patients scheduled for lower segment cesarean section under general anesthesia: A prospective randomized study. *Asian J Med Sci.* 2022;13(12):29-36.  
<https://doi.org/10.3126/ajms.v13i12.44663>
2. World Health Organization. *A Practical Guide for Health Researchers.* Geneva: World Health Organization; 2004.
3. Reeves BC, Deeks JJ, Higgins JP, Shea B, Tugwell P, Wells GA and Cochrane non-Randomized Studies of Interventions Methods Group. Including non-randomized studies on intervention effects. In: *Cochrane Handbook for Systematic Reviews of Interventions.* London, United Kingdom: Cochrane; 2019. p. 595-620.
4. Mollick MT, Hossain MD and Ali NP. Attenuation of cardiovascular response during laryngoscopy and endotracheal intubation by using pethidine with lignocaine. *J Armed Forces Med Coll Bangladesh.* 2010;6(2):40-43.  
<https://doi.org/10.3329/jafmc.v6i2.7274>
5. Gupta S and Tank P. A comparative study of efficacy of esmolol and fentanyl for pressure attenuation during laryngoscopy and endotracheal intubation. *Saudi J Anaesth.* 2011;5(1):2-8.  
<https://doi.org/10.4103/1658-354X.76473>
6. Marashi SM, Ghafari MH and Saliminia A. Attenuation of hemodynamic responses following laryngoscopy and tracheal intubation--comparative assessment of clonidine and gabapentin premedication. *Middle East J Anaesthesiol.* 2009;20(2):233-237.
7. Sunil R, Vijay S and Jerry P. The role of intravenous magnesium sulphate in attenuating pressor response to laryngoscopy and intubation in patients undergoing major head and neck surgeries. *Ain Shams J Anaesthesiol.* 2014;7(3):451-455.  
<https://doi.org/10.4103/1687-7934.139595>
8. Shin YH, Choi SJ, Jeong HY and Kim MH. Evaluation of dose effects of magnesium sulfate on rocuronium injection pain and hemodynamic changes by laryngoscopy and endotracheal intubation. *Korean J Anesthesiol.* 2011;60(5):329-333.  
<https://doi.org/10.4097/kjae.2011.60.5.329>
9. Bhalerao NS, Modak A and Belekar V. Comparison between magnesium sulfate (50 mg/kg) and lignocaine (2 mg/kg) for attenuation of intubation response in hypertensive patients. *J Datta Meghe Inst Med Sci Univ.* 2017;12(2):118-120.  
[https://doi.org/10.4103/jdmimsu.jdmimsu\\_58\\_17](https://doi.org/10.4103/jdmimsu.jdmimsu_58_17)
10. Khan IA and Singh SK. Efficacy, safety and patient satisfaction of a simple combination of readily available medications (Shiv-mix) for perioperative analgesia, hemodynamic stability and postoperative recovery profile: Case series and narrative on Opioid Free Anaesthesia (OFA) in spine surgeries. *J Anaesth Crit Care Case Rep.* 2020;6(1):13-18.  
<https://doi.org/10.13107/jaccr.2020.v06i01.148>
11. Ansari MA, Khan IA and Shahi R. Opioid Free Anesthesia (OFA) for laparoscopic cholecystectomy in low resource settings. *Sch J Med Case Rep.* 2022;9:953-956.  
<https://doi.org/10.36347/sjmcr.2022.v10i09.021>

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**Source of Support:** Nil, **Conflict of Interest:** None declared.