Venous Thromboembolism Prophylaxis in Patients with Spontaneous Intracerebral Hemorrhage – Evaluation of Current Practice at Two Acute Care Hospitals in British Columbia

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Background

- Venous thromboembolism (VTE) is a notable complication in spontaneous intracerebral hemorrhage (sICH) patients that leads to increased length of stay, morbidity, and mortality.
- Without pharmacological VTE prophylaxis (pVTE-Px), an estimated 1.6% of sICH patients developed pulmonary embolisms (PEs) and 4.8% developed deep vein thrombosis (DVTs).
- American Heart Association (AHA) and American College of Chest Physicians (ACCP) guidelines recommend initiation of pVTE-Px after 1-4 days from onset of sICH if bleeding cessation is documented.
- It is unclear what proportion of sICH patients received VTE prophylaxis (VTE-Px) as per recommendations in Fraser Health.

Objectives

- To identify proportion of sICH patients who received appropriate VTE-Px during their hospital admission at Surrey Memorial Hospital (SMH) or Abbotsford Regional Hospital (ARH).
- To determine the efficacy and safety of the VTE-Px prescribed.

Definitions

- **Eligible for pVTE-Px:** Immobile patients with documented cessation of bleeding on CT and no contraindications to pVTE-Px.
- **Eligible for mechanical VTE prophylaxis (mVTE-Px)**: Immobile patients with no contraindications to mVTE-Px.
- **Appropriate pVTE-Px**: Eligible for pVTE-Px + Initiated after 1-4 days from onset of sICH.
- **Appropriate mVTE-Px**: Eligible for mVTE-Px + Sequential compression device without pVTE-Px.

Methods

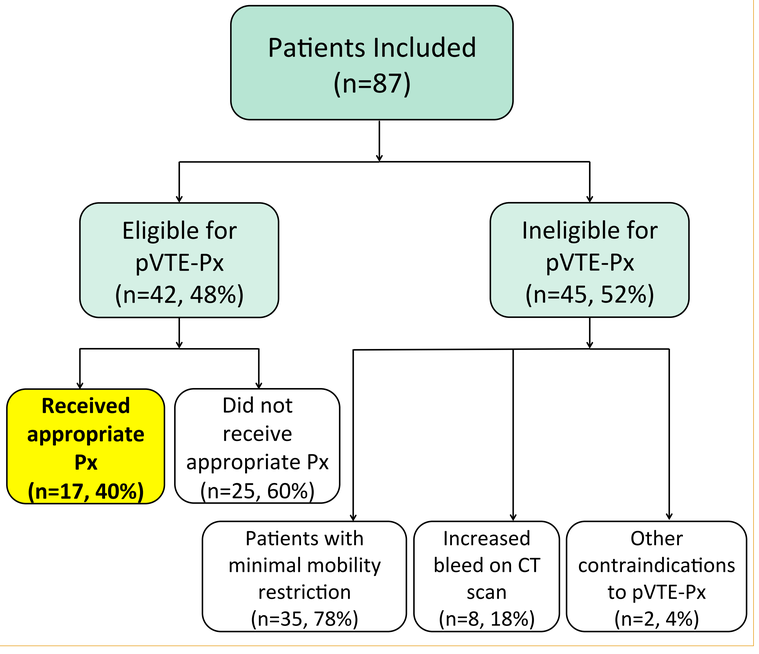
- **Study Design:** Retrospective chart review
- **Inclusion Criteria:** All adult (≥18 year old) sICH patients defined by ICD-10 criteria admitted to SMH and ARH from Aug 1, 2010 to Sept 12, 2013.
- **Exclusion Criteria:** Death or discharge from hospital within 24 hours of admission.
- **Primary Outcome:** Proportion of patients who are eligible for pVTE-Px and received appropriate prophylaxis.
- **Secondary Outcomes:**
  - Proportion of documented VTE, major/minor bleeding, hematoma extension post prophylaxis initiation, heparin-induced thrombocytopenia, or death during hospitalization.
  - Proportion of appropriate mechanical VTE prophylaxis.

Results

Table 1: Patient Characteristics

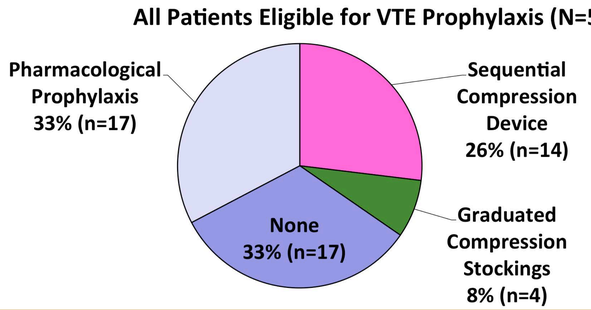
	N=87
Mean age, years (SD)	72 (13)
Males, n (%)	60 (69)
Median length of stay, days (range)	16 (8.5-44)
Site of initial admission, n (%)	
Surrey Memorial Hospital	62 (71)
Abbotsford Regional Hospital	25 (29)
Risk factors for VTE on admission, n (%)	
Age > 60	69 (79)
Immobility	51 (59)
Heart disease	22 (25)
ICU/HAU admission	17 (19)
Smoker	9 (10)
Active cancer and cancer treatment	6 (7)
Previous VTE	4 (4.6)
Respiratory pathology	3 (3.5)
Rheumatological disease/ inflammatory condition	3 (3.5)
Obesity	2 (2)

Figure 1: Primary Outcome



Results (Cont'd)

Figure 2: Type of Prophylaxis Received in Patients Eligible



- 59% of those eligible received some form of appropriate VTE-Px.
- Of those eligible for mVTE-Px but DID NOT receive pVTE-Px, only 14/35 (40%) received appropriate mVTE-Px.

Table 2: Efficacy and Safety Outcomes of pVTE-Px

	Eligible, Received pVTE-Px (n=17)	Eligible, Did not receive pVTE-Px (n=25)	Ineligible, Did not receive pVTE-Px (n=45)
DVT/PE	0	0	2/45 (4%)
Major Bleeding	0	0	1/45 (2%)

Table 3: Efficacy and Safety Outcomes of mVTE-Px

	Eligible, Received appropriate mVTE-Px (n=14)	Eligible, Did not receive appropriate mVTE-Px (n=21)	Ineligible, Did not receive mVTE-Px (n=35)
DVT/PE	0	1/21 (5%)	1/35 (3%)
Major Bleeding	0	1/21 (5%)	0

- There is no documented hematoma extension, heparin-induced thrombocytopenia, and death during hospitalization in all groups during the study period.

Conclusions

- 40% of sICH patients eligible for pVTE-Px received appropriate pVTE-Px.
- 59% of those eligible received some form of appropriate VTE-Px.
- No difference in safety and efficacy among those eligible for pVTE-Px.
- In patients eligible for mVTE-Px, those who received appropriate mVTE-Px had less adverse events.
- Further research with larger number of subjects may be required to determine approach to VTE-Px in this patient population.

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References available upon request

UBC