Atrial fibrillation
Improving anticoagulation: update

Key messages

- People with atrial fibrillation on aspirin, clopidogrel or no antithrombotic medication should be reviewed to assess suitability of anticoagulation.
- Warfarin or new oral anticoagulants may be suitable after an informed discussion with the patient.
- Aspirin does not significantly reduce stroke in atrial fibrillation. At older ages bleeding may result in net harm.

Aim of the guideline

Only half the people with atrial fibrillation are on anticoagulants which reduce strokes by 64%.

This guidance aims to increase the use of anticoagulants and reduce the inapproriate use of antiplatelet agents.

What this guidance covers

The guidance concerns antithrombotic agents for the treatment of non-valvular atrial fibrillation. It is consistent with NICE Guidance.

See 2014 NICE AF guideline 180
guidance.nice.org.uk/cg180

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CEG Website

This guideline is available on the CEG website
blizard.qmul.ac.uk/ceg-resource-library.html

Guidance

This document is a guide to decision making and not a replacement for clinical judgement. We have based this guidance largely on the European Society of Cardiology 2012 atrial fibrillation guideline.

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Aim

This guidance is intended for use in patients who have already been diagnosed and clinically evaluated with non-valvular atrial fibrillation.

• This guidance aims to increase anticoagulation in people with AF. Warfarin is the drug of first choice unless contraindicated.

• It also identifies the role of new oral anticoagulants (NOAC) such as dabigatran, rivaroxaban, and apixaban and their advantages and disadvantages.

• It aims to reduce the use of antiplatelet agents in AF as there is little evidence they reduce stroke.

The issues

• AF causes 20% of strokes = 12,500 pa[1].

• Stroke risk is 5-6 times greater in AF patients than in sinus rhythm[1].

• 40% of patients are on aspirin although anticoagulants reduce stroke more effectively[2].

• Warfarin reduces stroke risk by 64% compared to placebo[3]. NOACs are similarly effective.

• Aspirin only reduces this risk by 19% (non significant)[4].

• New oral anticoagulants should be considered in people unsuitable for warfarin[5].

References

1.www.medman.nhs.uk/ebt/merec/cardio/atrial/resources/merec_bulletin_vol12_no5.pdf

2. Mathur et al. Ethnicity and stroke risk in AF . Heart. 2013;99:1087-92.

3. NHS Improvement. Commissioning for Stroke Prevention in Primary Care – the role of atrial fibrillation 06/09

4. Mant et al Warfarin versus aspirin for stroke prevention. Lancet 2007;370: 493-503.

5. NICE HTA guidance 2012

6. European Society of Cardiology. Atrial fibrillation 2012

What you can do

Use APL or GRASP tools to review all patients with AF and their stroke risk with the CHADS2 or CHA_2DS_2-VASc and HAS-BLED scores to consider whether anticoagulation will reduce stroke without excessive risk of bleeding.

Re-discuss reasons for not using anticoagulant

• People on aspirin are two to three times more likely to have a stroke as people on warfarin.

• Warfarin 'contraindications' are often overestimated.

• Risk of falls are rarely a reason not to use anticoagulants.

• If adherence is an issue, will this be better with a NOAC which may be monitored less frequently?

• If there is a true contraindication to warfarin consider use of a NOAC or referral if in doubt.

• If blood tests remain the obstacle consider referral for a new oral anticoagulant (NOAC).

• Where there is doubt, refer for reassessment by haematologist.

If bleeding is a risk should this be reassessed?

• Bleeding risk and severity with aspirin is as great, if not greater, than with warfarin at older ages.

• Use the HAS-BLED score. Use anticoagulants with caution if the score is 3 or more - discuss with haematologist; more frequent review may be required.

• If previous bleeding but no major bleed within 3 years, discuss treatment options with haematologist.

• If bleeding is an issue is there a role for atrial ablation? See p 11.

Aspirin in AF

Aspirin is not effective in stroke reduction in AF[7] .

Warfarin or NOACs combined with aspirin or clopidogrel is not advisable in most circumstances and patients on this combination should be reviewed with a view to stopping antiplatelet agents. The increased risk of bleeding usually outweighs the reduction of stroke[8]. A patient with AF after uncomplicated MI or stroke will usually be treated with warfarin alone See p.8 for patients who may be on warfarin *and* an antiplatelet agent after *recurrent* MI, coronary stents or other coronary complexity who should be discussed with the cardiologist.

Risk of major bleed

Over age 80 years bleeding risk with aspirin is as high, if not greater than with warfarin[4].

Age yrs	Warfarin	Aspirin	Rel. Risk
75-79	1.1%	0.8%	1.44
80-84	2.3%	2.4%	0.96
85+	2.9%	3.7	0.77

The BAFTA AF Trial[4]

RCT of warfarin vs. aspirin 75mg in atrial fibrillation

- 973 patients with AF; mean age = 82yrs
- Stroke risk was halved in the warfarin group in comparison to those on aspirin
- 50 people would need to be treated for 1 year with warfarin rather than aspirin to prevent one stroke (approx 10 people in 5 yrs)
- There was no increased bleeding risk with warfarin in comparison with aspirin

There is no substantive evidence that aspirin is effective in preventing stroke in people with atrial fibrillation and the risks of major bleeding outweigh the possible benefits at older ages.

Where patients have co-morbid CVD but they are ***unable*** to take warfarin or new oral anticoagulants, then aspirin with or without clopidogrel or another antiplatelet agent is will reduce the risk of recurrent CVD events. See next column.

7. www.rcpe.ac.uk/sites/default/files/files/supplement-18.pdf

AF without other CVD

For people with AF but who do not have IHD, stroke or TIA, aspirin can no longer be recommended as there is no evidence that benefits outweigh risks[7].

When anticoagulants cannot be used

Aspirin and/or clopidogrel should only be considered *where warfarin and NOACs cannot be used* due to allergy or contraindications.

Primary Prevention	No antithrombotic
Stroke/TIA	Clopidogrel
Stable angina	Low dose aspirin
Old MI	Low dose aspirin
New MI/ACS	Dual antiplatelet: aspirin plus either clopidogrel, ticagrelor or prasugrel for 1 yr

While the risk of stroke is reduced with the combination of aspirin/clopidogrel over aspirin alone, the risk of major bleeding is also significantly increased. PPIs to reduce gastrointestinal bleeding risk with antiplatelet agents should be used where appropriate.

If anticoagulants cannot be used, clinicians recommend that for stroke/TIA: clopidogrel is the preferred choice*.

Clopidogrel after /stroke TIA is recommended as in trials, dipyridamole was more likely to be discontinued because of headache and clopidogrel was cheaper and at least, if not more effective.

For ACS/STEMI and NSTEMI* dual antiplatelet herapy - a combination of aspirin plus clopidogrel or ticagrelor or prasugrel should be continued for the first year.

*NICE was unable to recommend clopidogrel for TIA/STEMI because clopidogrel is not licensed for this use. These local variations are accepted by CCG prescribing advisors as satisfactory alternatives.

8. Oldgren J, Wallentin L, Alexander JH. New oral anticoagulants in addition to single or dual antiplatelet therapy after an acute coronary syndrome: a systematic review and meta-analysis. Eur Heart J. 2013;34:1670-80.

Anticoagulation in atrial fibrillation

CHA_2DS_2VASC Score

Score = 0 → **No antithrombotic or antiplatelet necessary**

Men score ≥ 1 Women ≥ 2 or age ≥ 65 yrs

Warfarin or NOAC after an informed discussion with patient

Bleeding risk?

Major bleed or HAS-BLED ≥ 3 ?

Do benefits of anticoagulation outweigh risks of bleed?

Consider NOACs if ...

- warfarin allergy/contraindications
- unable to adhere to monitoring
- unable to achieve INR in range
- patient preference after informed discussion

Apixaban, dabigatran or rivaroxaban

dose based on age, weight & GFR (Note*: use Cockcroft Gault for GFR rather than eGFR)

GFR >50 ml/min Age <75 yrs Weight >60 kg		Age >75-80 years; weight <50-60kg or GFR 30-50 ml/min or less See BNF. Indications for reduced dose differ.	Dabigatran GFR<30 ml/min Apixaban/rivaroxaban GFR <15 ml/min
Dabigatran 150mg BD Apixaban 5mg BD Rivaroxaban 20mg OD	Dabigatran not advised previous MI Reduce dose if additional bleeding risk	Dabigatran 110mg BD <75yrs <50kg Apixaban 2.5mg BD <80 yrs <60kg Rivaroxaban 15mg OD Consult haematologist for advice. If GFR< 50ml/min use Cockcroft Gault to calculate GFR.	NOT suitable

Anticoagulation not suitable: only use aspirin +/-clopidogrel or other antiplatelet agent if previous CVD. See text for detail.

APeL tool

CEG devised the APeL tool: APeL Atrial fibrillation Programme eLondon. This works in a similar way to GRASP as an aid in clinical decision making, and calculates the more recent CHA_2DS_2-VASc score which predicts the risk of stroke in people with atrial fibrillation and the HAS-BLED scores which predicts risk of bleeding.

CHADS2 and CHA_2DS_2-VASc are now calculated automatically within EMIS and also by the APeL tool which displays both previously calculated and the latest score to show where these are missing or require updating. Data shows further relevant clinical details including dementia, palliative care, alcohol consumption, falls and co-morbidities for individual patients.

The screenshot below shows an example of the APeL main display showing people on aspirin or clopidogrel.

APeL can be adapted for any computer system and is avialable from the Clinical Effectiveness Group QMUL.

GRASP-AF

Nationally there have been major attempts to improve anticoagulation using the GRASP-AF tool that extracts data from GP records. It is described on the NHS Improvement website.

Nationally this has improved warfarin anticoagulation by a modest amount (52% to 54%).

GRASP-AF is supported by PRIMIS. Download from:

www.primis.nottingham.ac.uk/AF_CHADS/NHS_Improvement_files/PRIMIS_GRASPAF_Register.htm

Health Analytics

In outer North East London Health Analytic also provide similar displays of patients at risk. For further details contact Clive Sutherland at Clive.Sutherland@onel.nhs.uk

QOF 2013

From April 2012 QOF requires CHADS2 calculation in all patients with AF. We recommend GPs use both CHADS2 and CHA_2DS_2-VASc scores to fit with QOF.

APeL Tool example: those on aspirin in a practice patient and GP details removed in this

Go to raw data

Age	Sex	CHADSVASc (APEL)	CHADS2 (APEL)	CHADSVASc (EMIS)	CHADS2 (EMIS)	HAS-BLED	On aspirin/ clopidogrel	On warfarin/ NOAC
89	Female	6	3	5	2	2	YES	NO
91	Male	6	5	None	5	4	YES	NO
74	Male	3	1	None	1	2	YES	CONTRA
79	Male	6	4	None	2	4	YES	CONTRA
74	Female	5	3	None	3	3	YES	CONTRA
88	Female	3	1	3	1	2	YES	NO
93	Female	4	2	None	2	2	YES	CONTRA
92	Male	4	2	None	2	3	YES	NO
87	Male	4	3	4	3	3	YES	NO
90	Female	5	2	None	2	3	YES	NO
90	Female	6	3	5	2	2	YES	NO
78	Female	4	2	4	2	2	YES	NO

The EMIS and APEL CHADS scores may differ because the table displays the last score entered in the patients record in the EMIS column and the newly calculated score in the APEL column.

AF causes and investigation

Valvular heart disease	Lung cancer
IHD, heart failure	Obesity
Cardiomyopathy	Alcohol
Thyroid disease	Sleep apnoea
Diabetes	Family history: AF or premature CVD
Renal disease	Hypertension

The diagnosis of AF should always include a 12 lead ECG and a search for conditions that predispose to AF.

FBC, U&E/GFR, proteinuria, ALT, thyroid function tests, fasting glucose/HbA1c, CXR, 12 lead ECG.

An echocardiogram to show cardiac abnormalities or atrial thrombus is advised in all new cases of AF.

Note the need for Cockcroft Gault GFR rather than eGFR in people over 80 years or those with poor renal function. (see details later).

Decision to treat

The decision to anticoagulate should consider

• Risk of stroke; CHA_2DS_2-VASc score.

• Risk of bleeding; HAS-BLED score.

• Inability to manage medicines/monitoring. eg. mental impairment, alcoholism, etc.

• The risk of falls – bleeding risk is generally less than the risk of a stroke and falls are rarely a reason for not using anticoagulants.

• Co-morbidities : Risk increases with co-morbid conditions - see CHADS scores.

Referral

Consider referral for further assessment or obtain consultant advice,

- where there is doubt about the ratio of benefits to risks of anticoagulation.
- in those under 65 years or those with complex co-morbidity or drug interaction.
- Patients unsuitable for warfarin should be considered for new oral anticoagulants.
- Consider atrial ablation where bleeding precludes anticoagulant.

Paroxysmal AF and atrial flutter

Stroke and thrombo-embolic risk in paroxysmal AF and atrial flutter is similar to persistent AF and antithrombotic therapy is recommended for these patients. Reversion to sinus rhythm may be intermittent and is not a reason to stop therapy.

Warfarin plus aspirin/clopidogrel

Adding either aspirin and/or clopidogrel to warfarin or NOACs, usually increases bleeding risk to a much greater extent than any reduction in CVD and the addition of an antiplatelet agent to warfarin or NOACs is not generally recommended.

However,some patients at very high risk who have either had an MI whilst on warfarin or after stenting or other complex cardiac interventions may require both warfarin and antiplatelet agents for a defined period; usually a year.

People on both antiplatelet agents and warfarin should be reviewed and consideration given to stopping antiplatelet agents unless there is a clear indication for their use agreed with cardiologists or other specialities.

CHA_2DS_2-VASc and CHADS2 scores

The CHA_2DS_2-VASc score is a more accurate indicator of risk than the earlier CHADS2 score[9].

Patients at low risk: Patients aged <65 years (both women and men) with lone AF and no other major risk factors: **No antithrombotic therapy is usually the preferred option.**

One or more risk factors: anticoagulation with warfarin is the preferred first option in men and in women aged ≥ 65 years or women score ≥ 2

New oral anticoagulants are an option if warfarin is unable to be used.

Aspirin or clopidogrel are only recommended if the patient is at high CVD risk and anticoagulants cannot be used.

CHADS2	Risk Factor	CHA_2DS_2-VASc
1	Congestive heart failure/LV dysfunction	1
1	Hypertension	1
1	Age ≥75 y	2
1	Diabetes mellitus	1
2	Stroke/TIA/ embolism	2
	IHD, peripheral artery disease	1
	Age 65–74 y	1
	Female*	1

***Female = 0 if under 65 yrs no other risks**

Calculating CHA_2DS_2-VASc

For patients with AF, to calculate the score simply sum each point. For example, a 67-year-old woman with diabetes and hypertension has a score of: Age = 1, Female = 1, Diabetes = 1, Hypertension =1 Total Score = 4. EMIS calculates this automatically

NB. Women under 65 no risks = 0, F ≥ 65 yrs = 2

Risk of stroke and CHA_2DS_2-VASc [9,10]

CHA_2DS_2-VASc	Stroke 1 yr /100	Stroke 5 yr /100
0	0.9	4.5
1	2.2	5.5
2	2.2	12.0
3	6.3	17.0
4	7.8	21.0
5	8.4	19.0

Review of AF

The review of patients with AF not on anticoagulants should include the benefits, risks, and continuing need for antithrombotic therapy.

- Assess stroke risk and bleeding risk before starting anticoagulation.

- Despite anticoagulation of more elderly patients with AF, rates of intracerebral haemorrhage are considerably lower than in the past, typically 1 to 5/1000 pa. Intracranial bleeding increases with INR values 3.5–4.0 or more. There is no increase in risk with INR values 2.0-3.0 compared with lower INR levels.

- Aspirin has a similar major bleeding risk to warfarin in elderly people.

- Concern about falls may be overestimated, as a patient may need to fall 300 times per year for the risk of intracranial haemorrhage to outweigh the benefit of oral anticoagulants in stroke prevention[6].

9. Lip GYH. J of Thrombosis and Haemostasis 2011; 9 (Suppl.1):344-351

10. Larsen et al. Added predictive ability of CHA_2DS_2-VASc risk score for stroke and death in patients with atrial fibrillation. Circulation 2012;5.Doi:10.11.61

Bleeding and HAS-BLED

A new bleeding risk score, HAS-BLED (hypertension, abnormal renal/liver function, stroke, bleeding history, labile INR, elderly (>65), drugs/alcohol concomitantly), has been validated.

A score of ≥3 indicates 'high risk', and regular review advised whether on anticoagulant or aspirin.

	Risk Factor	Score
H	Hypertension (≥160mmHg)	1
A	Abnormal renal and liver function 1 point each	1 or 2
S	Stroke (haemorrhagic or ischaemic)	1
B	Bleeding	1
L	Labile INRs	1
E	Elderly age ≥65 years	1
D	Drugs or alcohol 1 point each	1 or 2

Max 9 pts

• Hypertension' is defined as systolic blood pressure160 mmHg or more.

• 'Abnormal kidney function' = renal dialysis, renal transplantation or serum creatinine ≥200 mmol/L.

• 'Abnormal liver function' = chronic hepatic disease (e.g.cirrhosis) or biochemical evidence (e.g. bilirubin 2 x upper limit of normal, in association with AST/ ALT 3 x upper limit normal)

• 'Bleeding' refers to previous bleeding history and/ or predisposition to bleeding, e.g. bleeding diathesis, anaemia,

• 'Labile INRs' refers to unstable/high INRs or poor time in therapeutic range (e.g. <60%)

• Drugs/alcohol use refers to concomitant use of drugs, such as antiplatelet agents, non-steroidal anti-inflammatory drugs, or alcohol excess, etc.

Perioperative anticoagulation

Local policies should be followed. Patients with AF who are anticoagulated require temporary interruption of treatment before most but not all types of surgery. Many surgeons require an INR ≤1.5 before undertaking surgery. If warfarin is used, (half-life of 36–42 hrs), treatment should be interrupted 3-5 days before surgery to allow the INR to fall appropriately. Warfarin should be resumed at the 'usual' maintenance dose (without a loading dose) on the evening of (or the morning after) surgery depending on bleeding risk. Subcutaneous low molecular weight heparin is often used as a bridging therapy in people undergoing operative care or awaiting oral anticoagulation.

For patients on NOAC's who require surgery, experience is limited at present and specialist advice should be sought in advance

Community anticoagulant monitoring

Programmes for practice based near patient testing for INR have been successfully established in many CCGs, covering up to 60% of those with AF requiring warfarin monitoring. These clinics are largely GP practice based in some CCGs, and a mixture of pharmacy and GP based in others. In trials these programmes were associated with similar levels of time in therapeutic range and had higher levels of patient satisfaction, better accessibility and substantially lower patient costs than centrally run hospital based schemes.

There are a small number of patients who either self-test their own INRs using a purchased point-of-care device and dose adjust with advice from their local anticoagulant service or self-manage, ie. do both their own INR testing and warfarin dose adjustment. These patients should be linked to a local anticoagulant service for continuing clinical review and for external quality control purposes.

New oral anticoagulants: apixaban, dabigatran and rivaroxaban

In comparative trials these new drugs were at least as effective as warfarin in reducing stroke. The overall risk of major bleeding did not differ significantly between warfarin, dabigatran and rivaroxaban but overall bleeding was reduced with apixaban. NOACs reduced intracerebral haemorrhage in comparison to warfarin.

In trials NOACs have fewer drug interactions but there are nevertheless some important drug interactions and experience in wider use is limited. NOACs have the advantage that they do not require blood tests for monitoring. However, fewer visits may mean less adherence – even in trials about 20% of patients discontinued either NOAC or warfarin.

NOAC indications

NICE guidance considers the choice of warfarin or NOAC for anticoagulatiuon should be made after an informed discussion with the patint about risks and benefits in relation to the patients clinical features, patient preferences or factors that may influence their ability to monitor treatment or sustain concordance with treatment.

NOACs are appropriate for patients who are unable:

- to take warfarin due to contraindications.
- to adhere to the monitoring requirements associated with warfarin therapy.
- to achieve an INR in the target therapeutic range despite adherence to treatment. TTR<65%.

(*It is doubtful whether NOAC have advantages in people who are not adherent to treatment).*

11.Connolly SJ, Ezekowitz MD, Yusuf S, et al. Dabigatran versus warfarin in patients with atrial fibrillation. NEJM 2009;361: 1139-51.

12. Patel MR, Mahaffey KW, Garg J, et al. Rivaroxaban versus warfarin in nonvalvular atrial fibrillation. NEJM 2011;365:883-91

NOAC evidence

Trials with dabigatran and rivaroxaban selected people in AF at high risk of a stroke (typically CHADS≥2).

With all three NOACs there were fewer intracranial haemorrhages.

For stroke reduction, rivaroxaban and dabigatran 110mg were shown to be non- inferior to warfarin. Dabigatran 150mg BD and apixaban 5mg BD both showed a significant reduction in the primary outcome; stroke and systemic embolism.

In the RELY[11] trial with dabigatran, there was no difference in the rate of major bleeding with the 150mg BD dose, whereas the 110mg BD dose showed superiority over warfarin for major bleeding. Both doses demonstrated a higher incidence of major gastrointestinal bleeding than warfarin.

Warfarin was more effective than dabigatran in reducing myocardial infarction and dabigatran is not advised in people with ischaemic heart disease. Rivaroxaban and apixaban showed no significant difference in MI reduction.

In the ROCKET[12] trial with rivaroxaban there was no significant difference in major bleeding, fewer fatal bleeds but more major gastrointestinal bleeding.

In the ARISTOTLE[13] trial, apixaban was associated with fewer major bleeds, but more gastrointestinal bleeds than warfarin.

Dyspepsia: was more common with dabigatran 150mg than warfarin but was not listed as an adverse event with rivaroxaban or apixaban. Drugs were discontinued in ~ 20% of patients at 2 yrs – similar to those stopping warfarin. PPIs may be necessary for dyspepsia.

Total mortality was reduced with apixaban; 3.52% per year compared to 3.94% per year in the warfarin group (95% CI 0.80–0.99, P = 0.047). Non-significant reduction in total mortality was found with dabigatran 150mg and rivaroxaban 20mg.

13. Apixaban versus warfarin in patients with atrial fibrillation. Granger CB, Alexander JH, McMurray JJ, et al. NEJM 2011;365:981-92.

NOAC evidence contd.

167 people would need to be treated with apixaban and 86 with dabigatran rather than warfarin for 2 years to avert one stroke.

The cost of a year's treatment with any of the three new agents is similar at £730-£780 per year. The cost of warfarin plus monitoring is ~ £400.

Compared to no treatment, NOAC are cost-effective but in people on warfarin with good INR control they are not cost effective at current prices[14]. However, in people with poor INR control despite adherence, who are at high risk of stroke (CHADS2 ≥3) NOAC are likely to be cost-effective.

Meta-analysis of all major NOAC trials in comparison with warfarin confirms significant reductions in stroke, intracranial haemorrhage, and mortality, but increased gastrointestinal bleeding[15].

Reversing anticoagulation

The major concern with NOACs is the inability to rapidly reverse a major bleed. The effects of warfarin can be rapidly and easily reversed. However, this is not the case with NOACs which have a half-life of 13-17 hrs in older patients.

This is of concern to haematologists who regularly manage bleeds in anticoagulated patients and experience in acute situations is limited. Warfarin is the commonest reason for hospital admission for adverse drug events – almost entirely bleeding.

That blood monitoring is not needed is an advantage. However, in real world settings the absence of constant reminders may result in less satisfactory adherence unless regular reviews are undertaken. In well controlled individuals, monitoring warfarin 3 monthly is as good as more frequent testing which further reduces the advantage of NOAC in this group.

14. MHRA guidance, dabigatran October 2011.

15. Ruff CT, Giugliano RP, Braunwald E. Compar ison of the efficacy and safety of new oral anticoagulants with warfarin in patients with atrial fibrillation:a meta-analysis of randomised trials.Lancet 2014;383:955-62.

Renal function

Some uncertainty remains over dosage of NOACs in renal disease, the frail elderly or with drugs such as amiodarone. People with poor renal function should be assessed using the Cockcroft-Gault estimate of renal function. The eGFR tends to give higher values (at low levels of function) and thus may underestimate the extent of impaired renal function. If eGFR is used then patients with poor renal function may receive an inapproriately high dose. NOACs are not recommended in patients with severe renal or liver disease and use with amiodarone, azoles such as ketoconazole, quinidine, verapamil and rifampicin should be avoided.

Cumbria NHS have an excellent website on NOACs www.cumbria.nhs.uk/ProfessionalZone/MedicinesManagement/Guidelines/Prescribing-Guidance-for-NOACs.pdf

MHRA guidance advises assessment of renal function in all patients starting NOACs when poor renal function is suspected and at least annually in patients older than 75 or those with renal impairment.

The Cockcroft Gault calculator is available on the web at http://www.nuh.nhs.uk/nch/antibiotics/Renal%20impairment/clcrcalc.asp

New atrial devices

In embolus associated with AF, the origin in 90% is the left atrial appendage. New devices to close the appendage are implanted percutaneously under general anaesthetic. In large randomised trials they have been shown to provide similar efficacy to warfarin for stroke prevention[16]. The procedure does have an operative risk and the technology has only been proven in one study. These devices are therefore recommended for patients at high risk of stroke and who are unable to take warfarin or NOACs, specifically because of high risk of bleeding.

16. Holmes DR, et al. Lancet. 2009 374:534-42

CCGs currently recommend initiating anticoagulation in specialist clinics

Warfarin start or switch

CCGs and prescribing advisors have detailed guidance on starting or switching to warfarin and a variety of ways of monitoring INR and clinically reviewing the patient.

As NOACs are recent introductions we have summarised below the steps for their initiation and monitoring

Starting NOAC or switching from antiplatelet or warfarin to NOAC

When starting or switching discuss reasons for the new drug with the patient and the risks and benefits.

- Check ALT & renal function
- NOAC dose based on age, weight and renal function
- Review medications for potential interactions
- Where patient has heart valve, stent or other cardiac procedure seek cardiologist advice

Give patient prescription so pharmacist can arrange supply.

If switching from aspirin/clopidogrel, discontinue for 24 hours, then start the NOAC.

If switching from warfarin discontinue for 2 days, then start NOAC.

- Contact anticoagulant clinic and get them ready to check INR prior to change and 2 days after stopping warfarin.
- For apixaban and dabigatran commence NOAC if INR <2; for rivaroxaban commence if INR <3
- **Give the patient an alert card and patient information leaflet for the NOAC.**
- Ensure patient / carers send remaining warfarin to pharmacy.
- Ensure recall for next and annual review is on the clinical system. CCGs may differ in ways of monitoring and support for adherence to NOACs.

Patient advice on new anticoagulant

- **Indication and duration of treatment**
- **Changed circumstance** What to do if new diagnosis, major surgery, immobility or bleeding risk.
- **Compliance.** Ask patient to bring medication to check remaining doses. Emphasise need to avoid missing doses as shorter half-life than warfarin. Dosette box; Smartphone reminder aids.
- **Missed doses - see below**
- **Bleeding.** This is the commonest adverse effect of anticoagulants.'Nuisance' bleeding preventive measures possible? (cf. haemorrhoidectomy).
- Does bleeding impact on quality of life – ? revise dose. Consider bleeding versus stroke risk (CHA_2DS_2-VASc). Check Hb.
- **When to seek medical attention**. Symptoms TIA, stroke, pulmonary embolism. Bleeding.
- **Other side effects.** Nausea and gastrointestinal side effects are relatively common. Relation to NOAC/ warfarin – alternative anticoagulant?
- **Interacting medications?** OTC medication or NSAID?
- **Dental treatment or surgery arrangements**.

Annually check Hb, renal function and ALT.
6 monthly if CrCl < 60ml/min, age 75yrs+ or multiple co-morbidity and **3 monthly** if CrCl<30ml/min.

Alert card

Make sure patient still has and carries alert card.

Missed doses

Dabigatran and apixaban are taken twice a day. If missed, take it as soon as remembered but omit dose if less than 6 hours to the next dose. Do not take a double dose to make up for missed doses.

Rivaroxaban is once daily. If missed take it as soon as remembered. Do not take more than one tablet in a single day to make up for a missed dose. Carry on once daily as usual the following day.

Alert cards

Patient alert cards for the individual NOACs are available to order in the following way:

Rivaroxaban (Xarelto®) (Bayer plc)
Contact the Medicines Information Department
Tel: 01895 523 740

Dabigatran (Pradaxa®)Boehringer Ingelheim Ltd)
Order directly from website:
http://www.pradaxa.co.uk/hcp/spaf/educational-pack-uk.php

Apixaban (Eliquis®) (Bristol-Myers Squibb-Pfizer)
Contact the Medicines Information Department
Tel: 01895 523 740

NHS Medicines management guidance

More detailed guidnce on wafarin and new anticoagulants is avaialable from the NHS medicines management websites in the local areas.

North Central http://ncl-jfc.org.uk/noac-prescribing-guides.html

Similar guidance is available from the NE London Medicine Managaments Group.

ceg
Clinical Effectiveness Group

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