

Association Between Ketorolac Use and Nonunion After Scaphoid Fractures: A Propensity Score-Matched Analysis

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Background

Nonunion is a significant complication following scaphoid fractures. Although ketorolac use has been linked to impaired bone healing in other fracture types, its specific impact on scaphoid healing remains unclear. This study aims to evaluate the association between postoperative ketorolac use and the risk of nonunion after scaphoid fractures.

Methods

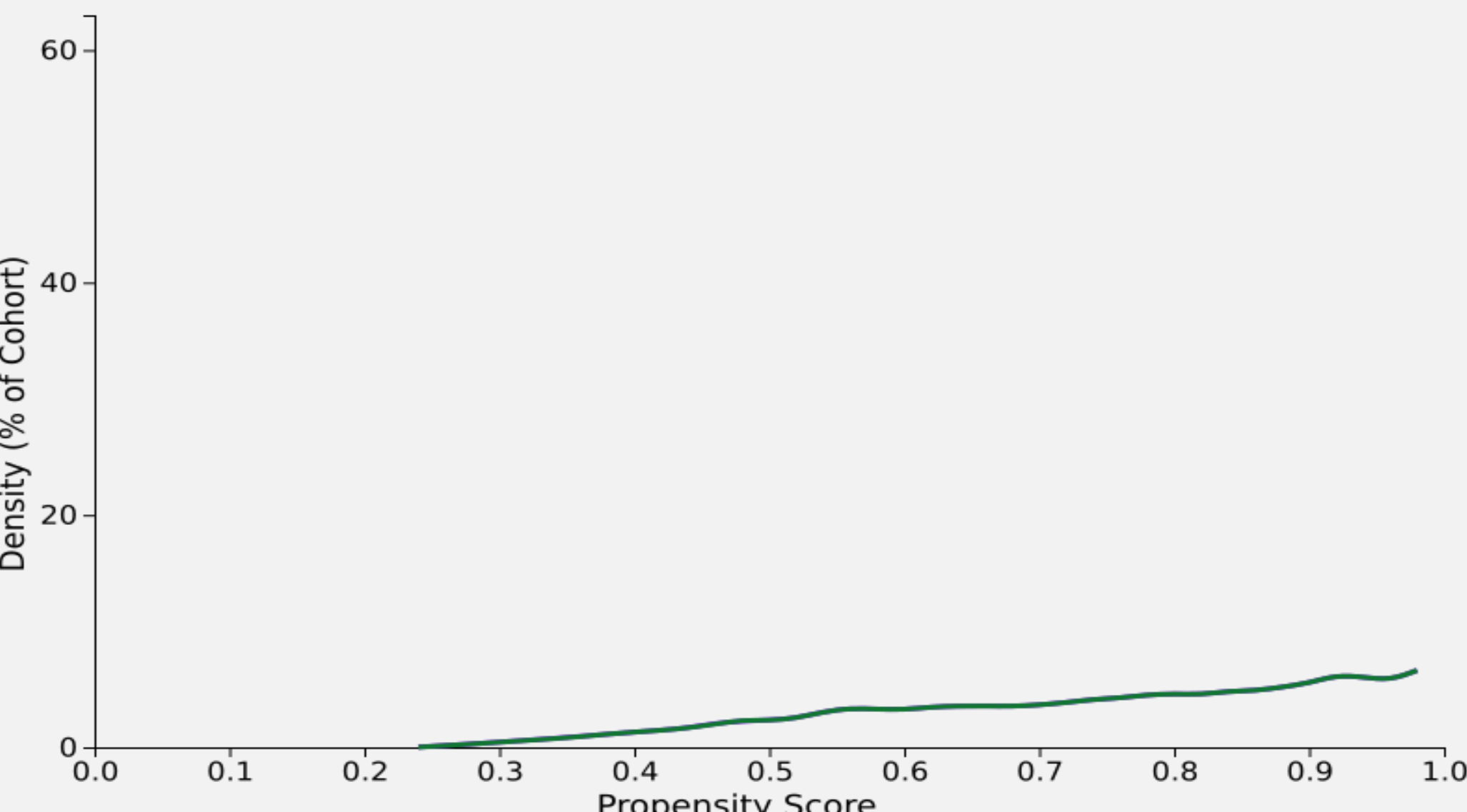
The TriNetX database was queried to identify patients who underwent surgical repair of scaphoid fractures. Patients were categorized into ketorolac-exposed and unexposed cohorts. A 1:1 propensity score matching was conducted to adjust for potential confounding factors associated with nonunion. The primary outcome was the incidence of nonunion at 6, 9, and 12 months postoperatively. Subgroup analyses were performed based on fracture location: proximal third, middle third, and distal pole.



Results

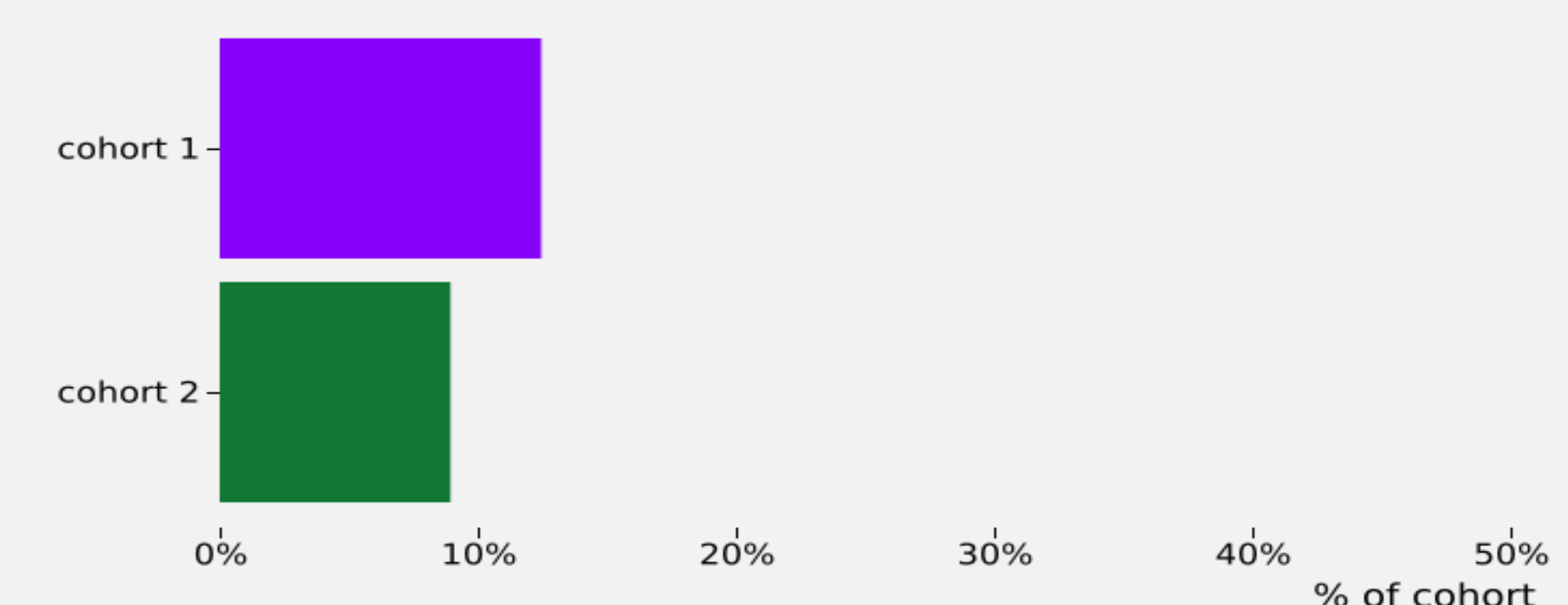
After matching, 7,049 patients were included in the exposure cohort, and 7,049 patients were included in the control cohort.

Figure 1. Propensity score density function



At 6 months, ketorolac use within 30 days after surgery was associated with a significant higher risk of nonunion compared to the control group (risk ratio [RR] 1.39; 95% CI 1.27 – 1.54; p<0.001).

Figure 2. Percentage of patients with the outcome

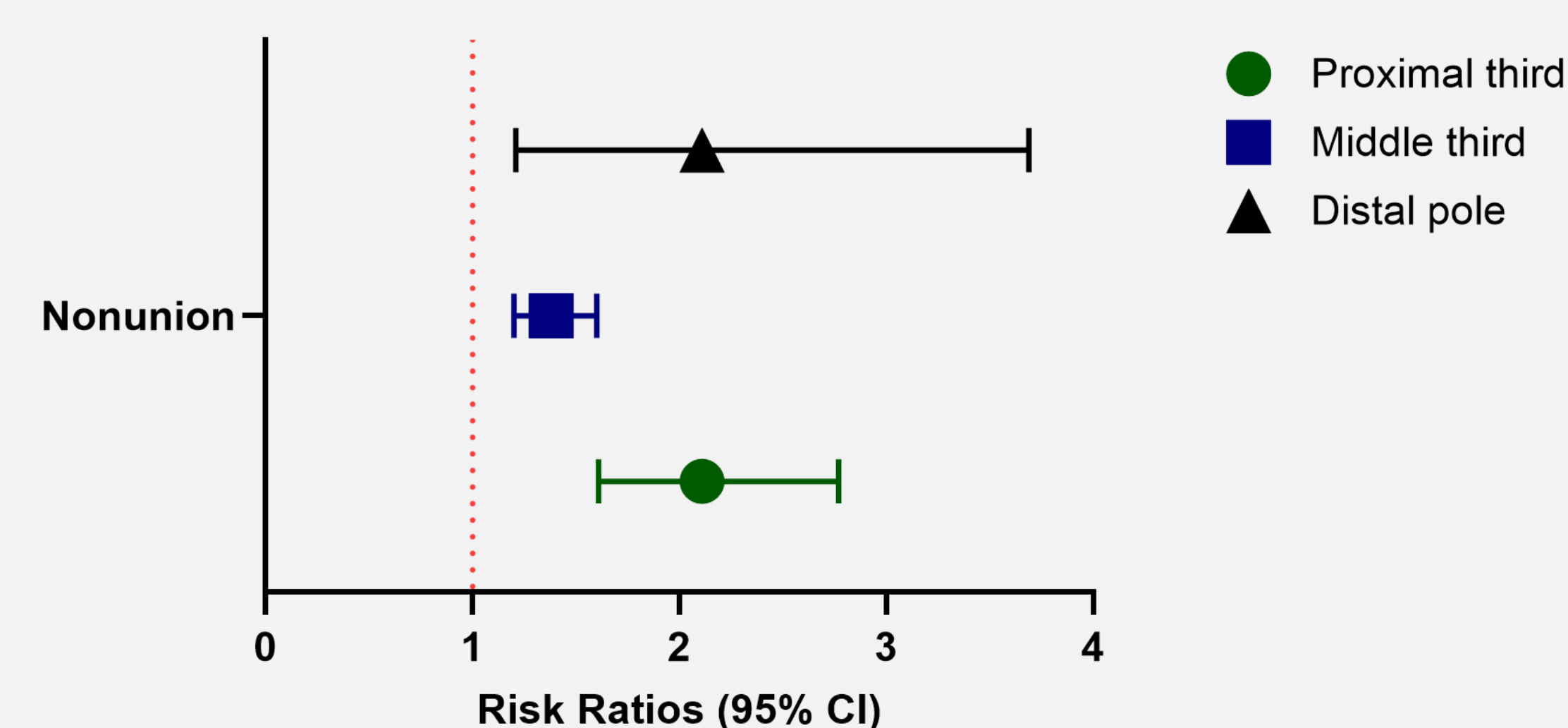


Subgroup analyses demonstrated similarly elevated risks at 6 months post-surgery:

- Proximal third: RR 2.13; 95% CI 1.61-2.81; p<0.001
- Middle third: RR 1.38; 95% CI 1.20-1.60; p<0.001
- Distal pole: RR 2.11; 95% CI 1.21-3.69; p=0.007

These associations remained significant at 9- and 12-months post-fracture repair.

Figure 3. Risk ratios and 95% confidence intervals comparing the exposure to the control cohort.



Conclusion

Postoperative ketorolac use is associated with a significantly increased risk of nonunion following scaphoid fracture repair. These findings highlight the need for cautious use of ketorolac in scaphoid fracture treatment.

References

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