

Evaluating the necessity of routine laboratory work prior to tunneled central venous catheter placement

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Introduction

- More than 5 million central venous catheters are placed every year in the US
- Approximately 8% of patients receive a central venous catheter (CVC) during their hospitalization
- Bleeding complications from CVCs are rare
- Yet, laboratory data are often routinely collected prior to placing a tunneled CVC (tCVC)

Clinical Problem

Routine collection of labs on patients prior to tCVC placement is a potentially avoidable source of cost and loss of time

Clinical Question

Is routine laboratory work prior to tCVC placement necessary?

Materials and Methods

- Retrospective review of all adult patients who had a tCVC placed by IR over a 4-year period (2012-2015)
- Only patients with documented tCVC removals were included
- Patients with femoral, transhepatic, or translumbar tCVCs were excluded

Materials and Methods

Lab data analyzed:

- Platelet count
- International normalized ratio (INR)

Historical data:

- Blood thinner use
- Cancer
- Liver failure
- Chemotherapy
- History of elevated INR
- History of thrombocytopenia

Results – demographics

Patient demographics:

- 433 patients (223 females, 210 males)
- Mean age: 52.1 years (STD +/- 15.6; range: 18-89)
- Race:
 - White: 192 (44%)
 - Black: 206 (48%)
 - Other: 35 (8%)

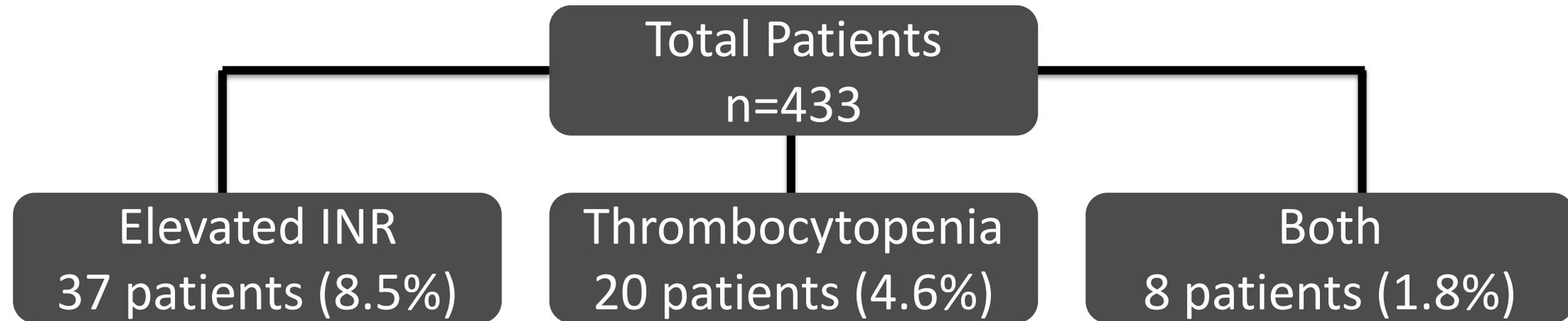
Results – line placement

- Internal jugular vein accessed in 426 patients (98.4%)
 - Right-sided lines: (n=354, 81.8%)
 - Left-sided lines: (n=79, 18.2%)
- Most common indications for placement:
 - Dialysis (n=175, 40.4%)
 - Long-term antibiotics (n=111, 25.6%)
 - Malignancy (n=92, 21.2%)

Results – bleeding complications

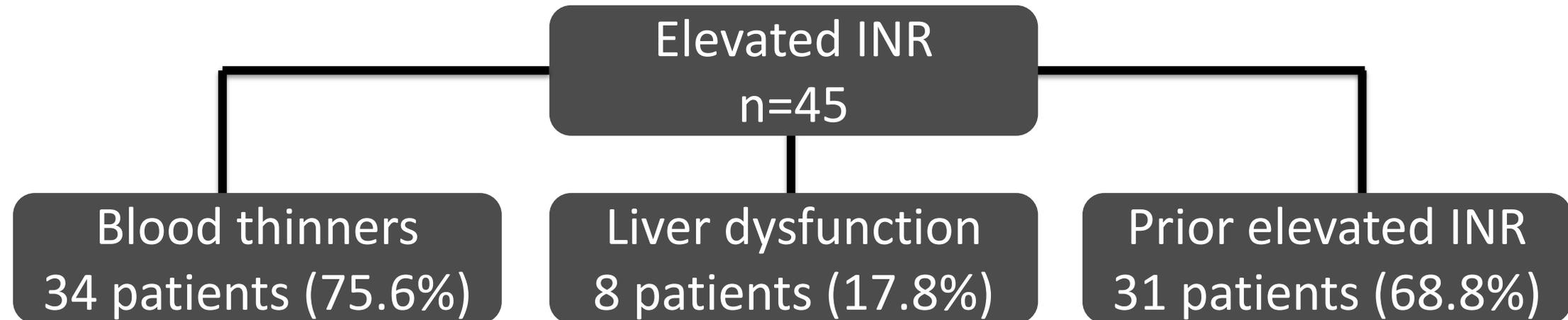
- Only 3 patients (0.7%) had bleeding complications at the time of placement
 - None required treatment
- All 3 patients had platelet count $> 50 \times 10^3/\mu\text{L}$ and INR < 1.5 .
- 2 of these patients had tunneled hemodialysis catheters placed (14.5F)
- 1 of these patients had a tunneled small bore catheter (6F)

Results – patient labs



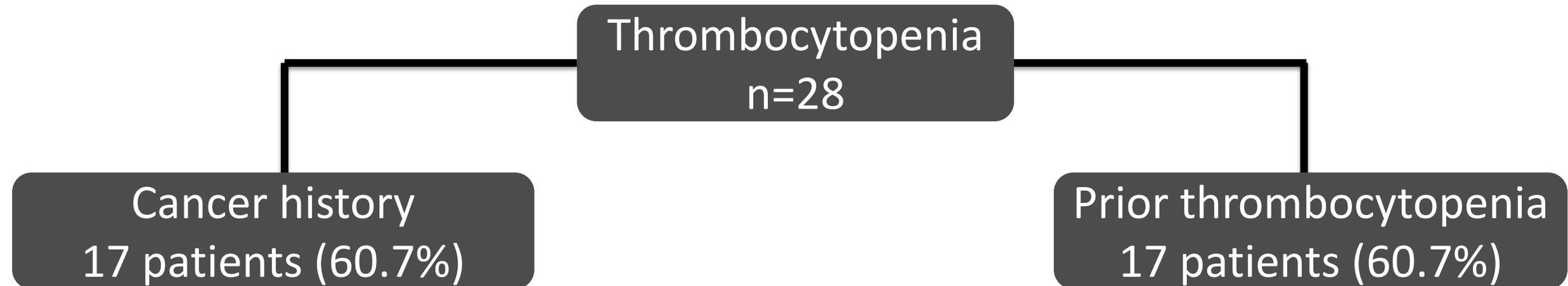
Overall, a small portion (~15%) of patients had abnormal lab values at the time of tCVC placement

Results – elevated INR



44 of 45 patients with an elevated INR had either a history of anti-coagulant use, liver dysfunction, or a previously documented elevated INR

Results – thrombocytopenia



26 of 28 patients with thrombocytopenia had either a history of cancer, liver dysfunction, or a previously documented history of thrombocytopenia

Conclusions

- Placement of tCVCs by IR is safe
- Pre-procedure laboratory work may only be necessary in certain groups of patients
 - Patients taking anti-coagulants
 - History of liver dysfunction, cancer, elevated INR, or thrombocytopenia
- Patients with *newly* elevated INR or *unknown* thrombocytopenia are rare, and no complications occurred in this population

Limitations

- This was a retrospective, single center study
- Certain types of lines were excluded
- Excluded lines without documented removal
- Complications may have been under reported

Please contact authors with any questions

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