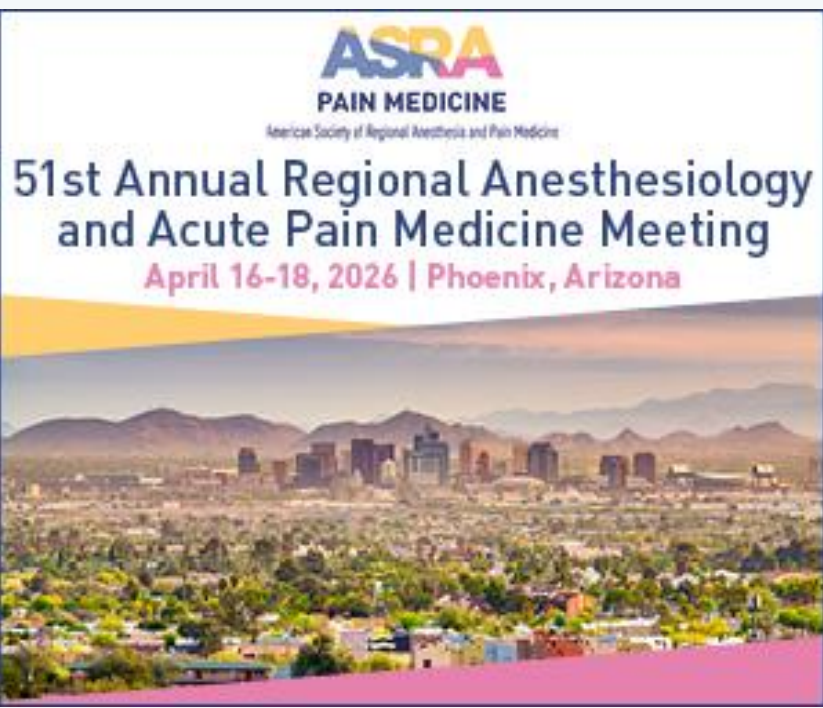




Clinical Decision Making for Neuraxial versus General Anesthesia in Thrombocytopenic Patients

Cassandra W. Cu MSc,¹ Uchenna O. Umeh MD, FASA, FASRA^{2,3}

¹ School of Medicine, Tufts University School of Medicine, Boston, MA, USA; ²Department of Anesthesiology, Critical Care and Pain Management, Hospital for Special Surgery, New York, NY, USA, ³Department of Anesthesiology, Weill Cornell Medicine, New York, NY, USA



INTRODUCTION

- Spinal and epidural hematomas are rare but potentially devastating complications of neuraxial anesthesia in thrombocytopenic patients (rates range from 1:10,000 to 1:200,000 procedures).¹
- Most expert consensus and meta-analyses recommend a platelet (PLT) count of at least 70,000-80,000/ μ L for safe neuraxial anesthesia, although it can be lower for obstetric patients.^{1,2}
- A comprehensive risk-benefit assessment is essential, with consideration of alternative anesthesia techniques, when platelet counts are below recommended thresholds or when additional risk factors, like platelet dysfunction or anticoagulation, are present.^{1,3}

METHODS

- No patient identifiable information is reported therefore per HSS IRB guidelines, it is IRB exempt. Patient informed consent was obtained for submission.
- We describe three cases of patients with history of moderate (50,000K -100,000K) thrombocytopenia presenting for joint arthroplasty surgery.
- Decision making for anesthesia type – neuraxial versus general – was determined by the anesthesiologist and/or patient preference.

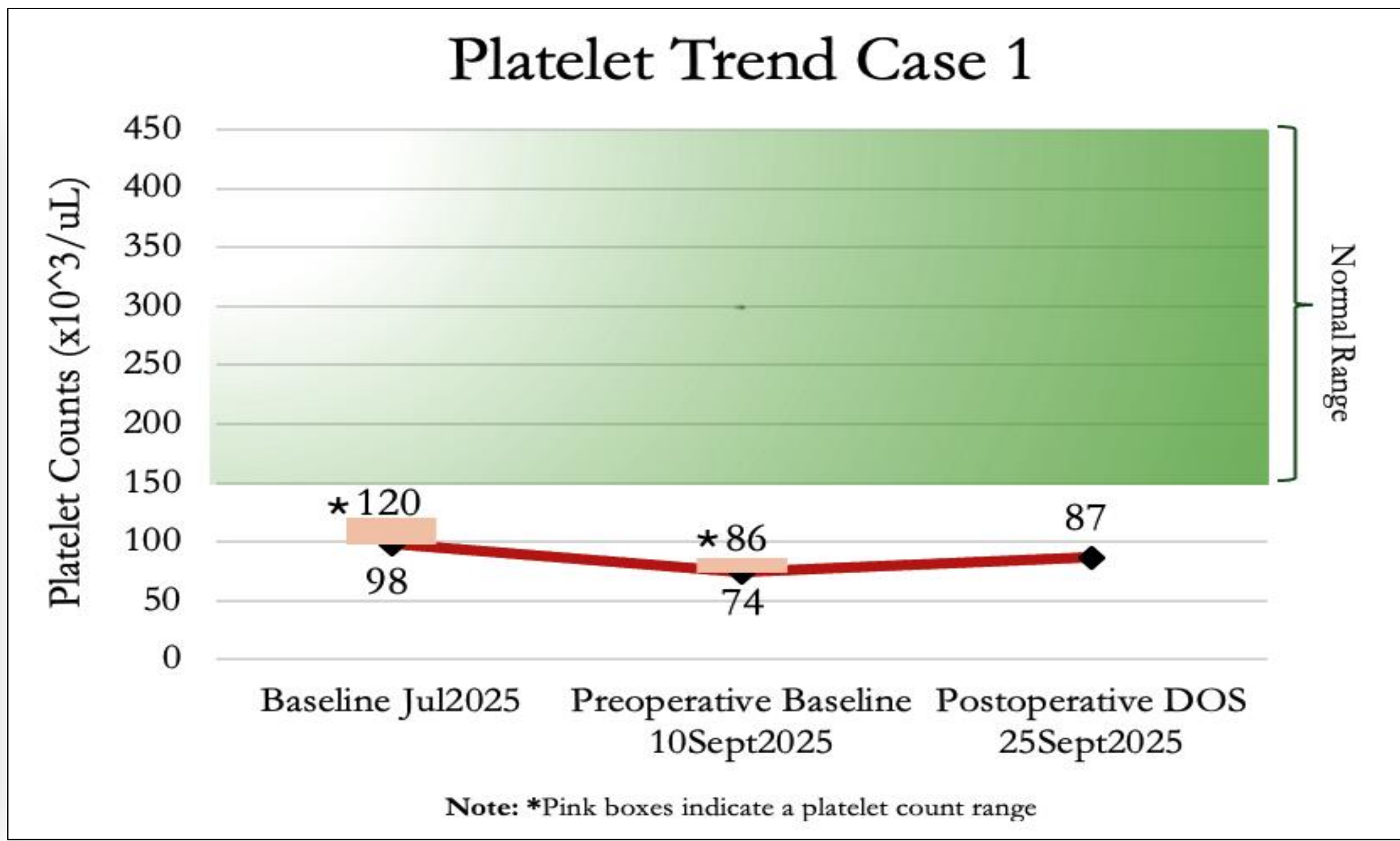
Table 1. A comparison of relevant data for three cases of thrombocytopenia.

Case Comparison Table			
	Case 1 (55 F)	Case 2 (77 M)	Case 3 (60 F)
Procedure	Total hip replacement (24Sept2025)	Total hip replacement (21Oct2025)	Left knee arthroplasty. (18Nov2025)
Etiology	Chronic alcohol use with liver cirrhosis, hemochromatosis	Chronic thrombocytopenia	Chronic idiopathic thrombocytopenia, monocytosis with TET2 mutation
Platelet count (Preoperative-baseline)	98-120K (Jul2025) 74-86K (10Sept2025)	98K (15Oct2025)	100K (2016) 90K (13Jul2023) 47K-68K (2024)
Platelet count (DOS)	Not drawn	76K (21Oct2025)	71K (18Nov2025)
Trend	Stable	Down trend	Down trend and then stabilized
PT/INR/PTT (DOS)	13.7/1.19/30.6	11.9/1.04/31.5	10.6/0.92/26.7
Final Anesthetic	Spinal (mepivacaine)	Spinal (mepivacaine)	General
Platelet count (post-operative)	87K (25Sept2025)	112K (22Oct2025)	81K (19Nov2025)
Outcome	No complications	No complications	No complications

CASE 1:

55-year-old female with a history of liver cirrhosis secondary to alcohol abuse, hemochromatosis, osteoarthritis, cholelithiasis, and **thrombocytopenia** presenting for left hip replacement.

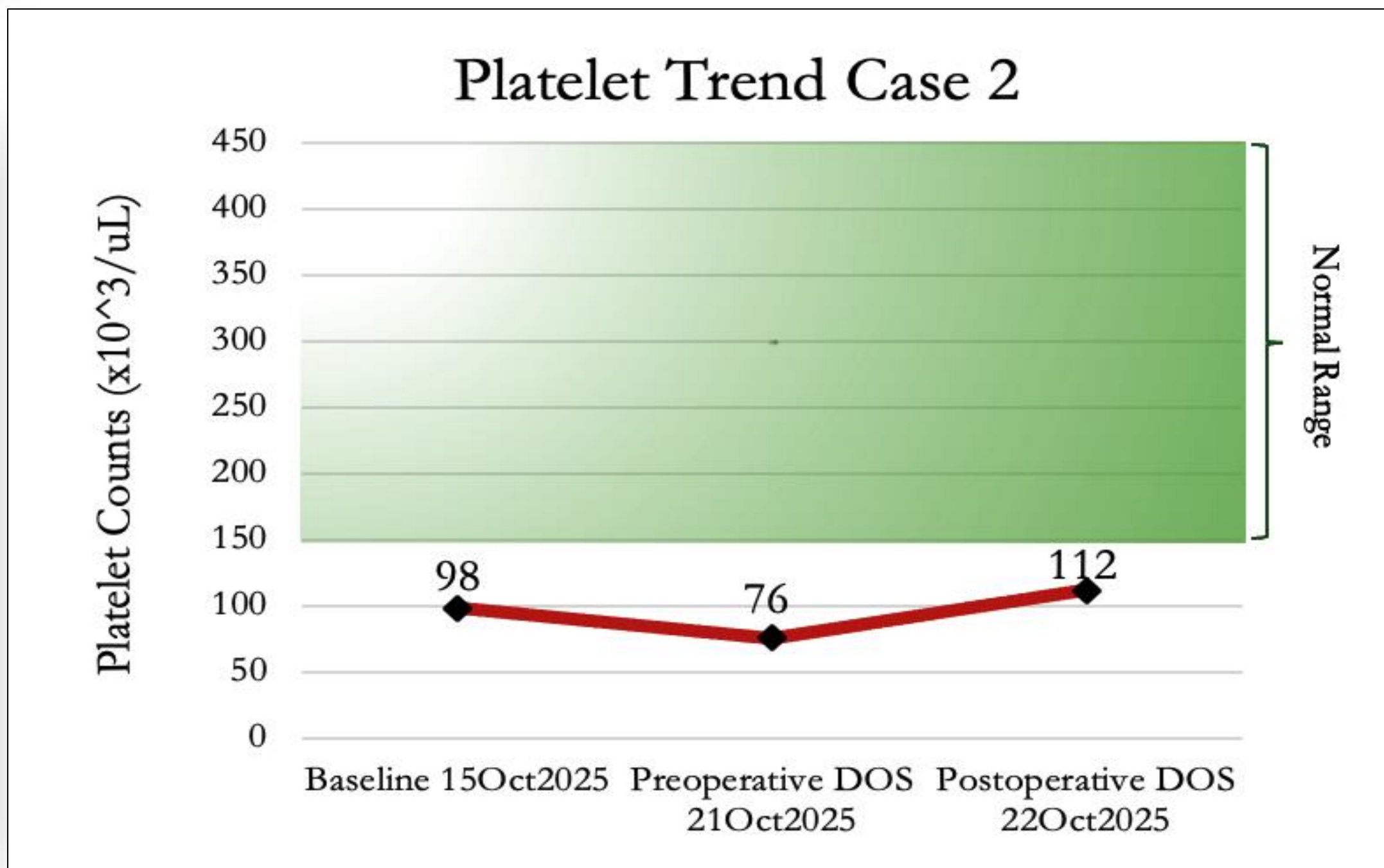
- Previous surgery, right hip replacement on 22July2025 done under GA for PLT count of 91K. Spinal anesthesia placed without any complications.



CASE 2:

77-year-old male with a history of GERD, hypercholesterolemia, **chronic thrombocytopenia**, neuropathy, left foot drop after an accident over 20 years prior, and osteoarthritis, presenting for right hip replacement.

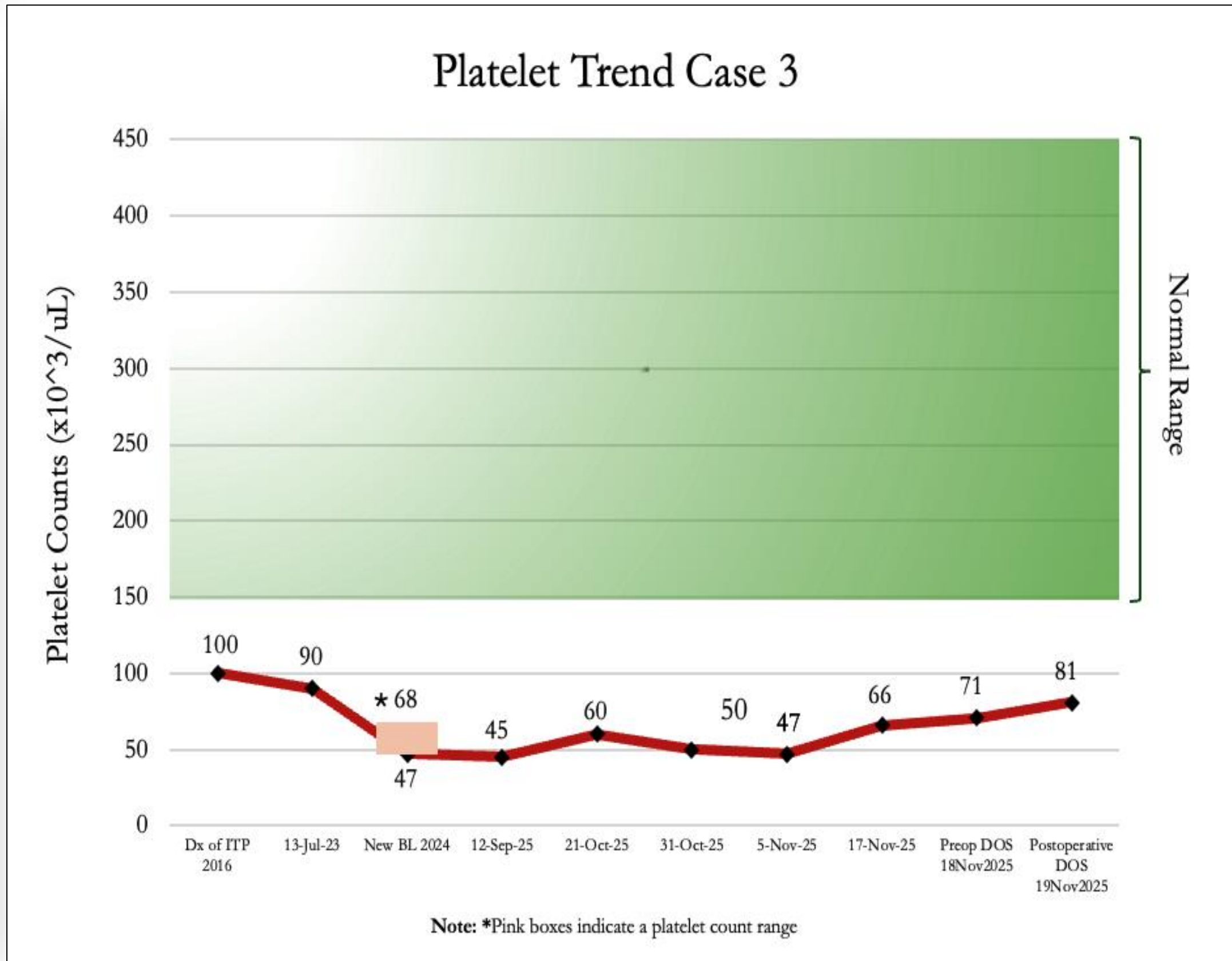
- Spinal anesthesia used secondary to patient preference without any complications.



CASE 3:

60-year-old female with a history of diabetes, and **idiopathic thrombocytopenia** and monocytosis, presenting for left knee replacement.

- 12Sept2025 (45K), which led to a postponed knee replacement procedure. Hematologist recommended dexamethasone 40mg x 4 days completed on 19Sept2025 and platelet count increased temporarily.
- On day of surgery (DOS), platelet count was 71K. General anesthesia was selected after discussion with surgeon and hematologist. Decadron was given preoperatively and 1 unit platelet was transfused prior to surgical incision per hematologist recommendation.



DISCUSSION

- Anesthesiologists undertake clinical decision making for neuraxial versus general when presented with patients with moderate thrombocytopenia. Despite the risks of potential epidural hematoma following neuraxial anesthesia, patients with chronic thrombocytopenia undergo neuraxial anesthesia without major complications.
- Neuraxial techniques may be carefully considered in patients with stable platelet counts below traditional thresholds. Until more comprehensive data is available, clinical decisions should be individualized, led by consensus recommendations, patient-specific factors, and multidisciplinary guidance.

DECISION MAKING ALGORITHM

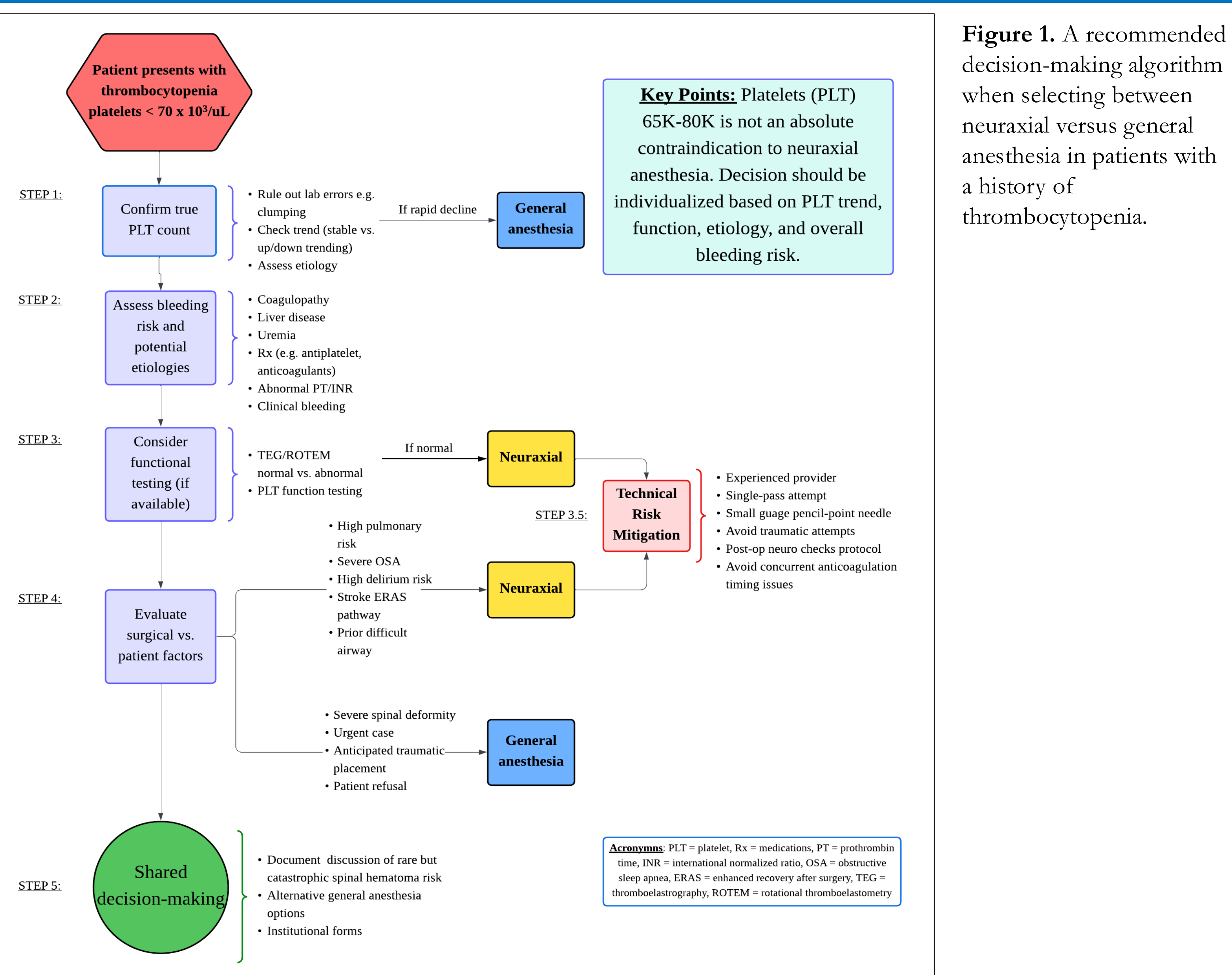


Figure 1. A recommended decision-making algorithm when selecting between neuraxial versus general anesthesia in patients with a history of thrombocytopenia.

REFERENCES

- Bauer MF, Arendt K, Belin Y, et al. The Society for Obstetric Anesthesia and Perinatology Interdisciplinary Consensus Statement on Neuraxial Procedures in Obstetric Patients With Thrombocytopenia. Anesth Analg. Jun 1 2021;132(6):1531–1544. doi:10.1213/ane.0000000000005355
- Peterson W, Martin R, Arnold D, et al. Delphi consensus recommendations for neuraxial anesthesia in adults with platelet disorders and coagulation defects: communication from the ISTH SSC Subcommittee on von Willebrand Factor. Journal of Thrombosis and Haemostasis. 2025;23(6):2039–2049. doi:10.1016/j.jtha.2025.01.019
- Estcourt LJ, Malout R, Hopewell S, Doree C, Van Veen J. Use of platelet transfusions prior to lumbar punctures or epidural anaesthesia for the prevention of complications in people with thrombocytopenia. Cochrane Database Syst Rev. 2018 Apr 30;4(4):CD011980. doi: 10.1002/14651858.CD011980.pub3. PMID:29709077; PMCID: PMC5957267