

LSU Health Science Center

LSU Health Digital Scholar

Medical Research Day

2022 Medical Research Day Posters

Oct 13th, 12:00 AM

Neurologic Outcomes of Vasopressor Use in Patients with Traumatic Spine Cord Injury

Zohaib Lakhani

LSU Health Sciences Center- New Orleans

Brock Lingle

LSU Health Sciences Center- New Orleans, blingl@lsuhsc.edu

Ina Du

LSU Health Sciences Center- New Orleans, idu@lsuhsc.edu

Emily Noel

LSU Health Sciences Center- New Orleans, enoel2@lsuhsc.edu

Alison Smith

LSU Health Sciences Center- New Orleans, asmi60@lsuhsc.edu

Follow this and additional works at: <https://digitalscholar.lsuhscc.edu/sommrd>



Part of the [Surgery Commons](#)

Recommended Citation

Lakhani, Zohaib; Lingle, Brock; Du, Ina; Noel, Emily; and Smith, Alison, "Neurologic Outcomes of Vasopressor Use in Patients with Traumatic Spine Cord Injury" (2022). *Medical Research Day*. 46. <https://digitalscholar.lsuhscc.edu/sommrd/2022MRD/Posters/46>

This Event is brought to you for free and open access by the School of Medicine at LSU Health Digital Scholar. It has been accepted for inclusion in Medical Research Day by an authorized administrator of LSU Health Digital Scholar. For more information, please contact aolini@lsuhsc.edu.

Neurologic Outcomes of Vasopressor Use in Patients with Traumatic Spinal Cord Injury

Zohaib Lakhani¹; Brock Lingle¹; Ina Du, MD²; Emily Noel¹; Alison Smith, MD, PhD³

¹LSUHSC-New Orleans, School of Medicine

²LSUHSC-New Orleans, School of Medicine, Department of Anesthesia

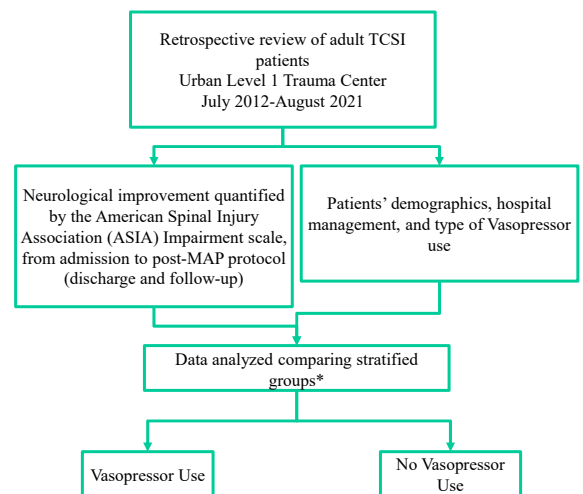
³LSUHSC-New Orleans, School of Medicine, Department of Surgery



Introduction

- The incidence of spinal cord injury is approximately 54 cases per million persons in the United States.
- The National Spinal Cord Injury Statistical Center (NSCISC) defines traumatic spinal cord injury (TSCI) as a lesion within the spinal cord and cauda equina with any sensory or motor deficit following traumatic injury.
- Adequate spinal cord perfusion is necessary for appropriate healing and repair of injury, as well as to prevent further ischemia.
- The current practice is to initially correct hypotension to a mean arterial pressure (MAP) greater than 90 mmHg following acute injury and to maintain MAPs greater than 85 mmHg for at least one week following acute injury, with or without the vasopressor support.
- Vasopressor use is not without associated risk factors, such as cardiac arrhythmias and ischemia.
- The primary objectives of this study were:
 1. Observe neurological outcomes (ASIA score) in TSCI patients with vasopressor use and compare these findings with patients managed without vasopressors.
 2. Highlight demographic and clinical outcomes differences between the primary groups (vasopressor use vs no vasopressor use).

Methods



*Chi-Squared and Student's T-test were performed. A p value <0.05 was significant.

Results

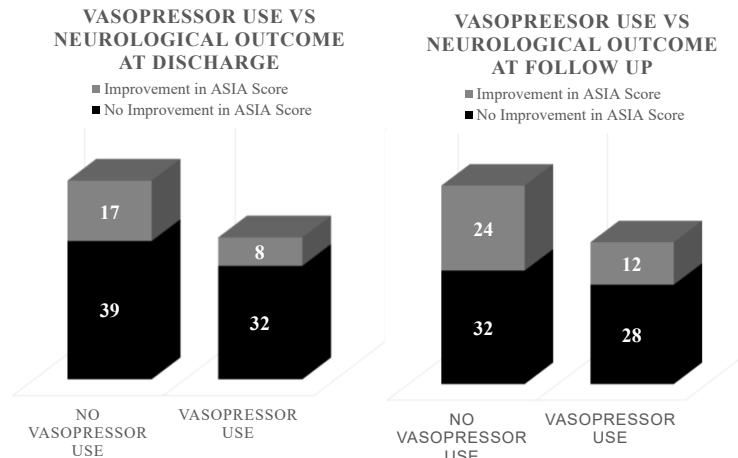
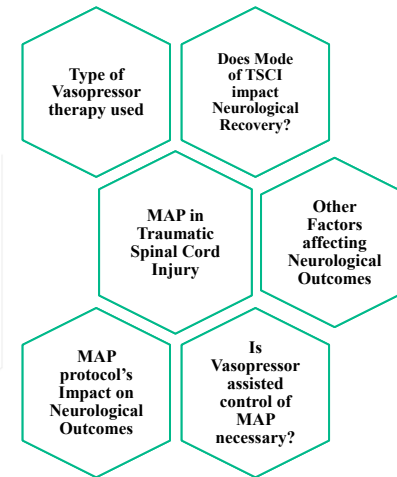


Figure 1: ASIA score did not significantly improve in vasopressor group when compared to patient without vasopressor use at discharge (p=0.3) and initial follow-up encounter after discharge (p=0.2).

Conclusions & Future Directions



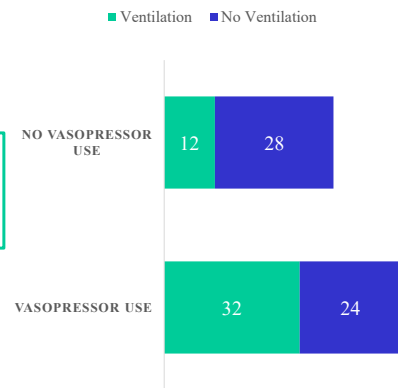
- This study showed that TSCI patients managed with vasopressors had a longer ICU length of stay and a higher incidence of ventilator use. This study failed to recognize vasopressor use association with greater neurological improvement at the discharge or the follow-up when controlling for certain risk factors.
- In future we will investigate other factors, such as mode of spinal cord injury, that may play a role in post-MAP protocol neurological improvement in association with vasopressor use.
- A multicenter prospective arm of the study is under progress. This will enable analysis over a larger diverse population.

- Future directions for this research include the development of standardized treatment guidelines to help physicians determine the most appropriate utilization of vasopressor therapy for patients with TSCIs.

References

1. National Spinal Cord Injury Statistical Center, Facts and Figures at a Glance. Birmingham, AL: University of Alabama at Birmingham, 2021.
2. National Spinal Cord Injury Statistical Center, Definition and Eligibility. Birmingham, AL: University of Alabama at Birmingham, 2021.
3. Jia, X., Kowalski, R. G., Sciubba, D. M., & Geocadin, R. G. (2011). Critical Care of Traumatic Spinal Cord Injury. *Journal of Intensive Care Medicine*, 28(1), 12–23.
4. Blood Pressure Management after Acute Spinal Cord Injury. (2002). *Neurosurgery*, 50(suppl_3).
5. Vale, F. L., Burns, J., Jackson, A. B., & Hadley, M. N. (1997). Combined medical and surgical treatment after acute spinal cord injury: results of a prospective pilot study to assess the merits of aggressive medical resuscitation and blood pressure management. *Journal of Neurosurgery*, 87(2), 239–246.

VENTILATION IN PATIENTS WITH VASOPRESSOR USE



ICU LENGTH OF STAY VS VASOPRESSOR USE

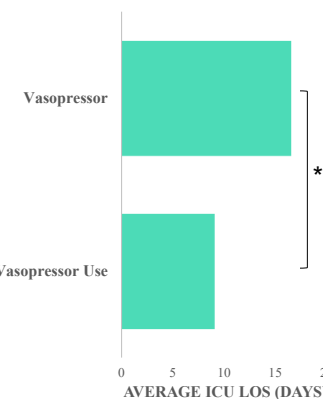


Figure 2: When stratified by vasopressor use, there were no significant differences in age (p=0.05), BMI (p=0.5), gender (p=0.2) or comorbidities (p>0.05) between the two groups. Patients in the vasopressor group had significantly higher ventilator use (p=0.01) and ICU length of stay (p=0.005).