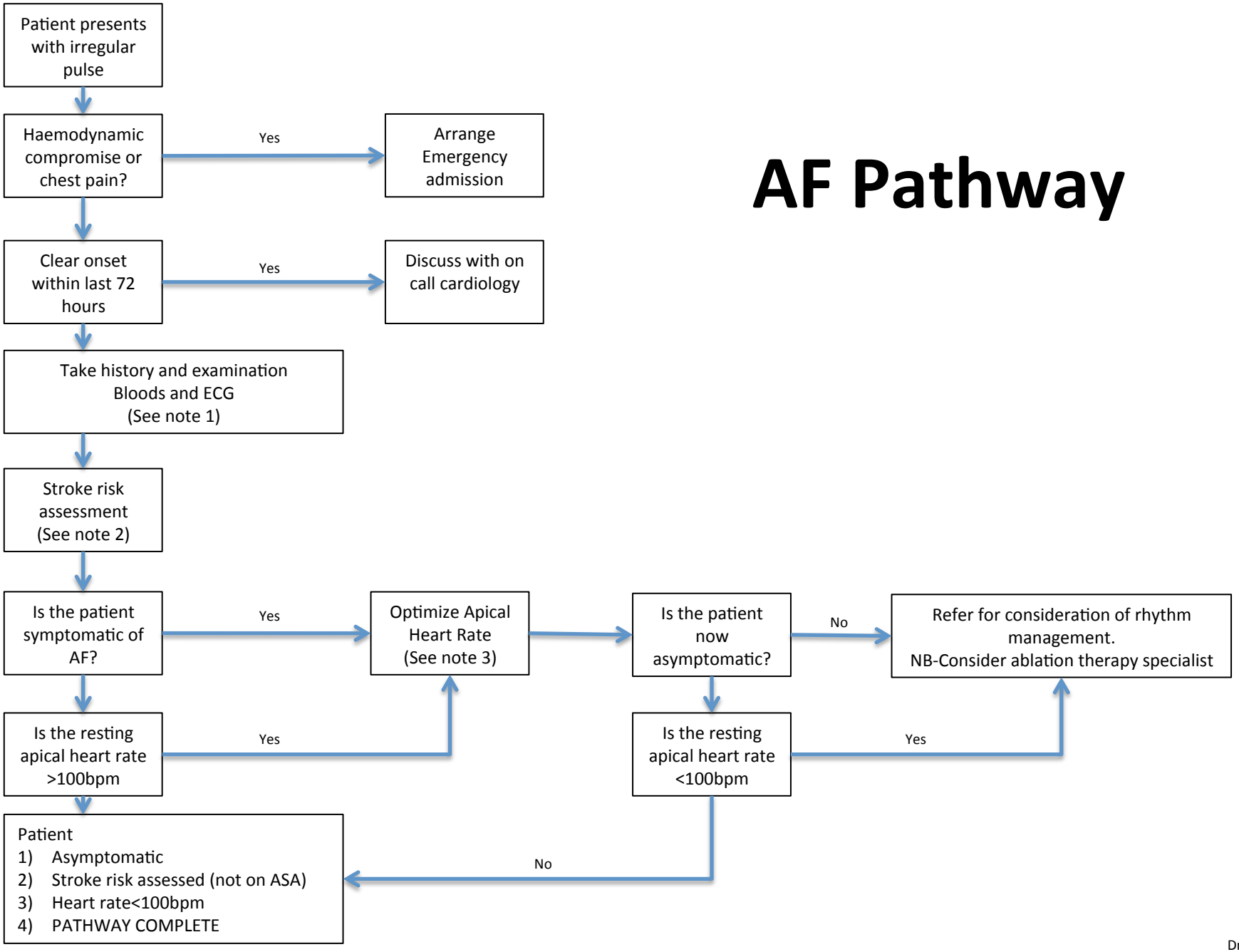
AF Pathway



Dr Matthew Fay
Westcliffe Cardiology Service
July 2013

General Points

Prevalence

- Atrial fibrillation is the commonest sustained arrhythmia with 600,000 cases known of in England giving a prevalence of 1.2% however many consider this to be an under estimation. When considering the prevalence of Atrial Fibrillation age needs to be considered as the condition becomes commoner with age. The SAFE study, looking at methods of screening for Atrial Fibrillation the prevalence of Atrial Fibrillation was found to be over 8% in the over 65yr population.

- The incidence of atrial fibrillation is increasing; this is partly due to the aging population but also due to the success of interventions in heart disease where people are living longer with damaged hearts. Other aetiological factors are also known to be significant such as obesity.

Case Identification

- Work has been done at trying to increase case identification, looking at pulse assessment in seasonal flu vaccination clinics, incidental pulse checks in normal primary care contacts or even performing 6 lead (limb lead only) ECGs. The common factor for success was about the level of population coverage; as long as a large population is screened significant amounts of atrial fibrillation can be found.

- If high-risk groups are reviewed however more significant cases can be found. Audit work around patients with ischeamic strokes who are not found to have atrial fibrillation at the time of presentation, where a 7 day event monitor is fitted is suggestive that 1 in 5 are found to have Paroxysmal Atrial Fibrillation

Aetiology

Atrial fibrillation is associated with a range of causes ranging local cardiac issues to systemic cardiovascular disease and metabolic disturbance and these should be sought. Acute comorbidities such as pneumonic illness and sepsis should be considered with acute presentation.

Common causes include:

- Ischaemic Heart Disease
- Heart Failure
- Hypertension
- Valvular Heart Disease
- Cardiomyopathies
- Atrial Septal Defects
- Acute Infection
- Thyrotoxicosis
- Carcinoma of the Bronchus
- Endurance Athletes
- Electrolyte Imbalance

There are other associated conditions that do not directly cause the arrhythmia but are commonly seen, such as tall stature, long PR interval, metabolic syndromes. The atrial triggers for Atrial Fibrillation may be caused or just aggravated by these factors, however the mechanism is not well understood.

Dr Matthew Fay
Westcliffe Cardiology Service
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Note 1-Examination & Investigation

History

- When taking the history from a person with atrial fibrillation try to identify symptoms that may suggest the time of onset, this is important, as there is an opportunity for early cardioversion if presenting in the first 48hours. Many people with atrial fibrillation are asymptomatic of the arrhythmia.

- The history should also seek symptoms suggestive of a possible underlying aetiology as outlined above. The history should also look for other cardiovascular illness such as diabetes, ischaemic heart disease or symptoms and signs of Transient Ischeamic Attack. These will aid in stroke risk assessment and the decision to use anti-coagulants. People with atrial fibrillation have a reduced life expectancy so a full cardiovascular risk assessment should be undertaken.

Examination

- If the patient is symptomatic at presentation they should be assessed rapidly for heamodynamic compromise. If acute admission is required. When assessing the cardiac rate assessment at the cardiac apex is required. Signs of heart failure syndrome or murmurs may point to underlying structural heart disease. Pulmonary examination is required to exclude sinister pathology

Investigations-Bloods and basics

- Blood tests should be performed; these should include Full Blood Count to exclude anaemia, Electrolytes, Liver Function Test, Glucose assessment, Thyroid Function Tests and in the over 35 year olds, who have not had a recent cardiovascular risk assessment, cholesterol and lipid assessment. In all patients who are current or previous smokers a Chest Xray may also be requested to exclude a bronchial carcinoma as the underlying cause.

Investigation-ECG

- The 12 lead ECG is mandatory in atrial fibrillation to confirm that the irregular pulse is due to atrial fibrillation rather than just frequent ectopy or other dysrhythmia.
- The absence of P waves and an irregular rhythm signify atrial fibrillation. However the saw-tooth appearance of the baseline may suggest atrial flutter with variable atrioventricular block. In many instances Atrial Flutter can be considered like atrial fibrillation.
- If there is uncertainty about the nature of an ECG then a review of the trace should be arranged

Investigations-Echocardiography

- An echocardiogram should be performed on all new cases of atrial fibrillation to ensure that the clinical examination and inspection of the ECG has not overlooked underlying structural heart disease. If a patient has a rapid ventricular rate it is advisable to use rate-limiting medication prior to the test to ensure the physiologist can obtain adequate images

Investigations-Ambulatory Rhythm Monitoring

- This may be of value if the clinician suspected atrial fibrillation and the subsequent ECG reveals sinus rhythm.
- This may be of value in symptomatic AF to better understand the nature of the rate control.

Dr Matthew Fay
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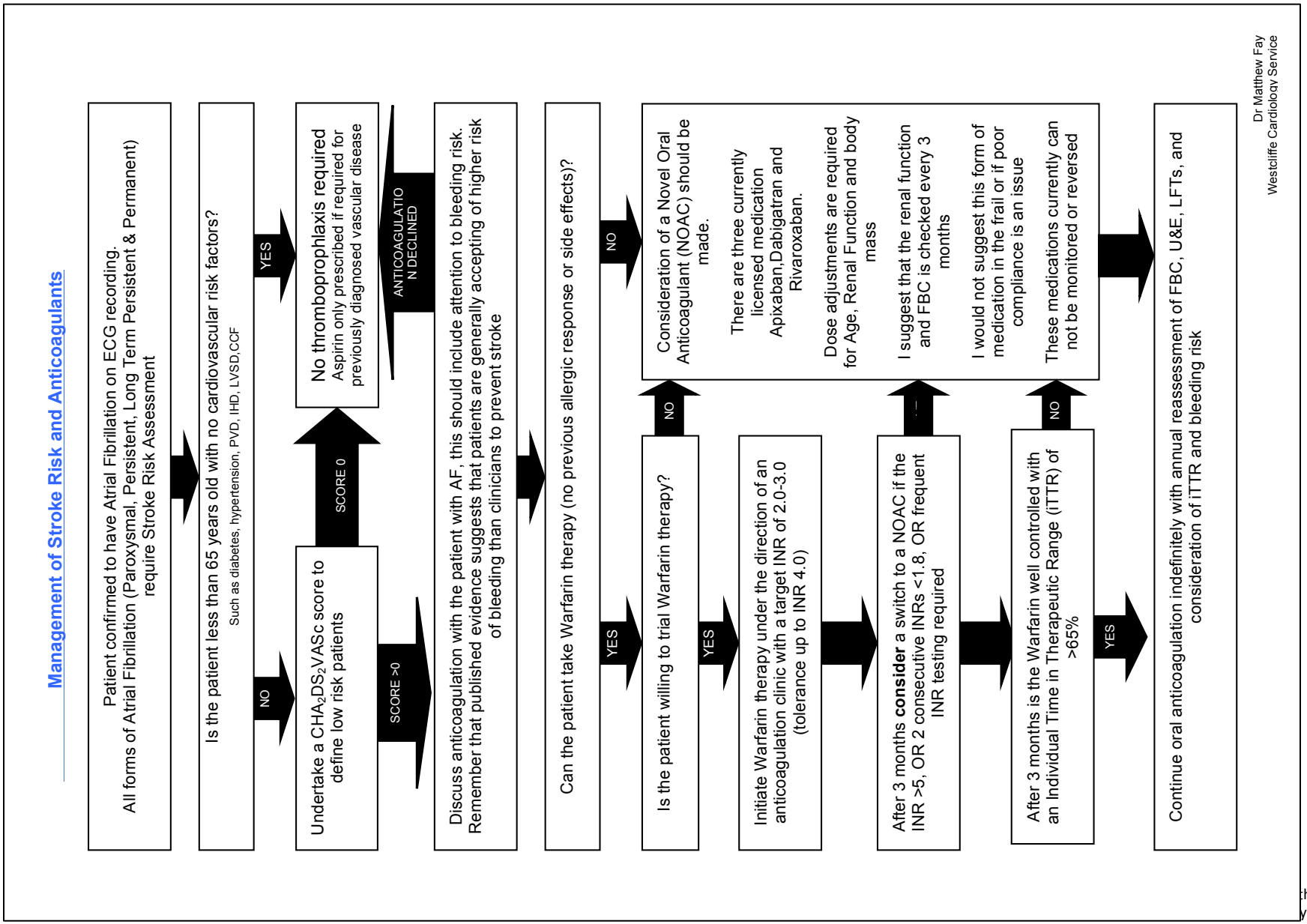
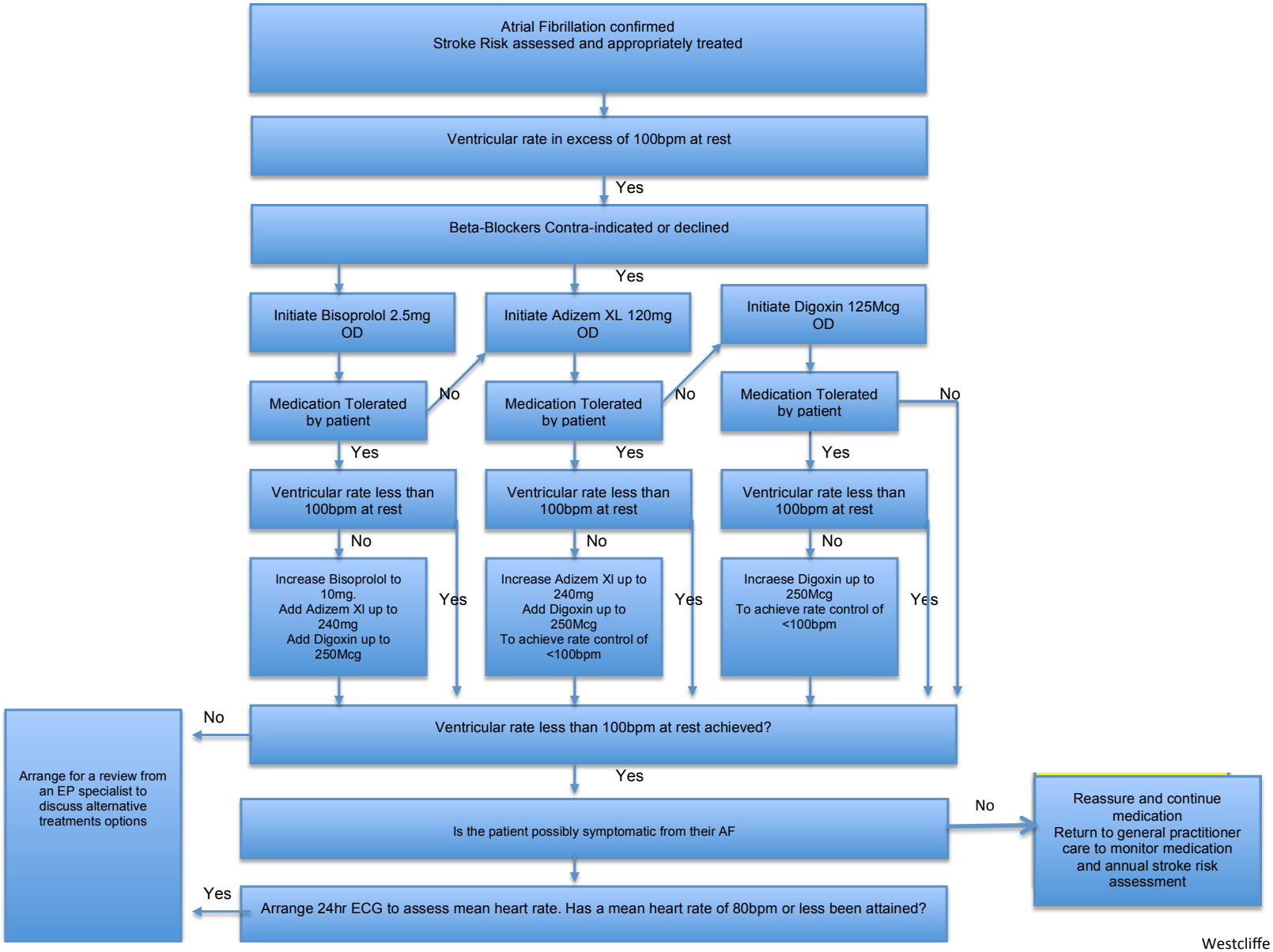
Note 2-Stroke Risk Assessment



Note 3-Rate Control Management



Dr Matthew Fay
Westcliffe Cardiology Service
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Buckinghamshire Healthcare NHS Trust

NHS Buckinghamshire

Contraindications to The Initiation of Oral Anticoagulants & Anti-platelet Agents in Patients with Atrial Fibrillation in Primary Care

As a patient's relative stroke & bleeding risk can change, it is essential that all AF patients are reviewed at **LEAST** annually for a re-assessment of their stroke versus bleeding risk & the anti-thrombotic treatment option of choice.

Contraindications listed below apply to **BOTH** anti-platelet agents (e.g. aspirin, clopidogrel, dipyridamole) & **ALL** oral anticoagulants (e.g. warfarin, phenindione, dabigatran, rivaroxaban) except where indicated.

Absolute Contraindications

- Known large oesophageal varices.
- Significant thrombocytopenia (platelet count < 50 x 10^9/L) - *refer to haematologist.*
- Within 72 hours of major surgery with risk of severe bleeding - *defer & reassess risk postoperatively.*
- Previously documented hypersensitivity to either the drug or excipients – *consider cardiology opinion.*
- Acute clinically significant bleed - *defer & re-assess stroke versus bleeding risk within 3 months.*
- Decompensated liver disease or deranged baseline clotting screen (INR>1.5) – *refer to Gastroenterology /Hepatology.* ***Contraindication applies to oral anticoagulants only***
- Pregnancy or within 48 hours post partum - *seek urgent haematological advice.* ***Contraindication applies to oral anticoagulants only.***
- Severe renal impairment (GFR < 30 mL/min/1.73 m2 or on dialysis). ***Contraindication applies to dabigatran only.***

Relative Contraindications

- Previous history intracranial haemorrhage - *as some AF patients especially those considered at higher stroke risk (i.e. CHADS2 score ≥3) may benefit from anti-thrombotic therapy, seek the opinion of a stroke specialist.*
- Recent major extracranial bleed within the last 6 months where the cause has not been identified or treated – *decision for oral anti-thrombotic therapy should be deferred.*
- Recent documented peptic ulcer (PU) within last 3 months– *decision for oral anti-thrombotic therapy should be deferred until treatment for PU completed. In all cases with history PU give PPI cover whilst on anti-thrombotic.*
- Recent history recurrent iatrogenic falls in patient at higher bleeding risk.
  A patient at higher bleeding risk is assessed by having 3 or more of the following risk factors:-
  - *age > 65 years*
  - *previous history bleed or predisposition to bleeding (e.g. diverticulitis)*
  - *uncontrolled hypertension*
  - *severe renal impairment (i.e. serum creatinine > 200umol/L,* GFR < 30 mL/min/1.73 m2 or on dialysis)
  - *acute hepatic impairment (e.g. bilirubin > 2xULN + LFTS > 3x ULN), chronic liver disease (e.g.cirrhosis)*
  - *low platelet count < 80 x 10^9/L or a thrombocytopenia or anaemia of undiagnosed cause*
  - *on concomitant drugs associated with an increased bleeding risk e.g. SSRIs, oral steroids, NSAIDs, methotrexate or other immune-suppressant agents.*

  N.B. ***A risk of falls is not a contraindication to initiating oral anticoagulation.*** *(e.g. a patient with an annual stroke risk of 5% (CHADS2 score 2-3) would need to fall 295 times for fall risk to outweigh stroke reduction benefit of warfarin).*
- Dementia or marked cognitive impairment with poor medicines compliance & no access to carer support.
- Chronic alcohol abuse – especially if associated with binge drinking.

N.B. Poor compliance with any oral anticoagulant agent will reduce benefits but may increase risks associated with use.

Appendix 1-Contraindications

Matthew Fay
ogy Service
July 2013

Appendix 2-NOAC Use

Anticoagulants for prevention of stroke and systemic embolism in NVAF
Drug use and dosing based on renal function estimation
(CrCl - creatinine clearance ml/min)

	CrCl >50 ml/min	**Any Anticoagulant** - no dose adjustment needed.
	CrCl 30-49 ml/min	**Apixaban** 5mg bd or 2.5mg bd if have 2 of: age ≥ 80 yrs, body weight ≤ 60 kg, serum creatinine ≥ 133 micromol/l **Dabigatran** 110mg bd if 80 years and over or high risk of bleeding (HAS-BLED ≥3) or on verapamil or amiodarone; otherwise 150mg bd. **Rivaroxaban** 15mg od. **Warfarin** INR dependant dose adjustment.
	CrCl 15-29 ml/min	**Apixaban** 2.5mg bd **Dabigatran** contraindicated. **Rivaroxaban** 15mg od but caution - plasma concentrations significantly increased (average 1.6 fold) which may increase bleeding risk. **Warfarin** INR dependant dose adjustment under expert advice and review.
	CrCl <15 ml/min	No anticoagulant use recommended in general use, take expert advice

Female ≥60kg* creatinine clearance ml/min (NB do not use if weight lower than 60kg – see below)

age / serum creatinine	40	45	50	55	60	65	70	75	80	85	90	95	100
50	120	114	108	102	96	90	84	78	72	66	60	54	48
60	100	95	90	85	80	75	70	65	60	55	50	45	40
70	86	81	77	73	69	64	60	56	51	47	43	39	34
80	75	71	68	64	60	56	53	49	45	41	38	34	30
90	67	63	60	57	53	50	47	43	40	37	33	30	27
100	60	57	54	51	48	45	42	39	36	33	30	27	24
110	55	52	49	46	44	41	38	35	33	30	27	25	22
120	50	48	45	43	40	38	35	33	30	28	25	23	20
130	46	44	42	39	37	35	32	30	28	25	23	21	18
140	43	41	39	36	34	32	30	28	26	24	21	19	17
150	40	38	36	34	32	30	28	26	24	22	20	18	16
160	38	36	34	32	30	28	26	24	23	21	19	17	15
170	35	34	32	30	28	26	25	23	21	19	18	16	14
180	33	32	30	28	27	25	23	22	20	18	17	15	13
190	32	30	28	27	25	24	22	21	19	17	16	14	13
200	30	29	27	26	24	23	21	20	18	17	15	14	12

Male ≥70kg* creatinine clearance ml/min (NB do not use if weight lower than 70kg – see below)

age / serum creatinine	40	45	50	55	60	65	70	75	80	85	90	95	100
50	168	160	151	143	134	126	118	109	101	92	84	76	67
60	140	133	126	119	112	105	98	91	84	77	70	63	56
70	120	114	108	102	96	90	84	78	72	66	60	54	48
80	105	100	95	89	84	79	74	68	63	58	53	47	42
90	93	89	84	79	75	70	65	61	56	51	47	42	37
100	84	80	76	71	67	63	59	55	50	46	42	38	34
110	76	73	69	65	61	57	53	50	46	42	38	34	31
120	70	67	63	60	56	53	49	46	42	39	35	32	28
130	65	61	58	55	52	48	45	42	39	36	32	29	26
140	60	57	54	51	48	45	42	39	36	33	30	27	24
150	56	53	50	48	45	42	39	36	34	31	28	25	22
160	53	50	47	45	42	39	37	34	32	29	26	24	21
170	49	47	44	42	40	37	35	32	30	27	25	22	20
180	47	44	42	40	37	35	33	30	28	26	23	21	19
190	44	42	40	38	35	33	31	29	27	24	22	20	18
200	42	40	38	36	34	32	29	27	25	23	21	19	17

Absolute creatinine clearance CrCl (Cockcroft & Gault) should be used for dosing decisions, not normalised eGFR especially for older patients and for drugs with narrow therapeutic index.

The tables should not be used for patients in acute renal impairment, who are dehydrated or if under the stated weights when CrCl should be calculated individually (manually or on e.g. SystmOne>clinical tools>renal calculations).

$$\text{CrCl} = \frac{[140 - \text{age(yrs)}] \times \text{ideal body weight or actual if less (kg)}}{\text{Serum creatinine (micromol/L)}} \times 1.2 \text{ for males}$$

*average ideal body weight

Su Wood Prescribing Support Services for Primary Care
Anticoagulant dosing based on renal function estimation December 2012