



Contents lists available at ScienceDirect

## North American Spine Society Journal (NASSJ)

journal homepage: [www.elsevier.com/locate/xnsj](http://www.elsevier.com/locate/xnsj)

## Commentary

## Commentary on “Chemoprophylactic anticoagulation 72 hours after spinal fracture surgical treatment decreases venous thromboembolic events without increasing surgical complications”



Will Jiang, Jonathan N Grauer, MD\*

Department of Orthopaedics and Rehabilitation, Yale School of Medicine, New Haven, CT USA

Venous thromboembolic events (VTE) represent a significant potential post-operative complication following spine surgery, including surgically managed traumatic spine fractures. Administration of chemoprophylactic may help counter the hypercoagulable state and limited mobility of post-operative spine trauma patients but must be balanced against potential bleeding complications. The currently reviewed paper by Taghlabi et. al. [1] contrasted VTE and bleeding rates for two sequential chemoprophylaxis timing groups.

This single institution, retrospective study spanned May 2015 to June 2019. Eighty-eight patients met the inclusion criteria of being 18 years or older, surgically managed spine fracture patients, and having received VTE chemoprophylaxis. Patients were excluded if with evidence of intracranial or intraspinal bleeding on admission or with evidence of a traumatic brain injury. Group selection was predicated upon sequential cohorts, with the author's institution having implemented a new guideline for the administration of chemoprophylaxis treatment within 72 hours after 2017. As such, the study consisted of MID ( $\leq 72$  hours post-op; 68 patients) and LATE ( $>72$  hours post-op; 20 patients) groups of mixed spine fractures with administration of Enoxaparin (low molecular weight heparin) 30 mg subcutaneous, twice daily.

VTE was diagnosed for nine patients, three in the MID group and six in the LATE group ( $p < 0.01$ ). Bleeding complications were identified for three patients, all in the LATE group. Two of these three patients developed an intrathoracic hematoma and the third developed an epidural hematoma. Of note, Injury Severity Score (ISS) and Glasgow Coma Scale (GCS) at time of presentation also correlated with increased rates of VTE ( $p < 0.001$  for both).

The authors concluded that prophylactic administration of anticoagulants in  $\leq 72$  hours postoperatively relative to  $>72$  hours postoperatively provided safe reduction of VTE in the surgically managed spine trauma patient population. This is an interesting and important finding

regarding VTE that can be difficult to study due to its relatively low incidence, but proved to be significant in this high risk patient population. Nonetheless, the relatively low numbers of the study must be noted.

As the authors acknowledge, the study did not track patients after discharge, limiting the scope of the study. Additionally, there were several intra-group variations in the patient cohorts that may have contributed as confounding factors. Further, the study noted that 33% of the total patient cohort was administered preoperative VTE prophylaxis which was not expanded upon regarding specific drug administered and timeline of preoperative administration. The other point of note is that administering VTE prophylaxis at specific time points earlier than 72 hours after surgery could represent an area of further investigation.

Overall, the authors of the reviewed study posit that earlier administration of VTE chemoprophylaxis (within 72 hours) significantly reduced risks of VTE without increasing postoperative bleeding complications. Unpacking the ideal timing, medication, and duration for VTE chemoprophylaxis in this high risk operative spine fracture patient population should enhance future patient outcomes. Evidence such as presented in the currently reviewed study, consensus opinions, and continued investigations are warranted.

### Financial disclosures/conflicts of interests

One or more of the authors declare financial or professional relationships on ICMJ-NASSJ disclosure forms.

### Reference

- [1] Taghlabi K, et al. Chemoprophylactic Anticoagulation 72 Hours After Spinal Fracture Surgical Treatment Decreases Venous Thromboembolic Events Without Increasing Surgical Complications. *N Am Spine Soc J* 2022;11:100141.

FDA device/drug status: Not applicable.

Author disclosures: **WJ**: Nothing to disclose. **JNG**: Other: NASSJ (D).

DOI of original article: [10.1016/j.xnsj.2022.100141](https://doi.org/10.1016/j.xnsj.2022.100141).

\* Corresponding author at: Department of Orthopaedics and Rehabilitation, Yale School of Medicine, 47 College Street, New Haven, CT 06510.

E-mail address: [jonathan.grauer@yale.edu](mailto:jonathan.grauer@yale.edu) (J.N. Grauer).

<https://doi.org/10.1016/j.xnsj.2022.100179>

Received 13 October 2022; Received in revised form 17 October 2022; Accepted 18 October 2022

Available online 25 October 2022

2666-5484/© 2022 The Author(s). Published by Elsevier Ltd on behalf of North American Spine Society. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)