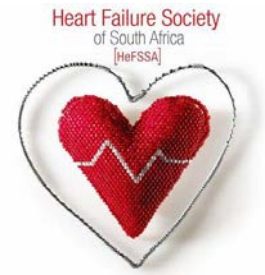
HeFSSA Practitioners Program 2013

08:00 – 08:30	Registration
08:30 – 09:15	Clinical Case Presentation 1
09:15 – 10:00	Clinical Case Presentation 2
10:00 – 10:30	Tea Break
10:30 – 11:15	Clinical Case Presentation 3
11:15 – 11:45	ESC Guidelines on Chronic Heart Failure
11:45 – 12:00	Questionnaire
12:00 – 14:00	Lunch



CASE 3

64 year old patient

40 pack-year smoking history

Presents with dyspnoea on exertion

How would you treat?

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Dyspnoea on exertion

- How would you treat?
  - Depends on the diagnosis!

- Systemic chronic illness, anaemia, unfit, deconditioned

- By and large
  - heart
  - lungs

- How to differentiate dyspnoea on exertion due to heart or lung

Dyspnoea on exertion

- History
- Clinical examination
- ECG
- Spirometry
- CXR
- Echocardiogram
- Blood tests
- Other

Symptoms – lots of overlap

- Cough
  - productive
  - dry
- Orthopnoea, PND

- Not always bronchitis
  - purulent, blood, “frothy”
  - chronic bronchitis, ?HF
- More likely to be HF

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Signs – lots of overlap

- Tachycardia
- JVP
- Oedema
- Wheezes

- Heart
- Heart
- Heart
- Lung – beware!! – all that wheezes is not asthma

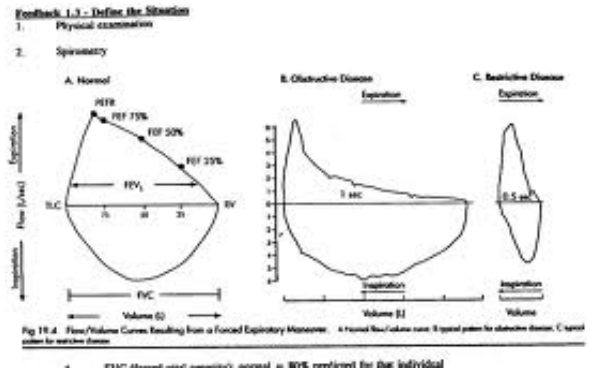
ECG

- If normal in all respects
  - less than 10% likelihood that dyspnoea d/t HF

- Abnormalities
  - Previous myocardial infarction – Q waves, R loss
  - LV hypertrophy or strain
  - Broad QRS (QRS 0.06-0.11s)

Spirometry

- "Gold standard" for diagnosing COPD



- FEV1/FVC

  When patients are in CHF

  – Spirometry less reliable

    may overdiagnose COPD, or severity of COPD

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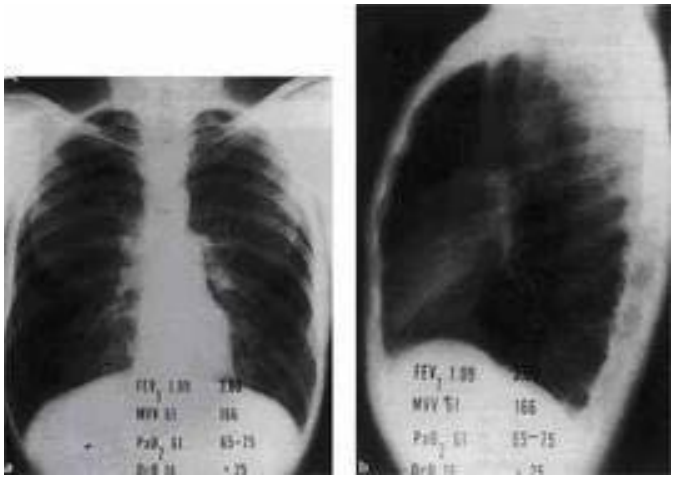
Chest X-Ray



hyperinflated
small heart
COPD

?

large heart
effusion ULBD
heart failure

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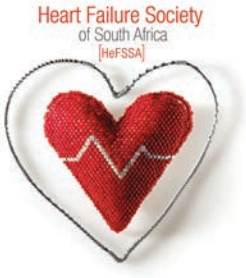
Echocardiography

- Reliably identifies normal heart
- Systolic function
  - EF >50%
  - EF <50%
- RV dilatation, dysfunction, pulmonary pressure
- Other cardiac disease – eg valves

- BUT
  - Echo cannot necessarily differentiate dyspnoea due to heart or lung!!!!



Blood tests

- Brain Natriuretic Peptide (NT-ProBNP)
  - Sensitive to diagnose heart failure
  - normal NT-ProBNP ‘rules out’ Heart Failure
  - most useful test to differentiate dyspnoea d/t heart failure vs dyspnoea d/t COPD

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NT-ProBNP

- A normal NT-ProBNP confidently
  rules out Heart Failure

- Moderately elevated NT-ProBNP
  can occur in COPD
  OR in HF

- Significantly elevated >5000 pg/ml
  strongly suggests Heart Failure

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Summary of results in our patient...

- 64 year old
- 40 pack-year smoking history
- Dyspnoea on exertion
- BP 110 / 65
- Atrial fibrillation, 108 / minute
- Echo EF = 34%
- NT-ProBNP 6500 pg/ml

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Atrial Fibrillation

- Identify reversible reason for AF
  - Thyrotoxicosis
    - May precipitate AF
    - May be the cause of heart failure / cardiomyopathy
    - May be the cause of the clinical deterioration
    - NB prior to commencing medication – Amiodarone, Dig
  - Electrolytes – K, Mg
  - Heart failure
  - Alcohol, other drugs
  - MI, PE

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Atrial Fibrillation

- Should this patient receive anticoagulation?

- Should all AF patients receive anticoagulation?

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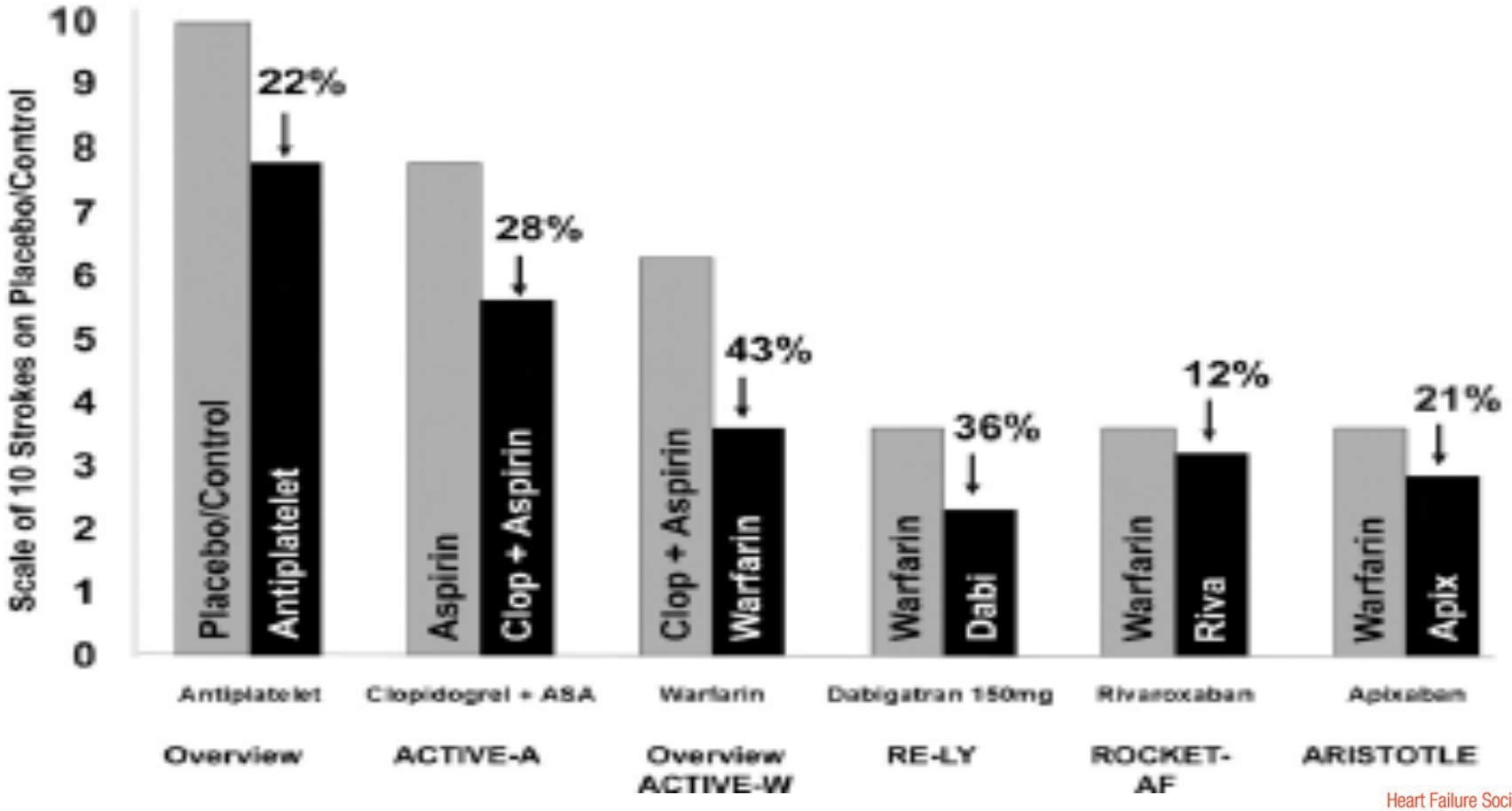
CHA_2DS_2 –VASc SCORE

- Should this patient receive anticoagulation?
- CHA_2DS_2-VASc = 1

- CHA_2DS_2 – VASc
  - C- CHF / EF<35%
  - Hypertension
  - Age – 65-74 1pt
    >75 2pts
  - Diabetes
  - Stroke / TIA – 2pts
  - Vascular disease – PAD, MI, Ao
  - Sex – Female 1 Male 0

If score = 0 – no anticoagulation necessary; if score ≥ 1 – need anticoagulation

A Spectrum Of Efficacy



Granger C.B and Armaganijan L.V. Circulation 2012; 125:159-64

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Atrial Fibrillation

- NEITHER Aspirin

- NOR Aspirin + Clopidogrel

recommended over Warfarin

unless patient ABSOLUTELY refuses Warfarin

Warfarin

- Problems and hassles with Warfarin
- Inconvenient
  - average 16 INR's in 6 months
  - INR affected by food and medication
  - constant dosage adjustment
- Hence
  - Warfarin underutilized
  - only in therapeutic range 60% of time

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New Oral Anticoagulants

- Dabigatran (Pradaxa), Rivaroxaban (Xeralto)
- Do not require INR or other monitoring, but……
  - we do not have monitoring test if we need it (at this stage)!
  - Drug interaction
  - eGFR – need to adjust dosage
  - No antidote / reversal eg if urgent surgery required
  - Short $T_{1/2}$ - effects wear off quickly; but if non-compliant or miss dose anticoagulant benefit also wears off quickly

- Pro's and Con's….

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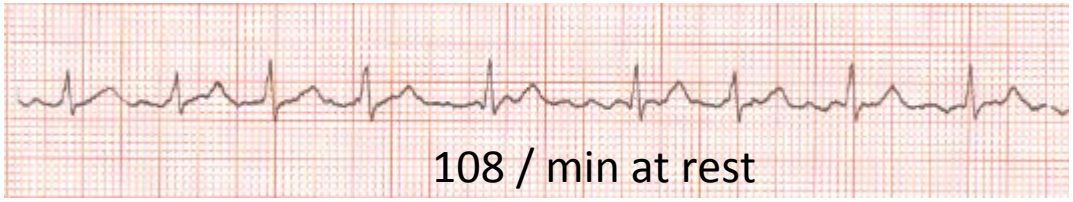
Atrial Fibrillation

- Should this patient be cardioverted to sinus rhythm?



- Can this patient be allowed to remain in atrial fibrillation?

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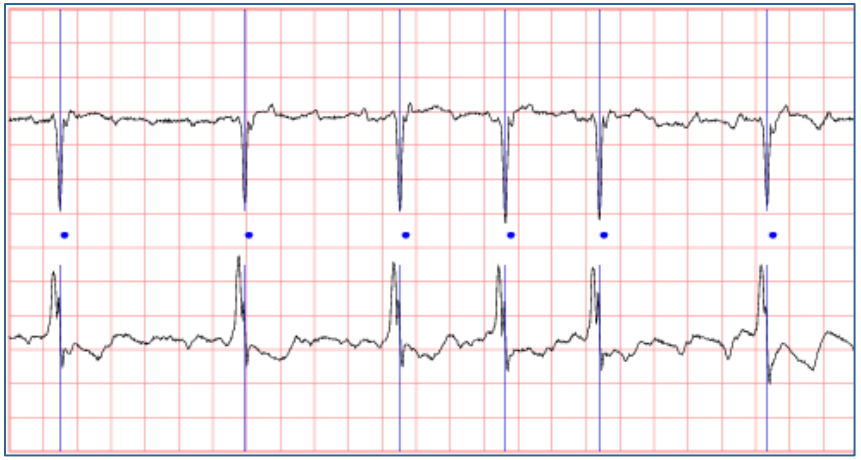
Atrial Fibrillation

- Can remain in atrial fibrillation.....
  - Provided that HR not too fast
    - 60 – 80 / min at rest
    - 90 – 115 / min on exertion
    - Not symptomatic from AF



- Cardioversion should be considered
  - if causing / contributing to worse dyspnoea
  - often very effective in improving symptoms
  - *must continue longterm anticoagulation

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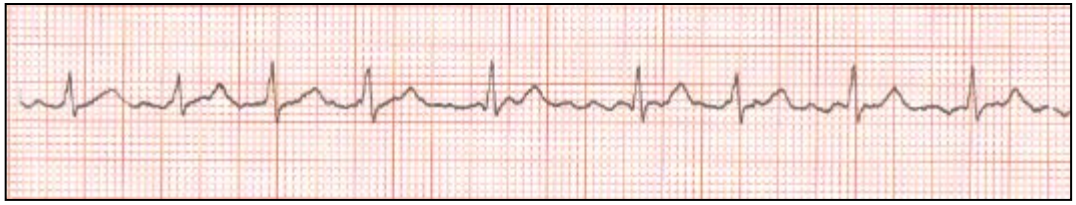
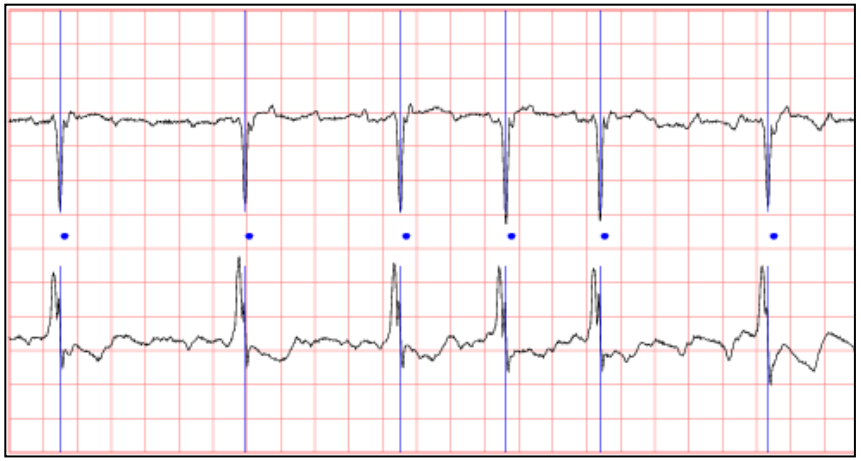
Atrial fibrillation – 'rate control'

- Heart rate control in atrial fibrillation



- Beta blockers (in COPD?)
- Calcium channel blockers (in LVEF 34%?)
- Digoxin



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ORIGINAL INVESTIGATION

β-Blockers May Reduce Mortality and Risk of Exacerbations in Patients With Chronic Obstructive Pulmonary Disease

Frans H. Rutten, MD, PhD; Nicolaas P. A. Zuithoff, MSc; Eelko Hak, MSc, PhD; Diederick E. Grobbee, MD, PhD; Arno W. Hoes, MD, PhD

Rutten et al. Arch Intern Med 2010; 170:880-

Beta blockers in COPD

- An observational study not a randomized trial
- 35 GP practices in Netherlands, 7 year f/u
- 2230 patients diagnosed with COPD
- B blockers given for HT, CAD, HF, AF, etc

Beta blockers	No beta blockers
27.2% mortality	32.3% mortality
42.7% ac. exac COPD	47.3% ac. exac COPD

Rutten et al. Arch Intern Med 2010;170:880-887

Atrial Fibrillation

- Beta blockers - NOT contraindicated in COPD
- Beta blockers - BENEFICIAL in patients with HF even if they have COPD
- Airways reversibility?
  - can use B1 selective eg Bisoprolol
  -

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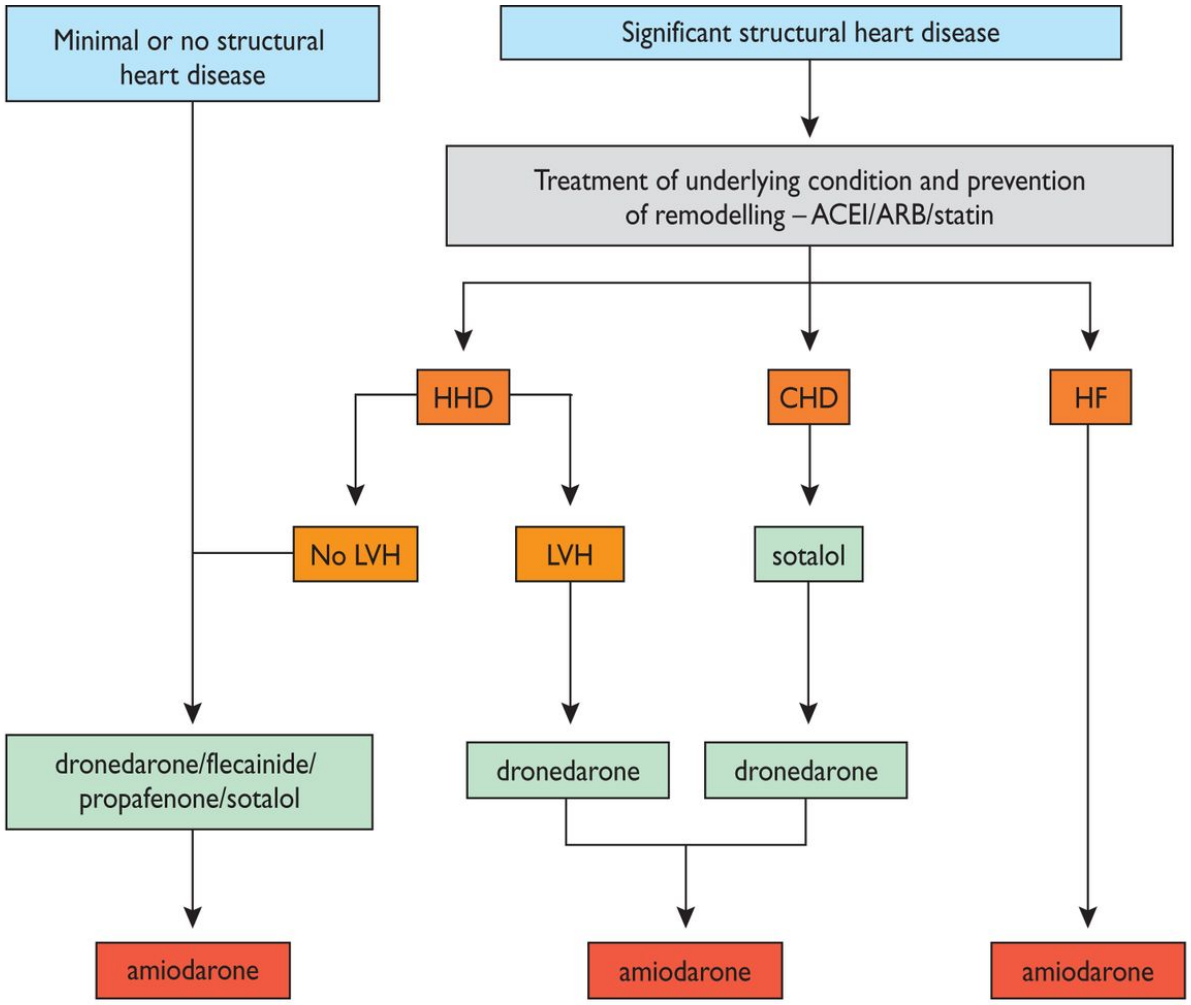
Atrial fibrillation – 'rhythm control'



ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin-receptor blocker; HHD = hypertensive heart disease; CHD = coronary heart disease; HF = heart failure; LVH = left ventricular hypertrophy, NYHA = New York Heart Association. Antiarrhythmic agents are listed in alphabetical order within each treatment box.

Choice of antiarrythmic drug according to underlying pathology

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AMIODARONE

- Can prolong the QT interval
- Interact with medication that prolongs QT
  - Erythromycin
  - Antipsychotics – Cipramil etc
  - Diuretics and hypokalaemia
- Increase risk of arrythmias
  - Torsade de pointes

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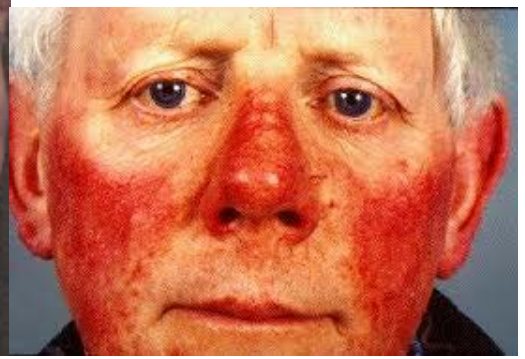
AMIODARONE

- Thyroid function
  - hyper-, hypo-
  - check TSH, T4 pre amiodarone; monitor at intervals
- Cytochrome p450 system
  - higher levels of warfarin, NOAC, digoxin
  - monitor INR more frequently after starting Amio

AMIODARONE

- Pulmonary fibrosis
  - monitor lung function if pre-existing lung disease
- Photosensitivity / sunburn
- Blue discolouration



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Conclusion

- 64 year old male
- 40 pack year smoking history
- Dyspnoea on exertion
- Atrial fibrillation
- LV dysfunction EF 34%
- Diagnosis –
  - Dyspnoea due to heart failure - HF-REF
  - Elevated NT-ProBNP 6500 pg/ml

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Conclusion

- Atrial fibrillation

  CHA_2DS_2-VASc score $\geq$ 1

  – Must have permanent anticoagulation

  – Warfarin or NOAC

    - Aspirin $\pm$ Clopidogrel not adequate

- Check

  – Thyroid disease

  – K, Mg

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Conclusion

- Don't have to cardiovert to sinus rhythm
  - Rate control
  - Beta blockers are not contraindicated in COPD
  - Should be used in COPD (Bisoprolol)
- Should cardiovert to sinus rhythm if
  - Heart rate not controlled
  - Symptomatic from AF
  - Electrical ± antiarrythmic (Amiodarone)