

# Triple-Bolus Tranexamic Acid in CABG: A Practical Alternative to Bolus-Plus-Infusion

Summary of an Article | Journal of Cardiothoracic Surgery 2026 (article in press) | Uzundere O, Yargı M, Topalel S, et al.

## Why this paper matters to Haemoview Customers

This prospective observational study is the first adult CABG study to directly compare a triple-dose IV bolus tranexamic acid (TXA) regimen with a bolus-plus-continuous-infusion strategy. It found lower postoperative bleeding with the triple-bolus approach at 1, 6 and 24 hours, with the 6-hour difference reaching statistical significance. No postoperative seizures or thromboembolic events were reported in either group.

For Haemoview customers working in cardiac surgery and perioperative bleeding management, the paper supports a practical TXA administration strategy that may reduce early bleeding without requiring a prolonged infusion setup. Although the study was not viscoelastic-guided, it fits closely with the clinical conversation around fibrinolysis monitoring, antifibrinolytic timing and targeted blood management in CABG.

## Study at a glance

Item	Detail
Article type	Prospective observational study; article in press, Journal of Cardiothoracic Surgery 2026.
Authors	Uzundere O, Yargı M, Topalel S, et al. — Diyarbakır Gazi Yaşargil Education and Research Hospital and Dicle University, Turkey.
Clinical scope	Adults undergoing elective isolated on-pump CABG; 93 patients analysed.
Groups	Group 1: triple-dose IV bolus TXA, 10 mg/kg after induction, during CPB and after protamine, about 30 mg/kg total. Group 2: 10 mg/kg IV bolus then 2 mg/kg/h infusion for 8 hours, about 26 mg/kg total.
Core finding	Triple-dose IV bolus TXA was associated with lower postoperative bleeding, especially at 6 hours, with no observed seizure or thromboembolic signal.

## The clinical gap this paper addresses

TXA is widely recommended in cardiac surgery, but there is still no standardised dosing and administration protocol across centres. The paper notes that adult comparative evidence between multiple-bolus dosing and bolus-plus-infusion strategies is scarce, despite both approaches being used in practice.

**Key message:** Triple-dose IV bolus TXA may be an effective and safe alternative to bolus-plus-infusion TXA in isolated on-pump CABG, with lower early postoperative bleeding and similar short-term safety outcomes.

Source: Uzundere O, Yargı M, Topalel S, et al. Triple-dose bolus versus continuous infusion of tranexamic acid: impacts on clinical outcomes in isolated coronary artery bypass surgery. J Cardiothorac Surg. 2026; article in press. DOI: 10.1186/s13019-026-03877-5.

## Key findings in detail

---

### 1 | Lower postoperative bleeding with triple-bolus TXA

Postoperative chest tube drainage was lower in the triple-bolus group at every time point measured: 116 vs 146 mL at 1 hour, 253 vs 332 mL at 6 hours, and 589 vs 713 mL at 24 hours. The relative reduction was greatest at 6 hours, about 24%, and this was the only time point to reach statistical significance, with  $p=0.03$ .

### 2 | No significant difference in transfusion requirements

The two groups did not differ significantly in 24-hour transfusion requirements for packed red blood cells, fresh frozen plasma or platelets. This suggests the bleeding reduction was measurable at the drain level, but the study was not able to show a corresponding transfusion advantage in this sample.

### 3 | Reoperation trend favoured the triple-bolus group

Three patients in the bolus-plus-infusion group required reoperation for bleeding, compared with none in the triple-bolus group, although this did not reach statistical significance, with  $p=0.07$ . The reoperations were attributed to surgically correctable bleeding rather than coagulopathy or thrombotic complications.

### 4 | No observed seizure or thromboembolic signal

No postoperative seizures or thromboembolic events were reported in either treatment group. Overall complication rates, ICU stay and hospital stay were also not significantly different between groups.

### 5 | Practical implications for TXA scheduling

The authors argue that repeated bolus dosing may better align with the timing of fibrinolytic activation after CPB than a single bolus followed by infusion. They also note practical advantages of the triple-bolus regimen, including avoiding a dedicated infusion pump and reducing infusion-programming complexity.

## Research and clinical agenda

---

- Clinical use today: supports discussion of TXA scheduling as part of perioperative bleeding management in on-pump CABG.
- Workflow implication: a three-bolus regimen may simplify theatre practice by avoiding prolonged infusion setup.
- Evidence next step: the study was single-centre, non-randomised and modest in size, so larger multicentre trials are needed.

## Relevance to ClotPro and Multiclot users

This paper does not evaluate ClotPro or Multiclot directly, but it is highly relevant to perioperative fibrinolysis management. It reinforces the importance of timing antifibrinolytic therapy around the evolving fibrinolytic profile of cardiac surgery, which is exactly where viscoelastic testing can add value.

Paper finding	Relevance to ClotPro/Multiclot users
Triple-bolus TXA reduced early postoperative bleeding compared with bolus plus infusion.	Supports a more time-targeted approach to antifibrinolytic therapy, which may be further refined with viscoelastic evidence of fibrinolytic activity.
No seizures or thromboembolic events were observed in either group.	Useful in discussions about balancing bleeding prevention with safety when selecting moderate TXA dosing strategies.
The main benefit appeared in the early postoperative window.	Reinforces the value of serial perioperative monitoring when bleeding risk and fibrinolysis are changing rapidly after CPB.
Triple-bolus administration removed the need for prolonged infusion setup.	Provides a practical workflow point for theatres and ICUs seeking simpler antifibrinolytic protocols.

## Summary points

- Triple-dose IV bolus TXA was associated with lower postoperative bleeding than bolus plus infusion, with the clearest difference seen at 6 hours after surgery.
- No postoperative seizures or thromboembolic events were reported in either group in this cohort.
- The strongest treatment effect appeared in the early postoperative period, which is consistent with peak fibrinolytic activity after cardiopulmonary bypass.
- The findings support a practical repeated-bolus alternative for centres that want to avoid prolonged infusion setup.
- The study was single-centre and non-randomised, so larger multicentre validation is still needed.

## Suggested conversation points

- “This is the first prospective adult CABG study directly comparing triple-bolus TXA with bolus plus infusion, and it showed lower early postoperative bleeding with the triple-bolus approach.”
- “The biggest difference appeared at 6 hours, which fits with what we know about fibrinolytic activity peaking in the early post-CPB period.”
- “Neither strategy showed postoperative seizures or thromboembolic events in this cohort, which supports the safety of moderate-dose TXA regimens in isolated on-pump CABG.”
- “Although the study was not ClotPro-guided, it strengthens the wider clinical case for timing antifibrinolytic therapy alongside perioperative fibrinolysis monitoring.”
- “For centres wanting a simpler workflow, triple-bolus dosing may offer a practical alternative to prolonged infusion without sacrificing bleeding control.”

## Sources

Uzundere O, Yargı M, Topalel S, et al. Triple-dose bolus versus continuous infusion of tranexamic acid: impacts on clinical outcomes in isolated coronary artery bypass surgery. *Journal of Cardiothoracic Surgery*. 2026; article in press. DOI: 10.1186/s13019-026-03877-5.

Disclaimer: This brief is educational information only, prepared for healthcare professionals in Australia. It summarises an external peer-reviewed publication and is not a product claim, instruction for use, or substitute for clinical judgement. Clinical

decisions must be made according to local protocols, institutional governance, the full clinical context of the individual patient, and the official instructions for use of relevant devices, drugs and assays.

## Key Takeaway

Triple-dose IV bolus TXA was associated with lower postoperative bleeding than bolus plus infusion, with the clearest difference seen at 6 hours after surgery.

## Why it matters

TXA is widely used in cardiac surgery, but centres still vary in how they dose and administer it. This study provides practical comparative evidence for a simpler repeated-bolus approach.

## Clinical Insight

The benefit was strongest in the early postoperative period, which is consistent with peak fibrinolytic activity after cardiopulmonary bypass and supports time-targeted antifibrinolytic therapy.

## Impact

A triple-bolus regimen may offer a practical workflow advantage by avoiding a prolonged infusion setup while maintaining comparable short-term safety outcomes in this cohort.

## Future research ideas

Future work should test these findings in larger multicentre randomised studies and evaluate whether differences in TXA scheduling translate into meaningful reductions in transfusion, reoperation and ICU resource use. There is also a clear opportunity for studies that combine TXA administration strategies with viscoelastic assessment of fibrinolysis to identify which patients benefit most from repeat dosing.



# TXA in CABG: Triple Bolus vs Continuous Infusion

*What this prospective study suggests about bleeding control in isolated CABG*

Uzundere O, Yargı M, Topalel S, et al. *J Cardiothorac Surg.* 2026



## WHY IT MATTERS

Perioperative bleeding remains a major challenge in CABG. Tranexamic acid (TXA) is recommended, but the optimal dosing strategy is still uncertain.



Protect the heart



Reduce bleeding



## STUDY SNAPSHOT

- Prospective observational study
- Single centre
- 93 adults undergoing elective isolated CABG
- **Group 1:** Triple-dose IV bolus TXA (n=53)
- **Group 2:** IV bolus + continuous infusion TXA (n=40)
- **Primary outcome:** postoperative bleeding



TXA R

### TRIPLE BOLUS (Group 1)



10 mg/kg after induction + during CPB + after protamine (~30 mg/kg total)

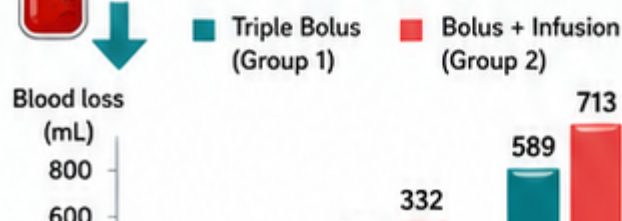
## THREE KEY POINTS

1

### Less postoperative bleeding



Triple-dose bolus TXA showed lower bleeding at every measured time point.



2

### No clear transfusion advantage

Despite lower bleeding, transfusion needs were similar between groups in the first 24 h.



3

No th

