

NURSING ADHERENCE TO LOW INTENSITY HEPARIN DRIP PROTOCOLS IN SURGICAL, NEUROLOGICAL INTENSIVE CARE UNITS, NEUROSCIENCE FLOOR AND THE PROGRESSIVE CARE UNIT



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INTRODUCTION SETTING AND SAMPLE RESULTS

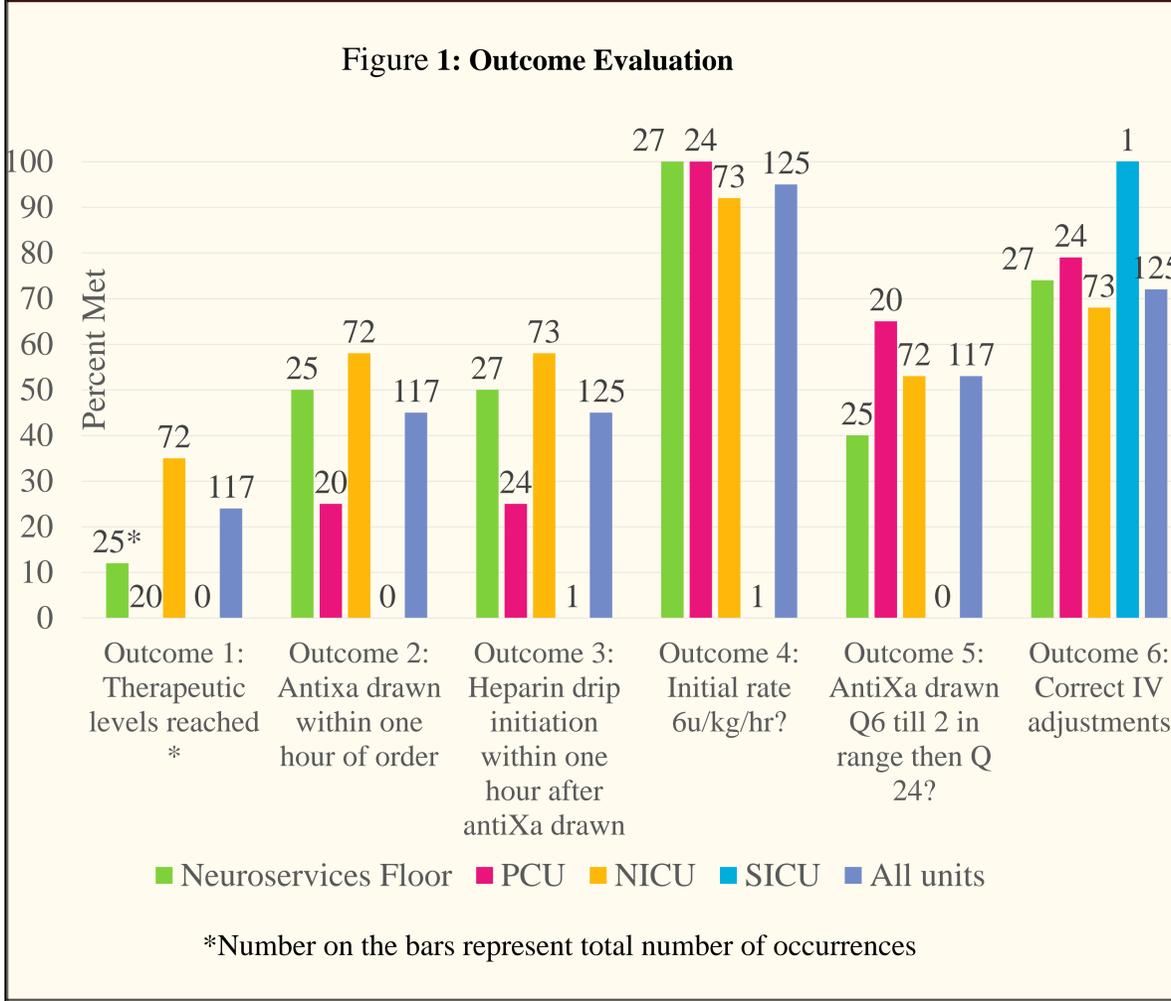
- Blunt traumatic cerebrovascular injury (BCVI) is a defect in cerebrovascular structure caused by a high-energy injury and occurs in 34% of patients who sustain blunt trauma^{1,2}
- BCVIs increase risk of cerebral vascular accidents (CVAs) due to platelet aggregation and thrombus formation resulting in stenosis or occlusion²
- BCVI induced CVA mortality rates range from 40% to 59%^{2,3}
- Low intensity heparin infusions decrease CVAs from carotid artery injuries by 57% and vertebral artery injuries by 51%⁴

Purpose
The purpose this project was to evaluate nursing adherence to the low intensity heparin drip protocol for patients in the Surgical Intensive Care Unit (SICU), Neurological Intensive Care Unit (NICU, Progressive Care Unit (PCU), and the Neuroscience Floor.

- Objectives**
- 80% of all anti-factor Xa assay results will be between 0.1 and 1.4 units/ml
 - 80% of anti-factor Xa assays will be drawn within one hour of initiation of the low intensity heparin infusion protocol order
 - 80% of heparin infusions will be initiated within one hour after the anti-factor Xa assay is drawn
 - 80% of all low intensity heparin infusions will be started at the ordered initial rate of 6 units/kg/hour
 - 80% of anti-factor Xa assays will be drawn every 6 hours, plus or minus 30 minutes, until two are in range; and then every 24 hours
 - 80% of all heparin infusion rate adjustments will be accurate

- Setting: 274 bed, Level 1 trauma center in Columbia, Missouri
- Retrospective electronic medical record (EMR)
- Purposive sampling of BCVI patients who were placed on the low intensity heparin infusion protocol from January 2016 to January 2017
- Exclusion criteria: not in one of the four selected units, heparin infusion protocol not ordered or used for at least 12 hours, or protocol was modified by the provider

RESULTS



- Total of 42 patient's EMRs reviewed for inclusion
- 17 patient's EMRs reviewed resulting in 20 separate heparin protocol orders
- Patient locations: NICU n=10, PCU n=4, Neuroservice Floor n=2, SICU n=1.
- Female=8, Male=9
- Average age of patient 61-years-old, range of 27-89
- Average length of stay 17 days, range 2-82

- Outcome 6 met in SICU at 100%. Outcome 4 met in Neuroservices Floor and PCU at 100% and NICU at 92%
- Five patient's EMRs lacked documentation on discontinuation of the heparin infusion
- Ten patient's EMRs lacked documentation on heparin rate adjustments by nursing staff
- Two patient's EMRs recorded anti-factor Xa assay draw within the hour prior to heparin protocol order
- Four patient's EMRs recorded heparin infusion initiation prior to anti-factor Xa assay draw

CONCLUSIONS

- Infrequent use of protocol increases chances of error
- Suggestions for future study: Assess factors influencing lack of documentation

- Recommendations:
- Redesign annual mandatory computer based training emphasizing differences between current heparin protocolst^{5,6}
 - EMR alerts regarding anti-factor Xa assay draws and protocol documentation⁷
 - Conduct audits with monthly feedback to the nursing staff^{8,9,10,11,12}
 - Posters describing the protocol with key points highlighted displayed in the units^{13,14}

REFERENCES

See handout