Gastrointestinal Bleeding and Association with Oral Anticoagulant Use at Abbotsford Regional Hospital

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Background

- Oral anticoagulants are recommended for numerous medical conditions such as venous thromboembolism, mechanical heart valves, left ventricular thrombus and atrial fibrillation.
- Warfarin was the mainstay of therapy, but had several drawbacks. As a result, the direct oral anticoagulants (DOACs) were developed.
- Post-marketing studies have shown conflicting evidence regarding safety concerns with DOACs, specifically their risk of gastrointestinal (GI) bleeding, as compared to warfarin[1-4].

Objectives

- Primary objective: in adult patients admitted to ARH with a major GI bleed and taking an oral anticoagulant prior to admission, what is the percentage of patients taking warfarin as compared to a DOAC?
- Secondary objective: of the patients taking warfarin or a DOAC prior to admission, to determine: a) baseline characteristics; b) total number of patients also taking an antiplatelet agent, SSRI or NSAID prior to admission; and c) if an anticoagulant reversal agent was administered for the GI bleed.

Methods

- Design: single-centre retrospective electronic medical record review at ARH from September 1, 2016 to August 31, 2019.
- Inclusion criteria: patients aged ≥18 years admitted to ARH with a major GI bleed who were taking warfarin or a DOAC prior to admission.
- Exclusion criteria: patients who were pregnant or had major surgery or trauma involving the upper torso in the month prior to admission.

Results

- The majority of patients, 423 of 476 (89%), admitted for a GI bleed were not on an oral anticoagulant (Figure 1).
- Of the 47 patients with a major GI bleed who were taking an oral anticoagulant prior to admission, 31 (66%) were on a DOAC. Among the patients on a DOAC, 21 of 31 (68%) were on rivaroxaban (Figure 2).
- Patient baseline characteristics are shown in Table 1. More warfarin patients were on a concomitant SSRI or NSAID, which increases a patient's bleed risk.
- Among warfarin patients, the highest INR was 8.2 and the lowest was 1.7.
- Of the patients on warfarin, 15/16 (94%) were administered a reversal agent. The patient on dabigatran was not administered idarucizumab.
- The appropriate dose of the DOACs were assessed in 18 of the 31 patients (58%) and it showed that 3 patients on rivaroxaban were dosed incorrectly at a higher dose.

Table 1: Patient baseline characteristics (N=47)

Characteristic*		
	Warfarin (N=16)	DOAC (N=31)
Mean age (years)	79.8 ± 9.9	80.2 ± 9.1
Male (%)	50	41.9
Mean weight (kg)	68.8 ± 14.8	80.7 ± 28.5
Obesity (BMI ≥30 kg/m^2) (%)	6.3	22.6
eGFR (mL/min)	38.3 ± 23.1	48.1 ± 20.5
HASBLED score	2 (2,2)	1.5 (1,2)
Liver disease (%)	6.3	3.2
Gastric or esophageal varices (%)	0	3.2
Gastritis (%)	6.3	12.9
Chemotherapy that affects GI epithelium (%)	6.3	0
Prior GI bleed (%)	18.8	35.5
Cancer (%)	12.5	6.5
Medication PTA (%):		
Antiplatelet agent (includes ASA)	31.3	32.3
SSRI	31.3	12.9
NSAID	18.8	6.5
Alcohol use disorder (%)	0	3.2
Indication (%):		
Atrial fibrillation	56.3	96.8
Mechanical heart valve	12.5	0
VTE	31.3	0
Other	0	3.2
CHADS2 score	3 (3,3)	2.5 (2,3.75)
INR on admission	4 ± 1.9	–
INR >3 (%)	68.8	–
Vitamin K, fresh frozen plasma, or PCC (%)	93.8	–
PRBC given (units)	2.8 ± 1.9	2.2 ± 1.5
Death (%)	6.3	6.5
Length of stay (days)	11.5 ± 13.4	13.6 ± 16.5

* Values presented as mean ± standard deviation for continuous variables and median (25th percentile, 75th percentile) for categorical variables.
BMI= body mass index; GFR= glomerular filtration rate; GI= gastrointestinal; PTA= prior to admission; ASA= acetylsalicylic acid; SSRI= selective serotonin reuptake inhibitor; NSAID= non-steroidal anti-inflammatory drug; VTE= venous thromboembolism; INR= international normalized ratio; PCC= prothrombin complex concentrate; PRBC= packed red blood cells

Figure 1: Percentage of GI bleeds associated with oral anticoagulants (N=476)

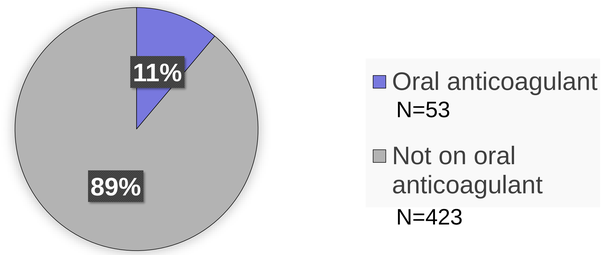
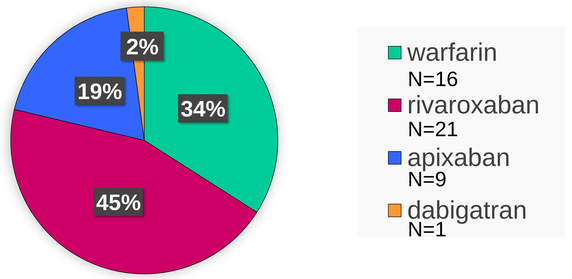


Figure 2: Breakdown of oral anticoagulants in patients with major GI bleeds (N=47)



Limitations

- Retrospective review with a limited number of patients.
- Does not account for frequency of prescribing of DOACs and warfarin in the population.
- Adherence to oral anticoagulant therapy prior to admission could not be confirmed.

Conclusions

- Only 11% of patients admitted to ARH with a GI bleed were on an oral anticoagulant.
- Among adult patients with a major GI bleed who were on an oral anticoagulant prior to admission, the majority were on a DOAC.
- Among the patients on a DOAC, the majority were on rivaroxaban.

References

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