

Aspirin is Non-Inferior to Other Anticoagulants in Patients Undergoing Knee DAIR for PJI



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Background

- Venous thromboembolism (VTE) remains an important complication following revision total knee arthroplasty (rTKA)
- rTKA for periprosthetic joint infection (PJI) is associated with increased risk of VTE complications compared to aseptic rTKA [1].
- Previous studies reported Aspirin to be safe and effective in prevention of VTE after aseptic rTKA [2].
- However, there is no literature on aspirin use in VTE prevention after debridement, antibiotics and implant retention (DAIR) for PJI.

Objectives

We conducted a propensity-score matched analysis to:

Compare the safety and effectiveness of Aspirin monotherapy with non-Aspirin monotherapy and dual therapy following knee DAIR in preventing VTE

Methods

- We conducted a retrospective analysis using the Research Network on the TriNetX healthcare database (2005 – 2025)
- We identified adult patients undergoing their first DAIR for PJI using ICD-10 and CPT codes for one component rTKA and/or knee arthrotomy [3].
- Patients were required to have a preoperative PJI diagnosis.
- Patients with spacer insertion/removal/exchange codes on same day of surgery were excluded.
- Stratified based on the postoperative VTE drug prescribed (defined as prescription within 2 weeks after surgery [4]) into 3 cohorts:

1. Aspirin

2. Non-Aspirin (Rivaroxaban, Apixaban or Enoxaparin)

3. Dual therapy (Aspirin and a non-Aspirin)
- Ensured no overlapping prescriptions in monotherapy cohorts.
- 1:1 propensity score matched for relevant comorbidities, including age at surgery, sex, history of VTE, stroke, cancer, coagulopathy, body mass index, tranexamic acid use, glycemic control and smoking among other variables.
- Compared outcomes after matching using the Aspirin cohort as reference.
- Outcomes of interest included:

- 90-day risk of VTE, bleeding, transfusion, wound disruption, death, surgical site infection (SSI) and re-revision surgery

- 1-year risk of death and re-revision surgery.
- TriNetX built-in tool for statistical analysis.
- Used chi-square test for categorical variables and student t-test for continuous variables
- Significance threshold was set at p<0.05.

Results

We initially included 4,307 patients, with 1,605 receiving Aspirin, 1,637 receiving non-Aspirin, and 1,065 receiving dual therapy.

Results

Non-Aspirin vs Aspirin

- After matching, each cohort consisted of 1,116 patients with adequate baseline covariate balancing.
- 90 days: Non-Aspirin monotherapy was associated with higher rates of re-revision (12.46% vs 9.59%, p=0.031) compared to Aspirin monotherapy (Table 1).
- 1 year: Non-Aspirin monotherapy was associated with higher rates of re-revision (21.24% vs 16.65%, p=0.032) and death (7.89% vs 5.47%, p=0.022) compared to Aspirin monotherapy (Table 2).

Dual therapy vs Aspirin

- After matching, each cohort consisted of 921 well-balanced patients.
- 90 days: Dual therapy was associated with similar complication rates compared to Aspirin monotherapy (Table 1).
- 1 year: Similar death and re-revision rates (Table 2).

90-day outcomes	Non-Aspirin (n=1,116)	Aspirin (n=1,116)	RR (95%CI)	p-value	Dual therapy (n=921)	Aspirin (n=921)	RR (95%CI)	p-value
DVT %	2.96%	2.24%	1.32 (0.79, 2.21)	0.287	3.91%	2.82%	1.39 (0.84, 2.27)	0.196
PE %	1.97%	1.34%	1.47 (0.77, 2.81)	0.246	2.06%	1.74%	1.19 (0.62, 2.30)	0.609
VTE %	4.75%	3.23%	1.47 (0.97, 2.23)	0.066	5.43%	4.02%	1.35 (0.89, 2.05)	0.153
Re-revision %	12.46%	9.59%	1.30 (1.02, 1.65)	0.031	9.66%	9.23%	1.05 (0.79, 1.39)	0.750
Death %	3.05%	2.78%	1.10 (0.68, 1.77)	0.706	2.82%	3.58%	0.79 (0.48, 1.31)	0.354
Transfusion %	5.65%	5.11%	1.11 (0.78, 1.57)	0.573	6.95%	5.43%	1.28 (0.89, 1.83)	0.176
Bleeding %	1.79%	1.61%	1.11 (0.59, 2.09)	0.743	2.06%	1.52%	1.36 (0.69, 2.69)	0.380
Wound disruption %	8.15%	8.78%	0.93 (0.71, 1.22)	0.595	8.90%	9.12%	0.98 (0.73, 1.31)	0.871
SSI %	4.75%	4.30%	1.10 (0.75, 1.62)	0.611	4.89%	4.02%	1.22 (0.80, 1.86)	0.366
DVT, deep vein thrombosis; PE, pulmonary embolism; VTE, venous thromboembolism; RR, risk ratio; CI, confidence interval; SSI, surgical site infection. Bold values indicate statistical significance (p<0.05).								

Table 1: Summary of the 90-day outcomes after matching 1:1 comparing use of aspirin with non-Aspirin and dual therapy after knee DAIR for PJI

1-year outcomes	Non-Aspirin (n=1,116)	Aspirin (n=1,116)	RR (95%CI)	p-value	Dual therapy (n=921)	Aspirin (n=921)	RR (95%CI)	p-value
Re-revision %	21.24%	16.65%	1.20 (1.02, 1.43)	0.032	19.00%	17.92%	1.06 (0.88, 1.29)	0.548
Death %	7.89%	5.47%	1.44 (1.05, 1.98)	0.022	6.08%	6.73%	0.90 (0.64, 1.28)	0.568
RR, risk ratio; CI, confidence interval. Bold values indicate statistical significance (p<0.05).								

Table 2: Summary of the 1-year outcomes after matching 1:1 comparing use of aspirin with non-Aspirin and dual therapy after knee DAIR for PJI

Conclusion

- First study to compare VTE prophylaxis agents in the setting of knee DAIR for PJI
- Aspirin was not associated with increased risk of VTE, bleeding or wound complications.
- This data suggests that Aspirin is safe and non-inferior to other anticoagulant regimens for VTE prevention following knee DAIR for PJI
- Further prospective studies are needed to confirm these findings.

References

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