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ABSTRACT/BACKGROUND

- DOACs are routinely prescribed in the elderly to manage non-valvular atrial fibrillation and stroke prophylaxis.
- DOACs reduce the risk of stroke and systemic thromboembolism, without increasing the risk of major bleeding, with a favorable risk profile.
- Fluctuations in renal function, comorbidities, and concomitant antiplatelet use may necessitate more individualized dosing strategies with these agents.

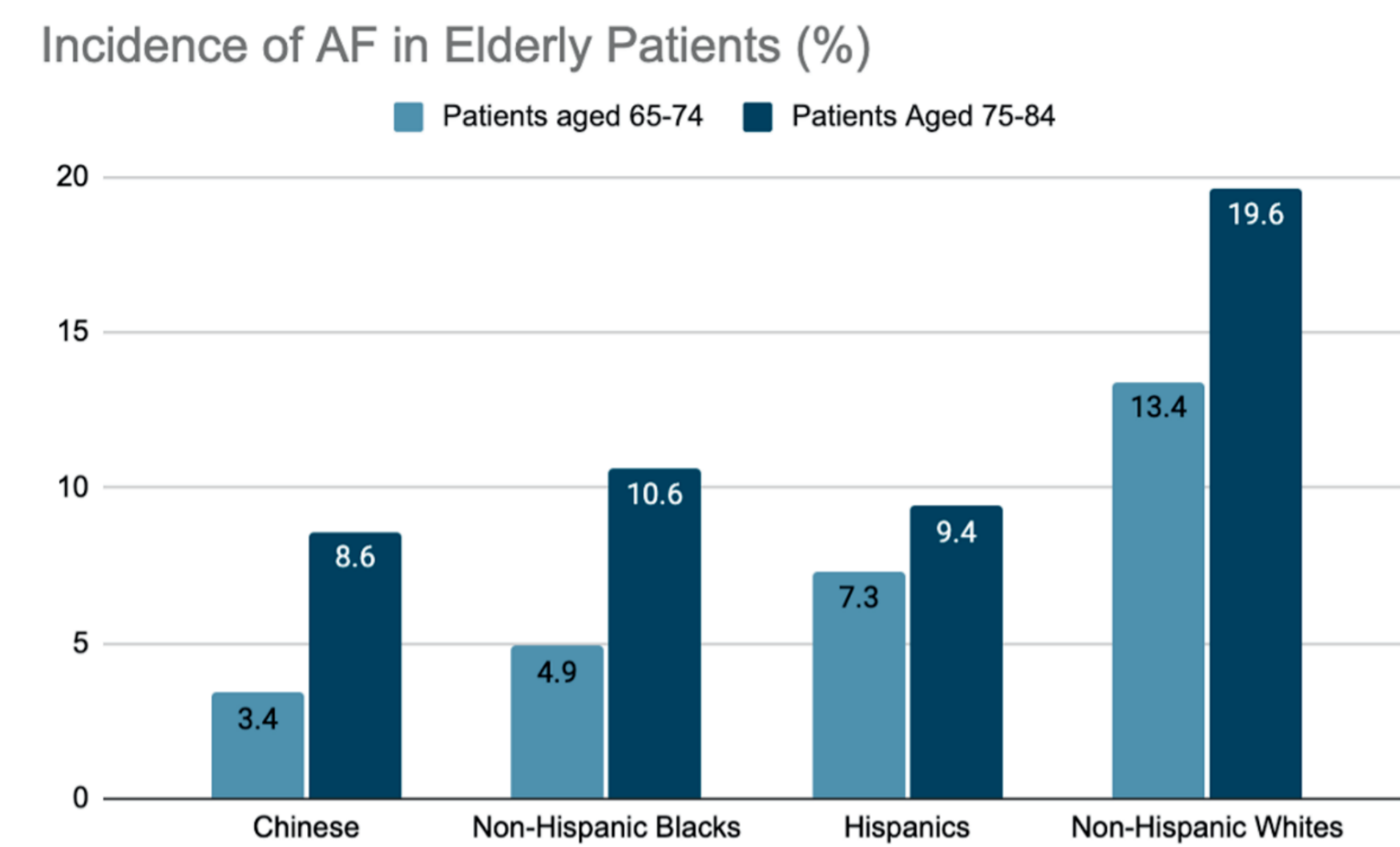


Figure 1: The incidence of AF in the population.

- The quality of life in these patients is often poor, with a larger number of patients undergoing hospitalizations, resulting in more cardiovascular events in elderly patients with AF, compared to patients younger than 75 years.
- Old age often decreases the velocity of blood flow and increases the risk of stroke/systemic embolism and VTE, resulting in one of the most common complications of AF.

OBJECTIVES/METHODS

We researched the use of DOACs and the challenges in their use in the elderly by reviewing the available literature.

RESULTS

- Age and AF
- The incidence of AF in the elderly population shows an increase in all the races studied. As we move from the Chinese to non-Hispanic blacks to Hispanics and finally to non-Hispanic whites, the incidence of AF increases (Fig. 1).
- The Framingham Heart Study group had shown age to be the greatest risk factor for AF, surpassing other risk factors, including male sex, obesity, diabetes, smoking, hypertension, heart failure, and coronary artery disease.

TYPES OF DOAC'S

- Factor Xa Inhibitors: Rivaroxaban and Apixaban
- Rivaroxaban is given together with aspirin to lower the risk of stroke, heart attack, or other serious heart and blood circulation problems in adults with coronary artery disease, or peripheral artery disease.
- Direct Thrombin Inhibitor (DTI): Dabigatran: Used to treat blood clots deep in the body (DVT) and PE) in adults.
- Apixaban is preferred in patients with compensated renal function.



Figure 2: Different types of DOAC's

MECHANISM OF ACTION OF DOAC'S

- Apixaban, Rivaroxaban and Edoxaban inhibit Factor Xa
- Dabigatran inhibits Factor IIA.

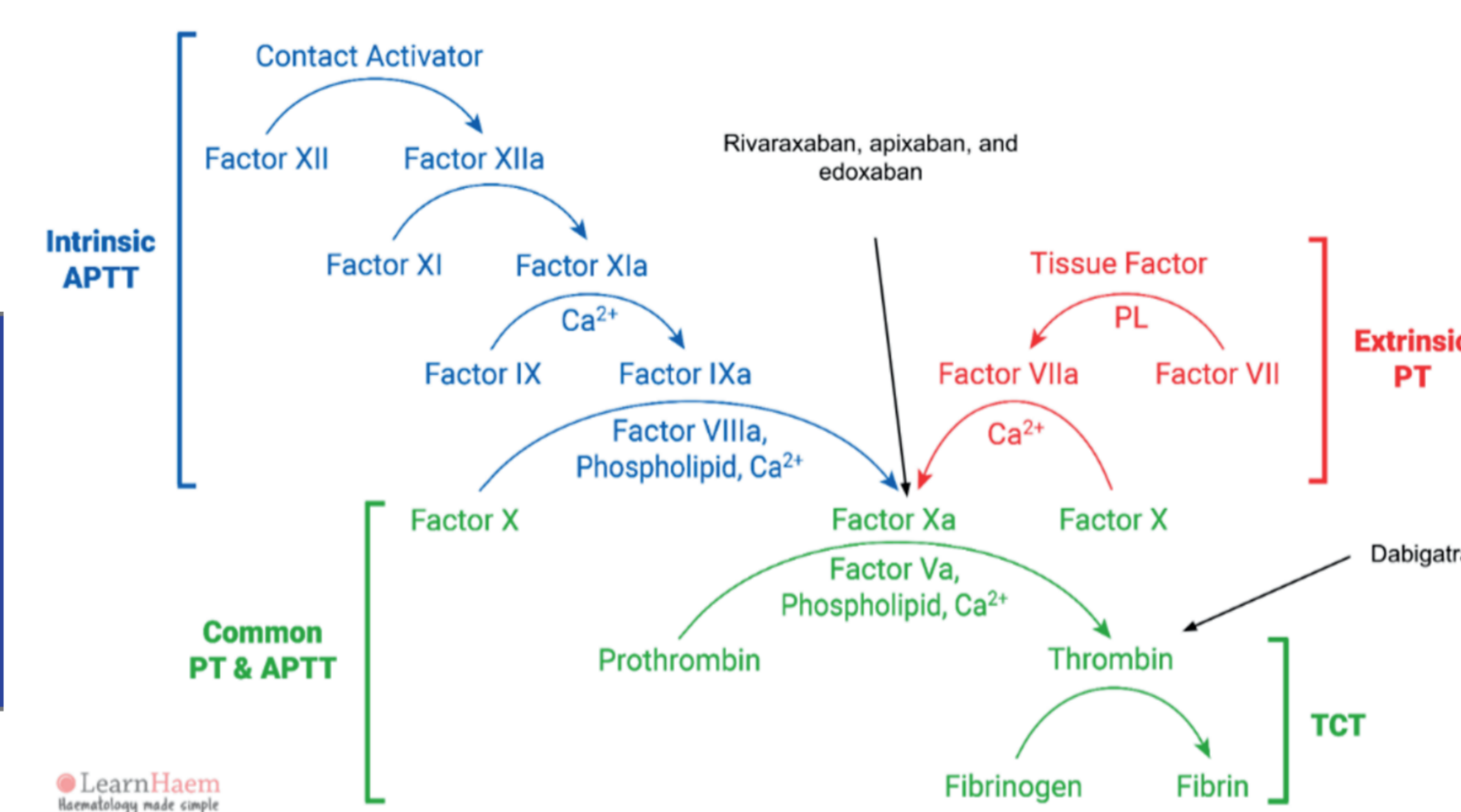


Figure 3: Site of action of DOACs

INDICATIONS OF DOAC'S

- Provide both clinicians and patients with safer, more effective, and convenient therapeutic alternatives in thromboembolic conditions.
- To reduce the risk of brain bleeding when taken for stroke prevention. Prevention of recurrent DVT and PE.

INDICATIONS OF DOAC'S, CONTINUED

- Prevention and treatment of thrombosis in cardiovascular conditions including DVT and PE, atrial fibrillation, and recurrent thrombotic stroke.

WHEN SHOULD DOAC'S BE AVOIDED?

- Patients with severe hepatic disease in which warfarin is the only recommended anticoagulant.
- Dabigatran, apixaban, and edoxaban are viable options in patients with moderate hepatic impairment and do not require dose adjustments.
- Rivaroxaban should be avoided in patients with advanced renal insufficiency, apixaban is the drug of choice in this population

CHALLENGES IN THE ELDERLY

- Often forget to take medications resulting in altered drug levels and efficacy.
- Accidental overdose of anticoagulants resulting in excessive risk of bleeding.
- Polypharmacy & Drug Interaction
- Altered Pharmacokinetics: Renal function declines with age, affecting excretion and causing a longer half life and elevated bleeding risk
- High risk of falls due to multiple reasons including stroke, imbalance, visual difficulties, arthritis, and frailty, resulting in increased risk of bleeding.

ADVANTAGES OF DOAC'S OVER WARFARIN

- No need for regular INR checks
- No dietary restrictions
- Stable and predictable dosage
- Fewer drug interactions

DISADVANTAGES OF DOAC'S OVER WARFARIN

- High cost
- Absence of tests to measure drug levels or effect.
- Lack of universal reversal agents/antidotes

CONCLUSIONS

- DOACs significantly reduce the risk of stroke and systemic thromboembolism in elderly patients, without increasing the risk of major bleeding.
- DOACs are safe and effective for use in the elderly but should be used with great caution.
- DOACs offer various practical advantages over warfarin in the elderly.

REFERENCES

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2. Kim, Dae; Pawar, Ajinkya; Joshua J Gagne, et al: Frailty and Clinical Outcomes of Direct Oral Anticoagulants Versus Warfarin in Older Adults With Atrial Fibrillation: A Cohort Study: Ann Intern Med 174, 1214-1223, 2021