

Direct Oral Anticoagulants – A Competitor to Warfarin for Stroke Prevention in High-Risk Patients

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INTRODUCTION

Direct oral anticoagulants (DOACs) such as apixaban, rivaroxaban and dabigatran are used in a variety of different indications including stroke prevention in atrial fibrillation (AF) and the prevention and treatment of venous thromboembolism (VTE).

DOACs are more commonly used in these indications due to convenience, lack of monitoring required, ease of dosing and improved patient experience compared to warfarin^{1,2}. However, patient factors such as age, extremes in body weight and renal function often limit the use of DOAC therapy. The International Society of Thrombosis and Haemostasis (ISTH) recommend avoiding use of DOACs in patients with a body mass index (BMI) >40kg/m² or weight >120kg due to the lack of safety and efficacy data that is available³.

Despite the advantages of DOACs over warfarin being well documented, the safety and efficacy in the overweight and obese population is lacking.

AIM

This study aims to assess the safety and efficacy of DOACs used for stroke prevention in AF patients who weigh ≥100kg and to compare the outcome of these patients to those who received warfarin therapy.

METHOD

This project was conducted as a retrospective audit at the Northern Hospital Epping, over the time period 2019-2020. A master list of dispensed anticoagulants was obtained through Northern Health dispensing software

Inclusion criteria: Patients on DOACs (apixaban, rivaroxaban, dabigatran) or warfarin who weighed ≥100kg and where anticoagulant therapy was being used as stroke prevention in AF.

Records were reviewed to collect data on patient demographics, full particulars of anticoagulant therapy and details of any complications related to anticoagulant use such as bleeding and thrombotic outcomes.

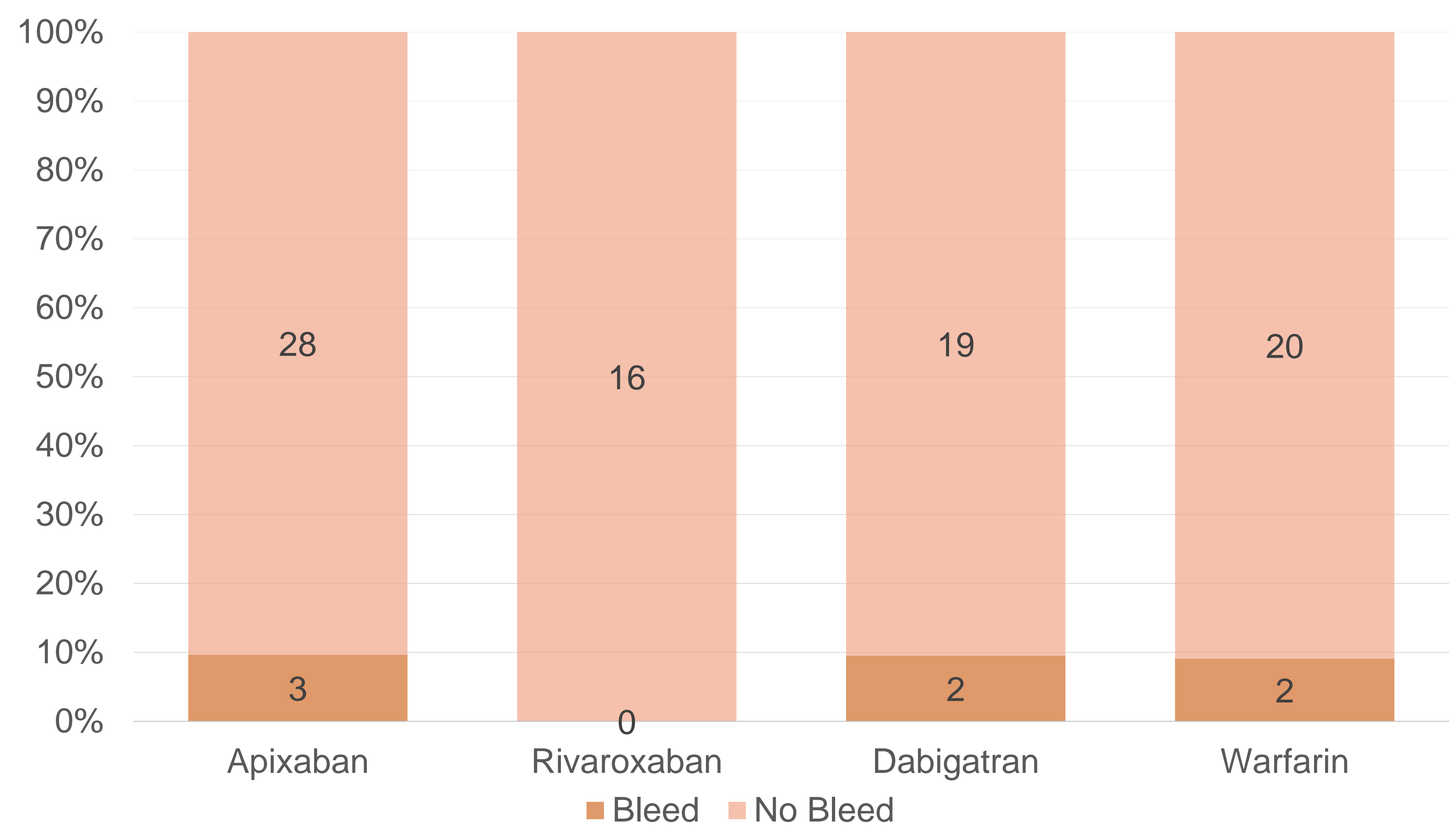
RESULTS

63 of the 90 patients included were male and 27 were female. The average weight of the cohort was 119.46kg, with 32.2% (2) weighing >120kg. A quarter of patients (24.4%, 22) had reasonable stroke risk with CHADSVASC score of 4.

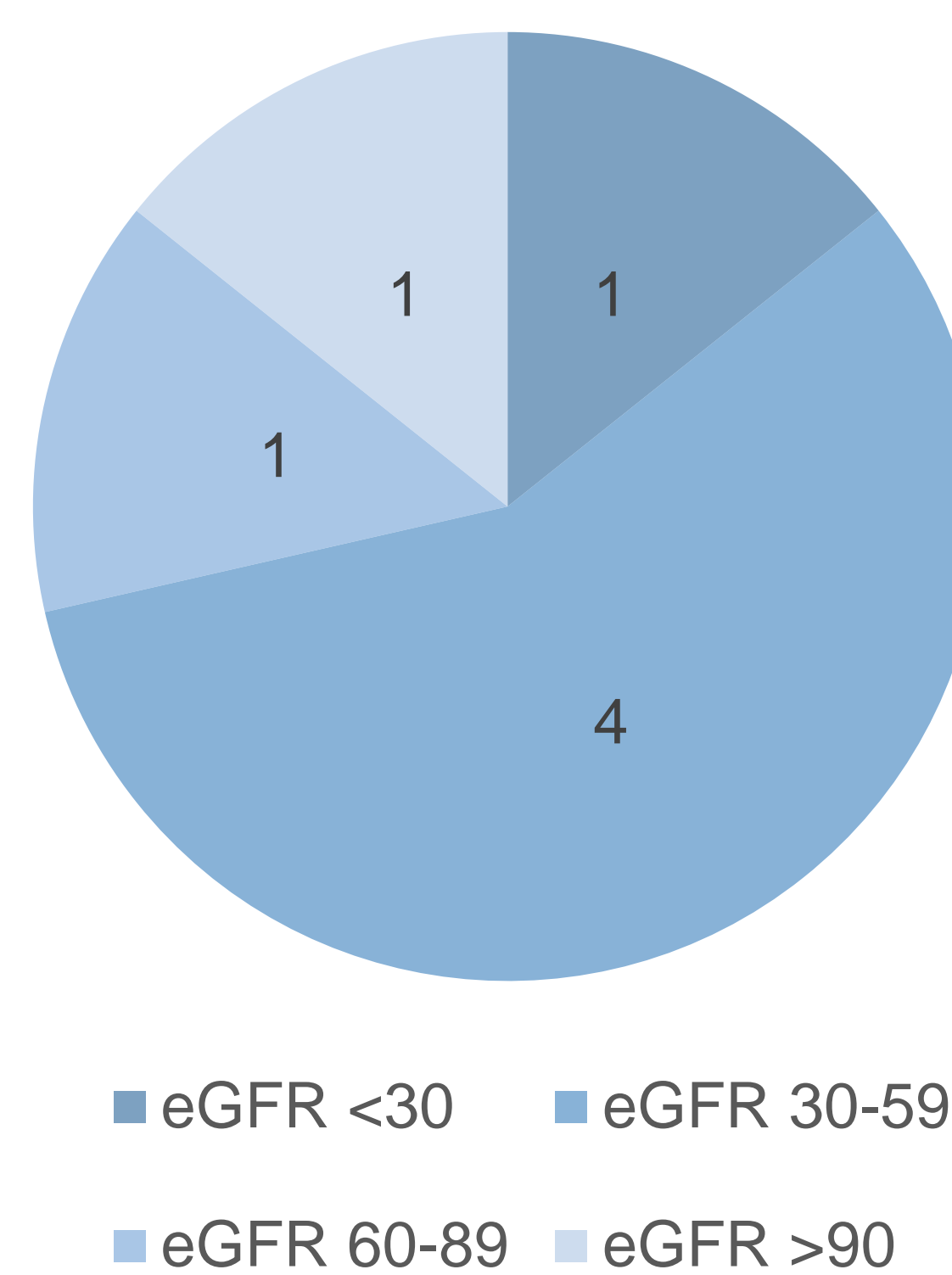
Table 1: Patient Demographics

	Mean	Range
Age (years)	66	38-93
Weight (kg)	119.46	100-180
BMI (kg/m ²)	41.61	30.86-58.68

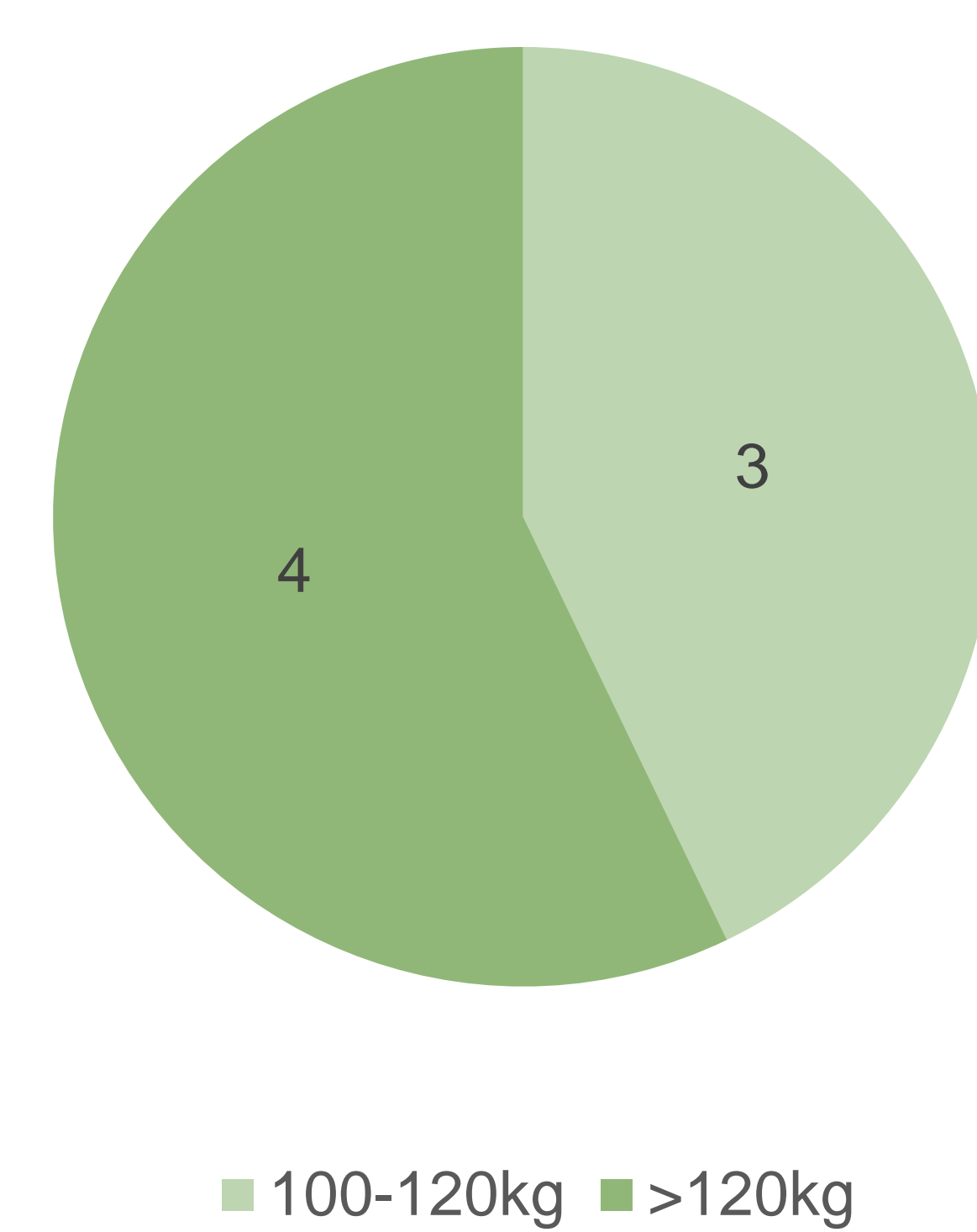
Graph 1: Bleeding Rates During Admission



Graph 2: Bleeding Rates Relative to Renal Function



Graph 3: Bleeding Rates Relative to Body Weight



863 patients dispensed anticoagulants

137 patients in target body weight range (≥100kg)

90 patients using anticoagulant for AF

31
APIXABAN

16
RIVAROXABAN

21
DABIGATRAN

22
WARFARIN

Out of the 90 patients, 21.1% (19) of patients were using a concurrent antiplatelet in addition to anticoagulation.

Rate of bleeding during admission was similar for warfarin at 9.1% (2) and DOACs at 7.4% (5) with 1 patient experiencing a significant bleed of ISTH grade 3 whilst on apixaban (Graph 1).

Only 1 patient readmitted with symptoms of stroke on dabigatran more than 90 days after discharge. There were no rates of mortality noted.

Of the 7 total bleeding episodes, 57.1% (4) weighed >120kg (Graph 2) and 71.43% (5) of patients were renally impaired with an estimated glomerular filtration rate (eGFR) ≤59mL/min (Graph 3).

DISCUSSION

These results demonstrate that despite ISTH recommendations, clinicians are increasingly prescribing DOACs in this population. There is a correlation between bleeding with increased weight however results are comparable to warfarin. Therefore, DOACs should be considered first line where possible as they have shown in our study to be non-inferior to warfarin.

CONCLUSION

Our data supports the use of DOACs for stroke prevention in AF in the overweight to obese population with minimal bleeding or thrombotic adverse effects compared to warfarin.

Further research with bigger sample sizes should be done to strengthen the data in this area.

REFERENCES

- Morgan A, Joshy G, Schaffer A, Laba TL, Litchfield M, Pearson S, Banks E. Rapid and substantial increases in anticoagulant use and expenditure in Australia following the introduction of new types of oral anticoagulants. PLoSOne [Internet]. 2018 Dec 6 [cited 2021 Oct 26];13(12). Available from: <https://doi.org/10.1371/journal.pone.0208824>
- Iloäki J, Fanning L, Keen C, Sluggett JK, Page AT, Korhonen MJ, Meretoja A, Mc Namara KP, Bell JS. Trends and Predictors of Oral Anticoagulant Use in People with Alzheimer's Disease and the General Population in Australia. J Alzheimers Dis. 2019;70(3):733-745.
- Martin K, Beyer-Westendorf J, Davidson BL, Huisman MV, Sandset PM, Moll S. Use of the direct oral anticoagulants in obese patients: guidance from the SSC of the ISTH. J Thromb Haemost. 2016 Jun;14(6):1308-1313.