Coagulation Clinic Module
Anticoagulation in Atrial Fibrillation
Clinical Algorithms, Mind Maps, Focus Points (Tricks) & Exams Recall

- Keywords
- المتشابهات - احدث اسئلة الامتحانات
- Dilemma !
- Any extra tips or extra Q on pharmacotherapy exams

Lecture (2) Anticoagulation in A. Fib

Oral Anticoagulation (OAC) in Atrial Fibrillation as Stroke prevention

✓ **Evaluate/decide/ when** to start or not start oral anticoagulant (OAC) in A. Fib. > refer to arrhythmia/ A. Fib part (2) last 10 mins.

Anticoagulation: CHA_2DS_2-VASc

احفظه غصبا عنك وعن مخك !!!

Risk Factor	Score
CHF or LVEF ≤ 40%	1
Hypertension	1
Age ≥ 75	2
Diabetes	1
Stroke/TIA/ Thromboembolism	2
Vascular Disease	1
Age 65 - 74	1
Sex category (female)	1

PE/DVT

Table 3. AHA/ACC/Heart Rhythm Society Guideline Recommendations for Antithrombotic Therapy in Patients with NVAF Based on CHA_2DS_2-VASc Score[a]

CHA_2DS_2-VASc Score of 0 in men or 1 in women	CHA_2DS_2-VASc Score of 1 in men or 2 in women	CHA_2DS_2-VASc Score of 2 in men or 3 in women
Reasonable to omit antithrombotic therapy or consider aspirin	Consider no antithrombotic therapy, oral anticoagulation, or aspirin	Oral anticoagulant therapy is indicated. DOAC over warfarin in DOAC-eligible patients

✓ Vascular disease (prior ACS, PAD, Aortic plaque)

Components and Bleeding Rates of the HAS-BLED Score

INR target if **A. Fib. only** (2-3)

Risk Factors	Points
Hypertension (systolic BP > 160 mm Hg)	1
Abnormal renal or liver function[a]	1 or 2
History of stroke	1
History of bleeding[b]	1
Labile INRs[c]	1
Older adults (age > 65)	1
Drugs or alcohol excess[d]	1 or 2

اتعرف عليه ما تضغطشي على مخك يحفظه خالص

source

مش مهم اوى ولكن ليك عشان تعرف امتى المريض ممكن يكون عنده ريسك للنزيف

training

Table 5. Components and Bleeding Rates of the HAS-BLED Score

Risk Factors	Points
Hypertension (systolic BP > 160 mm Hg)	1
Abnormal renal or liver function[a]	1 or 2
History of stroke	1
History of bleeding[b]	1
Labile INRs[c]	1
Older adults (age > 65)	1
Drugs or alcohol excess[d]	1 or 2

A > 1 point for renal and 1 point for liver.
Renal = chronic dialysis, renal transplant, or SCr of 2.26 mg/dL or greater
Liver = chronic hepatic disease, bilirubin > 2 times the upper limit of normal, in association with AST/ALT/Alk Phos > 3 times the upper limit of normal
B > History of bleeding or predisposition to bleeding such as a bleeding diathesis or anemia.
C > Unstable/high INRs or time in therapeutic range < 60%.
D > Drugs include antiplatelet or nonsteroidal anti-inflammatory drugs = 1 point; alcohol excess is ≥ 8 alcohol drinks/wk = 1 point.
BP > = blood pressure.

Oral Anticoagulation (OAC) in Atrial Fibrillation as Stroke prevention

Which agent , which anticoagulant ?

Warfarin Dabigatran Rivaroxaban Apixaban Edoxaban

1) For eligible patients to take oral anticoagulant, **recommend DOACs** over VKA "warfarin"
2) **Warfarin** remains the drug of choice in patients with **Valvular** A. Fib. "mechanical heart valves or bioprosthetic VD",, in those with moderate to severe **mitral stenosis,** in **sever renal impairment** CrCl. < 15 ml/min & with **selected patients like lupus**
3) Non–vitamin K oral anticoagulants (NOACs) are recommended over warfarin in NOAC-eligible patients with AF (except for patients with a mechanical heart valve or moderate to severe mitral valve stenosis).
4) DOACs is contraindicated in patients with AF and mechanical heart valve.
5) DOACs are recommended in patients who cannot maintain a therapeutic INR with warfarin
6) **ACCP** // Recommend **against** antiplatelet therapy (monotherapy or aspirin with clopidogrel) for stroke prevention alone, regardless of stroke risk.
7) Patients with AF and ischemic stroke should receive long-term oral anticoagulation unless contraindicated
   (Do you think you need to calculate CHA2DS VASc score if (A. Fib + Ischemic stroke) to start OAC ?

8) Who have end-stage chronic kidney disease (CrCl less than 15) or in patients who are receiving hemodialysis, **warfarin** (INR 2.0–3.0) **or apixaban** may be reasonable for oral anticoagulation, while other OAC not recommended as lack of evidence

9) Patient with (ACS+ A. Fib) > need triple anti thrombotic > refer to ACS videos part (3) last 3 mins.

- **OAC** : Oral Anticoagulation **DOACs** : Direct Oral Anticoagulants
- **NOACs** : (Non-vitamin K) Oral Anticoagulants **VKA** : Vitamin K antagonist "warfarin

Hassan Younis

CRPS
Carbamazepine
Rifampin
Phenytoin
St. John's wort

Pgp Vs 3A4

Dosing of DOACs in NVAF

✓ **Why non-valvular, what about if valvular A. Fib ?**

If CrCl > 50	Standard Dosing	Dose Adjustment[a]	Avoid Use[a]
Dabigatran	150 mg twice daily	75 mg twice daily • CrCl 15–30 mL/min/1.73 m² • CrCl 30–50 mL/min/1.73 m² with ketoconazole or dronedarone	• CrCl < 15 mL/min • Dialysis • CrCl 15–30 mL/min/1.73 m² with amiodarone, verapamil, ketoconazole, dronedarone, diltiazem, and clarithromycin • Rifampin
Rivaroxaban	20 mg once daily with meals	15 mg once daily with meals • CrCl 15–50 mL/min/1.73 m²	• Strong CYP3A4 and P-gp inducers (e.g., rifampin, phenytoin, carbamazepine, St. John's wort) • Strong CYP3A4 and P-gp inhibitors (e.g., protease inhibitors, itraconazole, ketoconazole, conivaptan)
Apixaban	5 mg twice daily	2.5 mg twice daily • Two of three criteria (age ≥ 80 yr, weight ≤ 60 kg, or SCr ≥ 1.5 mg/dL) • Use with strong CYP3A4 and P-gp inhibitors (e.g., protease inhibitors, itraconazole, ketoconazole, conivaptan)	• Strong CYP3A4 and P-gp inducers (e.g., rifampin, phenytoin, carbamazepine, St. John's wort) • If on 2.5 mg twice daily – Strong CYP3A4 and P-gp inhibitors (e.g., protease inhibitors, itraconazole, ketoconazole, conivaptan)
Edoxaban	60 mg once daily	30 mg once daily • CrCl 15–50 mL/min/1.73 m²	• CrCl > 95 mL/min/1.73 m² • CrCl < 15 mL/min/1.73 m² • Dialysis • Rifampin

[a]CrCl in the DOAC trials was calculated using Cockcroft-Gault equation with total body weight.

➢ All **inducers** (X), Carbamazepine, Rifampin, Phenytoin, St. John's wort **CI with Rivaroxaban & Apixaban**, while dabigatran & Edoxaban CI with Rifampin only

➢ St. John's wort not CI with Dabigatran & Edoxaban

✓ **Rivaroxaban & Apixaban** are 3A4 substrates & Pgp transport

$$eCrCl = \frac{(140 - Age) \times Weight\ (kg)}{72 \times Creatinine_{serum\ (mg/dL)}} \times 0.85 \text{ if female}$$

VIP Rule
- ✓ All DOACs CI if CrCl < 15 ml/min except **Apixaban**
- ✓ Warfarin or Apixaban safe with end stage chronic kidney disease "ESCKD" or with Hemodialysis (HD)

➢ **Reduced dose**
- o **Dabigatran** 75 mg BID if :
  - CrCl **15-30** ml/min
  - CrCl 30-50 ml/min with Keto-D
- o **Rivaroxaban** 15 mg/d or **Edoxaban** 30 mg/d
  If CrCl **15-50** if moderate renal impairment
- o Apixaban 2.5 mg BID if **two of three criteria**
  1) 80 – 60 – 1.5
  Age ≥ **80**-year, weight ≤ **60** kg, or SCr ≥ **1.5** mg/dL
  2) With 3A4 inhibitors

Reduced dose ?

5 معلومات

Renal impairment ?

حبة معلومات وفوازير

With inducers Or inhibitors ?

DOACs (Active) → **3A4 or P-gp** → Inactive metabolite

Inhibitors: ↑ Bleeding

Inducers: ↑ Thrombosis