

Is there a Need for Perioperative Prophylactic Antibiotics after Surgical Zygomaticomaxillary Complex Fracture Repair?

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Background

Zygomaticomaxillary complex (ZMC) fractures are commonly treated with operative repair. Despite extremely low postoperative infection rates reported in the literature, many surgeons continue to prescribe perioperative prophylactic antibiotics following surgical repair.

The clinical benefit of this practice remains unclear and may contribute to unnecessary antibiotic exposure and antimicrobial resistance.

Objective: To evaluate whether perioperative antibiotics reduce postoperative infection rates in patients undergoing surgical repair of ZMC fractures.

Primary Outcomes: Effect of antibiotics on risk of post-op infection

Secondary Outcomes: Effect of antibiotics on risk of requiring vasopressors

Methods

Study Design: Retrospective cohort study

Database: TriNetX Analytics Network Global Collaborative Network (>170 million patients)

Population: Patients undergoing surgical repair of ZMC fractures

Cohorts:

- Patients receiving perioperative antibiotics (day of surgery or within 1 week post-op)
- Patients receiving no perioperative antibiotics

Results

Study Population

- Initial cohort: 6,047 patients
- After propensity matching:
 - 3,349 patients with antibiotics
 - 3,349 patients without antibiotics

Primary Outcome

Postoperative Infection

- Overall infection rate: 0.67%**
- No significant difference between groups:
 - 30-day infection: $p > 0.05$
 - 90-day infection: $p > 0.05$

Secondary Outcomes

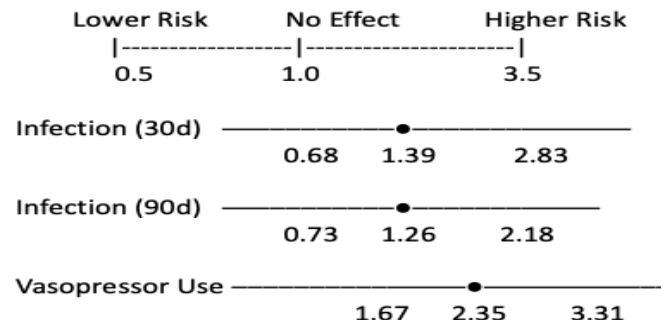
Patients receiving perioperative antibiotics had:

Higher risk of vasopressor requirement

- 30 days: $p < 0.05$
- 90 days: $p < 0.05$

No difference in risk of oroantral fistula

Outcome	RR (95% CI)
Infection (30 days)	1.39 (0.68–2.83)
Infection (30 days)	1.26 (0.73–2.18)
Vasopressor Use	2.35 (1.67–3.31)



Perioperative antibiotics were **not associated with reduced infection risk** at either 30 or 90 days. However, antibiotic use was associated with a **significantly increased risk of vasopressor requirement**.

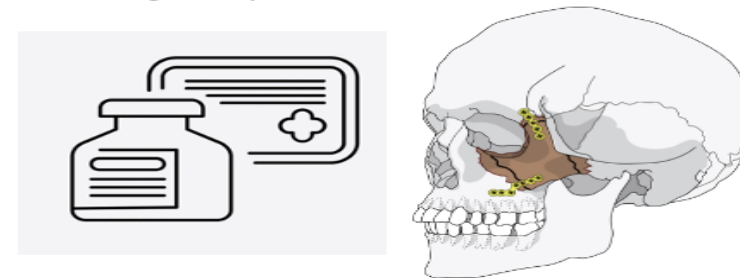
Conclusion

Patients undergoing surgical repair of ZMC fractures **without perioperative antibiotics** had **similar postoperative infection rates** compared with those who received antibiotics.

Perioperative antibiotic use was associated with **higher rates of severe infection requiring vasopressor support**, possibly related to proliferation of antibiotic-resistant organisms. Given the **extremely low baseline infection rate**, routine prophylactic antibiotics may not be necessary.

Clinical Implications

Surgeons may consider **discontinuing routine perioperative antibiotic prophylaxis** following surgical repair of ZMC fractures.



References

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