Outcomes following PCC use in patients on OAC in NI 2015 - 2021

Cullen R[1], O'Kane A[1], Toner P[1,2], Benson G[1].
[1]Belfast Health and Social Care Trust [2] CEM Queen's University Belfast.

INTRODUCTION

Direct oral anticoagulant (DOACs) use is increasing in the UK. Recently Andexanet alfa has been shown to reduce anti factor Xa activity in those taking DOACs admitted with major bleeding events. However, its use was associated with an 18% 30- day thrombosis rate[1]. Andexanet alfa is currently awaiting NICE approval, as such prothrombin complex concentrate (PCC) is largely used in the treatment of major bleeding in patients taking DOACs.

Aim

To assess the outcomes, including the post treatment thrombotic rate, in patients on DOACs presenting with major bleeding events treated with PCC.

Methods

We performed a retrospective observational audit of PCC use in Northern Ireland from 2015- 2021.
All the prescriptions for PCC have been recorded by the Northern Ireland Blood Transfusion Service. This data was shared with the centre director of the NI Haemophilia Comprehensive Care Centre.
We reviewed the clinical notes for each case and recorded bleeding site, severity of bleeding, treatment, mortality, and thrombotic outcomes.

Results

Of the 689 patients included in the audit, 393 were on warfarin and 296 were on a DOAC. Atrial fibrillation was the primary indication for both groups (73% in warfarin group and 85% DOAC group).
See **table 1** for demographic details.
Bleeding was fatal in 17% of cases on warfarin; 24% of cases on rivaroxaban; and 21% of cases on apixaban.
Following anticoagulation reversal with PCC, 5% of patients previously on warfarin and 9% of patients previously on a factor DOAC had a thrombotic event within 30 days (**table 2**).

Table 1

	Warfarin	Rivaroxaban	Apixaban	Edoxaban	Enoxapain
Number	393	55	221	13	7
Age- years (SD)	76.4 (16)	80.8 (8)	79.7 (9)	81.1 (7)	67 (18)
Male no. (%)	175 (45)	27 (49)	119 (54)	5 (38)	6 (86)
Site of bleeding					
Gastrointestinal no. (%)	66 (17)	15 (27)	38 (17)	4 (31)	3 (43)
Intracranial no. (%)	191 (49)	26 (47)	141 (64)	9 (69)	2 (28)
Genitourinary no. (%)	18 (5)	0	3 (1)	0	0
Other no. (%)	118 (30)	14 (26)	39 (18)	0	2 (28)

Table 1: Demographic details of the patients plus details of the site of bleeding for each anticoagulant

Figure 1

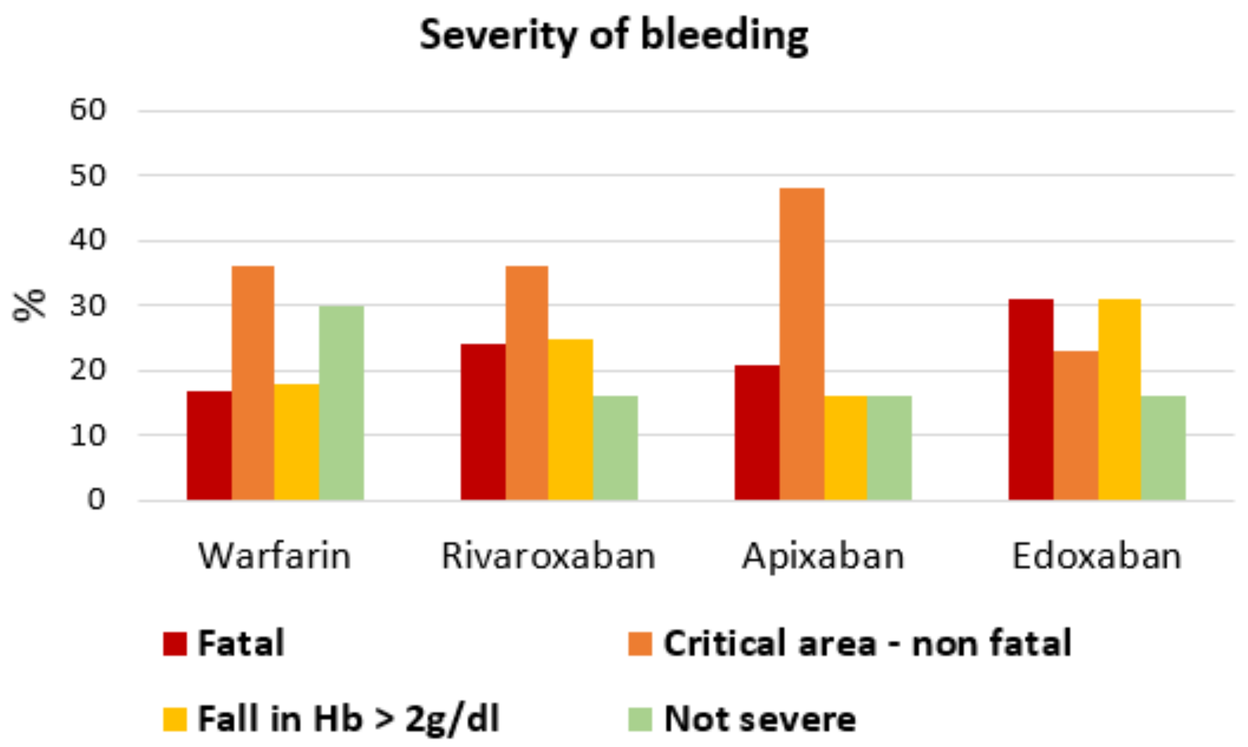

Fig 1- details of the severity of bleeding for each anticoagulant

Table 2

	Warfarin	Rivaroxaban	Apixaban	Edoxaban	Enoxapain
Outcomes					
Thrombotic event; within 30 days- no. (%)	18 (5)	7 (13)	18 (8)	0	1 (6)
Total thrombotic event within 30 days- no. (%)	18 (5)	26 (9)			
Death within 30 days- no. (%)	53 (13)	9 (16)	47 (21)	3 (23)	3 (50)
Death within 90 days- no. (%)	82 (21)	13 (24)	55 (25)	5 (38)	3 (50)
Restart of anticoagulation- no. (%)	110 (29)	26 (47)	84 (38)	5 (38)	2 (29)

Table 2: Outcomes following PCC use for each anticoagulant

Conclusion

This retrospective observational audit demonstrated a lower rate of thrombotic event following treatment with PCC in patients on a factor Xa inhibitor with acute bleeding, when compared with andexanet alfa (9% with PCC vs 18% with Andexanet Alfa).
The main thrombotic events recorded were thrombotic strokes followed by ischaemic bowel and pulmonary embolisms.

REFERENCES

1) 1. Connolly SJ, Crowther M, Eikelboom JW, et al. Full Study Report of Andexanet Alfa for Bleeding Associated with Factor Xa Inhibitors. *New England Journal of Medicine*. 2019;380(14):1326-1335.

Acknowledgements

We would like to thanks the NI Blood Transfusion Centre for providing the details of those who were prescribed PCC between 2015 and 2021.