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 x 10^3/μL 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

Total Patients  
n=433

- Elevated INR  
  37 patients (8.5%)

- Thrombocytopenia  
  20 patients (4.6%)

- Both  
  8 patients (1.8%)

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 \textit{newly} elevated INR or \textit{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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