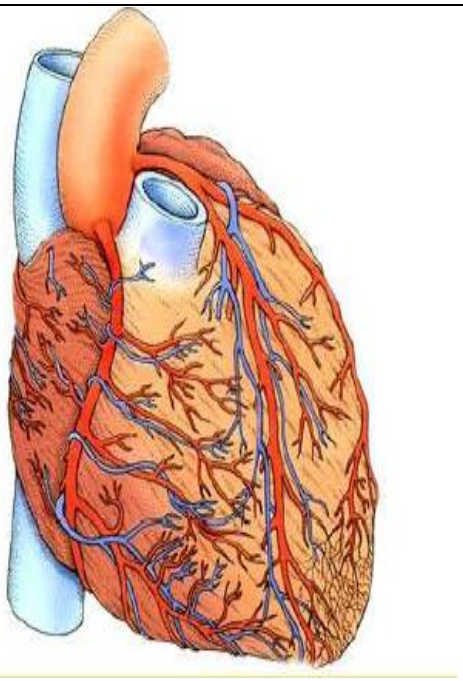
South Tees Hospitals NHS
NHS Foundation Trust

CARDIOLOGY FORMULARY

A guide to common problems



Contents

General Information

Discharge medication

When writing a discharge prescription, please ensure that the patient has at least 14 days supply of each medication (please check what supplies are at home). Exceptions to this include courses of antibiotics and steroids, or other courses of drugs.

Out-patient prescribing

When initiating treatment for out-patients please use the approved treatment recommendation form for all green medication. The exceptions are red and amber drugs and any treatment that needs to be started without delay. These should be prescribed from the clinic using the hospital out-patient prescriptions.

Shared care medicines

Medicines are classified by a “traffic light” system as follows:

Green medicines which can be freely prescribed by all precribers within local and national recommendations. Hospital initiated medicines can be recommended by a specialist for primary care prescribers to prescribe.

Amber medicines should be initiated and stabilised by a specialist but which may then be passed to primary care prescribers for prescribing. Additional information or a shared care agreement may be required to support prescribers.

Red medicines which should only be used within secondary care. Primary care prescribers should not be asked to prescribe. Any medicines classified as red or amber will be highlighted throughout this formulary.

Angina

Treatment of chronic stable angina

See also NICE clinical guideline 126
http://www.nice.org.uk/nicemedia/live/13549/55663/55663.pdf

Antiplatelet therapy
All patients with suspected or proved coronary artery disease should receive aspirin 75mg daily unless there is a definite contraindication.

If a patient is allergic to aspirin, clopidogrel 75mg daily is a suitable alternative. Gastrointestinal (GI) intolerance or bleeding is not the same as allergy and should not routinely lead to the prescription of clopidogrel (which causes dyspepsia in a similar proportion of patients to aspirin). Consider adding a proton pump inhibitor to aspirin instead.

Recent controversy has surrounded the concomitant use of clopidogrel and proton pump inhibitors (the MHRA currently recommend avoiding omeprazole and esomeprazole). It seems unlikely that PPIs cause a reduction in clopidogrel effectiveness. The decision to prescribe a PPI should be based upon the patient's GI bleeding risk and may be prescribed when benefit outweighs risk.

Clopidogrel (75mg daily) in combination with Aspirin (75mg daily) is preferred following elective percutaneous coronary intervention (PCI). Duration will be advised at time of discharge and premature cessation should be avoided.

Glyceryl trinitrate (GTN) spray
Prescribe one to two puffs of GTN spray, as required. Advise patients that they should use it prophylactically before activity. A patient information card should routinely be supplied with the first prescription.

Beta-blockers
Beta-blockers should be regarded as first-line treatment for all patients unless contraindicated because of asthma or high grade AV block.

Use bisoprolol 2.5mg to 10mg daily
or
metoprolol 50mg twice daily to 100 mg twice daily.

Calcium channel blockers
If beta-blockers are contraindicated or not tolerated, a rate-limiting calcium channel blocker should be used.

Use diltiazem (as Adizem XL) 180mg to 300mg daily
or
verapamil SR 240mg daily to 240mg twice daily (if preserved left ventricular systolic function).

Continued angina

If symptoms persist despite the above treatment, consider combining a beta-blocker with calcium channel blocker (use amlodipine 5 to 10mg once daily).

If this fails or is not tolerated add an alternative second-line agent

e.g. nicorandil 10mg to 30mg twice daily
or
isosorbide mononitrate 10 to 20mg twice daily with an "asymmetric" dosing regimen (e.g. 8am and 2pm) to avoid nitrate tolerance

There is no evidence that using three or four anti-anginal drugs achieves greater efficacy than a combination of two drugs at appropriate doses. If significant symptoms persist on two drugs, refer to cardiology for consideration of revascularisation.

Refractory angina

If angina continues despite two drugs and there is no revascularisation option, consider a combination

of beta-blocker and/or calcium channel blocker
and nicorandil
and nitrate.

If heart rate remains over 70 at rest despite optimal dose of beta-blocker and/or calcium channel blocker, consider addition of ivabradine 5mg to 7.5mg twice daily. This can be initiated by a specialist in an out-patient setting. Warn the patient that there can be visual disturbances which usually recede with continued treatment.

For continuing symptoms ranolazine 375mg to 750mg twice daily can be added. This can be initiated by a specialist in an out-patient setting if considered appropriate.

Treat hyperlipidaemia - See page 14

Acute Coronary Syndrome

See also CCU guidelines
http://stm-pathfinder/Guidelines/data/CCUguidelines2013definitelyfinal_15102013_105313.pdf

Antiplatelet therapy

Ticagrelor (90mg twice daily) in combination with low-dose aspirin (75mg once daily) should be given to patients after an index presentation of acute coronary syndrome (ACS) whether treated with percutaneous or surgical revascularisation. It may also be given if the patient is allergic to clopidogrel or stent thrombosis has occurred during clopidogrel treatment. Ticagrelor should be initiated by specialist only.

Ticagrelor should be initiated with a loading dose of 180mg followed by 90mg twice daily.

Note: Ticagrelor is contraindicated in patients with a history of intracranial haemorrhage

The duration of therapy is variable and will be advised at time of discharge. Treatment must NOT be stopped before then without discussion with the cardiology team.

Serum creatinine may increase after initiation and should be checked at one month and then as clinically indicated. This is not normally associated with deterioration in renal function. Special attention should be paid to patients > 75 years, those with moderate/severe renal impairment and those receiving concomitant ARB.

Dyspnoea is known to occur in 14% of patients. This tends to be self-limiting. Dyspnoea severe enough to require discontinuation occurs in approximately 1% of patients. In these patients, switch to clopidogrel 75mg once daily starting with a loading dose of 300mg.

Note: Ticagrelor is LESS effective when combined with aspirin dose > 150 mg

Prasugrel should be initiated by specialist only. It is normally considered when:
- immediate PCI is necessary
- stent thrombosis has occurred during clopidogrel treatment
- the patient has diabetes and is considered high risk
- the patient is allergic to clopidogrel

Use prasugrel initially 60mg as a single dose then 10mg daily (5mg daily if >75 years or body weight <60kg).

Note: Prasugrel is contraindicated in patients with a history of stroke or TIA

Arrhythmias

Diagnosis of arrhythmias

Appropriate drug treatment of arrhythmias depends on precise diagnosis. A 12-lead ECG recording during an arrhythmia is crucial, and waiting to obtain this is appropriate in all circumstances other than full cardiopulmonary arrest. Any dysrrhythmia can be associated with haemodynamic collapse, acute heart failure or significantly reduced tissue perfusion e.g. reduced urine output. Emergency DC cardioversion is appropriate when this occurs, regardless of underlying diagnosis.

Treatment of arrhythmias

Ectopic beats - ventricular or atrial

Treatment of ventricular or atrial ectopic beats is rarely required but beta-blockers may be considered if a patient is very symptomatic.

e.g. bisoprolol 2.5mg to 10mg daily.

Atrial fibrillation or flutter

If atrial fibrillation or flutter is acute, exclude any underlying cause (e.g. congestive cardiac failure, electrolyte imbalance, ischaemia or thyrotoxicosis) and treat, if appropriate.

Pharmacological cardioversion should be considered if presentation is within 24 hours of onset. This should take place after specialist advice with appropriate monitoring - refer to CCU guidelines.

All patients with atrial fibrillation or flutter should be considered for early treatment with anticoagulation, using the *CHA_2DS_2-VASC* risk score tool

Risk factor	*Score*
CCF	**1**
Hypertension	**1**
Age > 75	**2**
Diabetes	**1**
Stroke or TIA	**2**
Vascular disease (eg IHD, PVD)	**1**
Age 65-74	**1**
Female **S**ex	**1**

Anticoagulation is recommended for those with a fibrillation or flutter that has lasted more than 24 hours or frequent paroxysmal AF, with a *CHA_2DS_2-VASC* score of 2 or more or one of the following:

- valvular heart disease
- thyrotoxicosis
- candidate for elective DC cardioversion

For long-term prophylaxis warfarin remains the first choice anticoagulant. Patients should be "slow loaded" (eg 1 or 2mg daily and check the INR on day 7) to avoid the risk of high INRs and increased bleeding. The target INR is 2.5 for atrial fibrillation.
Novel Anticoagulants (NOACs) have the advantages of a predictable response and fewer monitoring requirements. However, at this stage, there is no antidote available.

NOACs should **not** be used for prosthetic heart valves or valvular heart disease but can be considered in the following patients:

- candidate for elective DC cardioversion
- patient preference
- unstable INRs whilst taking warfarin
- intolerance to warfarin

Use Apixaban 5mg twice daily

Apixaban 2.5mg twice daily
If two or more of the following:
Age > 80 years
Moderate renal impairment (Creatinine Clearance or eGFR 15-29ml/min)
Body weight < 60kg
Contraindicated in severe renal impairment (Creatinine clearance or eGFR<15ml/min)

Patients should still be counselled on the importance of adherence to therapy, they should carry an anticoagulant alert card, and should be educated about the signs of bleeding.

If the ventricular rate at rest is greater than 90bpm and early cardioversion is not an option, the condition should be controlled with an oral beta-blocker

e.g. bisoprolol 2.5mg to10mg daily
or
verapamil SR 120 to 240mg daily
with
digoxin, if necessary.

NB. Verapamil increases digoxin levels, so be aware of the potential for toxicity, and consider reducing the digoxin dose.

How to start treatment with digoxin
Start treatment with digoxin using an oral loading dose of 500 to 1,000micrograms over 24 hours in divided doses, followed by a maintenance dose of 62.5 to 250 microgram daily, depending on the patient's age and renal function. Do not use IV digoxin unless the patient is truly nil by mouth.

If a patient's condition is resistant to the above measures, early specialist cardiac referral is appropriate. If urgent cardioversion is essential, it should be undertaken without delay but specialist opinion may be warranted to advise on long-term therapy.

Paroxysmal atrial fibrillation

If the patient is symptomatic consider a beta-blocker

eg bisoprolol 2.5mg to 10mg daily.

If a beta-blocker fails and a rhythm control strategy is being considered, this should be done after specialist advice.

Options for those with no or minimal structural abnormality of the heart include:

flecainide, starting dose 50mg twice daily
or
dronedarone (amber drug) 400mg twice daily (refer to shared care protocol)

Dronedarone should be avoided if there is any history of clinical heart failure or left ventricular systolic dysfunction and patients should be in sinus rhythm at time of initiation. Patients should have their liver function checked before and one week after starting then monthly for the first 6 months, at month 9 and 12, and annually thereafter. Monitor regularly to ensure they do not progress to permanent AF. The patient should be warned of the risk of liver toxicity and heart failure.
http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON131928

Amiodarone should be preferred for patients with impaired left ventricular systolic function (see below for dosing). Patients receiving amiodarone should have their liver and thyroid function checked at baseline and then every 6 months (see BNF for further information on monitoring).

Both amiodarone and dronedarone can increase sensitivity to warfarin – review dose. They can also increase the risk of statin toxicity - reduce statin dose and watch for signs of muscle toxicity (maximum dose of simvastatin 20mg daily and atorvastatin 40mg daily).

For very infrequent episodes (eg fewer than three episodes per year) patients may prefer a "pill in the pocket" strategy.

For very frequent episodes or severe symptoms, ablation should be considered.

Specialist cardiac referral is appropriate in either situation.

Paroxysmal supraventricular tachycardia (narrow complex tachycardia)
Episodes of paroxysmal supraventricular tachycardia (narrow complex tachycardia) are often transient and self-limiting. If an episode is associated with haemodynamic collapse, DC cardioversion is appropriate. Otherwise treat in the following order:

1. Vagal manoeuvres-an appropriately performed Valsalva manoeuvre is the safest and most effective intervention

2. If this fails, give intravenous adenosine into a large antecubital vein. The initial dose should be 3mg, increased to 18mg, if necessary, followed by a rapid saline flush, unless the patient has severe asthma or is on dipyridamole (reduce the adenosine dose to 0.5 to 1mg in such cases) or theophylline (ineffective)

3. If adenosine is contraindicated, use intravenous verapamil 5 to 10mg *by slow injection, over 5 -10 min*, unless the patient is taking or has recently received a beta-blocker or other anti-arrhythmic medication.

Prophylaxis of supraventricular tachycardia (SVT)
Prophylaxis of supraventricular tachycardia should be tailored to each patient, depending on other medical conditions and, particularly, the presence or absence of coronary or structural heart disease. Antiarrhythmic drugs are relatively ineffective at controlling paroxysms of SVT. If a patient has recurrent SVT attacks, refer them to an electrophysiologist, as radio frequency ablation is usually a curative procedure. If this is considered inappropriate, treatment with

beta-blockade e.g. bisoprolol 2.5mg to 10mg daily

or

a rate-limiting calcium channel blocker e.g. verapamil SR 120-240mg daily

Arrhythmia after myocardial infarction
Refer to CCU guidelines.
http://stm-pathfinder/Guidelines/data/CCUguidelines2013definitelyfinal_15102013_105313.pdf

Ventricular tachycardia (broad complex tachycardia)
Admit to hospital or transfer to CCU.

Sustained monomorphic ventricular tachycardia
Cases of sustained monomorphic ventricular tachycardia should be treated with DC cardioversion, if there is haemodynamic compromise. An intravenous (IV) bolus of 100mg lidocaine, given slowly, if effective, should be followed by an infusion of:

4mg/minute for 30 minutes, followed by 2mg/minute for two hours and then 1mg/minute for 24 hours.

How to prescribe a loading dose of amiodarone
To start a patient on amiodarone give 1,200mg intravenously for five days or 400mg orally three times a day for seven days. The normal maintenance dose, which follows this, is 200mg daily.

Prophylaxis of ventricular tachycardia
Beta-blockade should be used first-line to prevent recurring ventricular tachycardia

e.g. bisoprolol 2.5mg to 10mg daily

Other treatments should only be used after specialist referral. Most patients should be considered for full cardiac investigation before you decide on therapy. It is important to recognise polymorphic ventricular tachycardia, as its management is different from other types of ventricular tachycardia.

Polymorphic ventricular tachycardia
Polymorphic ventricular tachycardia is frequently drug-induced or secondary to electrolyte disturbance (usually low potassium or magnesium levels) but, in rare cases, it may be congenital. Although it is self-limiting, it can cause haemodynamic collapse and/or progress to ventricular fibrillation. Therefore, recurrence should be prevented by:

- Considering stopping other anti-arrhythmic drug therapy.
- Correcting major electrolyte imbalances. (Give IV magnesium sulphate 8mmol over 10 minutes, regardless of magnesium level.)
- Considering its aetiology. If it is secondary to other antiarrhythmic drugs, the patient may be (relatively) bradycardic.
- Consider measures to increase heart rate (e.g. Atrial pacing).

In rare cases in which the aetiology is congenital long QT syndrome, non-selective beta-blockade is indicated (nadolol 40 to 160mg daily is recommended.) If the condition is recurrent or you are unsure of the aetiology and management, seek specialist advice.

If there is recurrent ventricular tachycardia but it is well tolerated, consider using procainamide 100mg IV every five minutes, at a rate not exceeding 50mg/minute, up to a maximum dose of 1gram. Alternatively, consider giving amiodarone 300mg over 20 minutes via central or long line, followed by 900mg over the next 24 hours.

Heart failure

Treatment of heart failure should be aimed at relieving symptoms and prolonging life. An accurate diagnosis is crucial in deciding upon appropriate therapy. BNP (Pro-b-type natriuretic peptide) levels may aid diagnosis at the time of first presentation. An ECHO should be performed to confirm left ventricular dysfunction. All recommendations below refer to patients with proven left ventricular systolic dysfunction.

Management of heart failure

ACE inhibition

All patients should be considered for angiotensin converting enzyme (ACE) inhibition regardless of symptoms.

For ease of titration the first choice ACE inhibitor is

perindopril - initiate at 2mg once daily and if tolerated titrate to the target dose of 4mg once daily.

Alternatives are

ramipril - initiate at 2.5mg once daily and titrate to 10mg once daily
or
lisinopril - initiate at 5mg once daily and titrate to 20mg once daily

Serum urea and electrolytes should be checked before and 48 hours to one week after initiating ACE inhibitor therapy, and one week after any dose increase. The degree of further monitoring depends on the patient's clinical circumstances but should be at least annual.

If creatinine rises by >50% consider discontinuing or reducing to previously tolerated lower dose and seek specialist advice.
http://www.escardio.org/guidelines-surveys/esc-guidelines/GuidelinesDocuments/Guidelines-Heart-Failure-Web-Tables.pdf

Patients intolerant of ACE inhibitors because of side effects, such as intolerable cough, can be treated with the angiotensin II receptor antagonist (ARB or "sartan") candesartan at a dose of 4 to 32mg daily. *CHARM-Alternative Trial Lancet 2003;362:772.*

Beta-blockade

Beta-blockade should be considered early in the management of heart failure. It requires specialist assessment and monitoring. Careful dose titration is required and some patients may have to be admitted for initiation of treatment.

Bisoprolol is recommended, with a starting dose of 1.25mg daily, titrated at two-weekly intervals to a target of 10mg daily. CIBIS II *Lancet* 1999;353: 9–13

If a patient is already taking a beta blocker for a co-morbidity (eg atenolol) switch to a beta-blocker licensed for heart failure. For example, if on atenolol 50mg daily switch to bisoprolol 5mg daily and titrate if necessary.

Carvedilol 3.125mg to 25mg twice daily or Nebivolol 1.25mg to 10mg daily are alternatives for more severe disease or if bisoprolol is not tolerated.

Diuretics

Diuretics should be used for any patient with symptomatic heart failure (e.g. dyspnoea with effort or peripheral oedema). Loop diuretics are most effective and furosemide 40 to 80mg daily is the drug of choice. Higher doses are rarely necessary unless there is concomitant renal failure, in which case, the patient should be referred.

Further measures

In severe LVSD or those with continuing symptoms (NYHA II to IV)

Add a mineralocorticoid receptor antagonist (MRA)
eplerenone 25mg to 50mg once daily or spironolactone 25 mg once daily

Careful monitoring of plasma potassium is required when eplerenone is used in conjunction with an ACE inhibitor. Check U&Es at week 1, 4, 8 and 12 then month 6, 9 and 12 and 4 monthly thereafter. *A plasma potassium of 6mmol/L is acceptable in this situation. EPHESUS study N Engl J Med 2003;348:1309-21*

If resting heart rate remains above 75bpm

Add ivabradine 5mg twice daily
http://publications.nice.org.uk/ivabradine-for-treating-chronic-heart-failure-ta267

Warn the patient that there can be visual disturbances which usually recede with continued treatment.

In selected high-risk cases, candesartan may be added to an ACE inhibitor but only with specialist advice and follow-up (preferably through the heart failure clinic). Triple therapy (ACE inhibitor + ARB + MRA) is contra-indicated and should not be used.

Consider temporarily stopping ACE inhibitors or ‘sartans’ in patients who develop diarrhoea and or vomiting during intercurrent illness. This may reduce the risk of deterioration of renal function.

Patients who remain symptomatic despite treatment with an ACE inhibitor, beta-blocker, MRA and a diuretic should be considered for therapy with digoxin 125 to 250 microgram daily.

Management of acute heart failure

Refer to CCU guidelines.
http://stm-pathfinder/Guidelines/data/CCUguidelines2013definitelyfinal_15102013_105313.pdf

Hyperlipidaemia

Lowering LDL cholesterol and raising HDL cholesterol is effective primary and secondary prevention of coronary heart disease. Statins are the drug of choice in all patients. Drug treatment must be combined with appropriate diet, weight loss, smoking control, and blood pressure reduction (you can find details of treatment of obesity in the diabetes and endocrinology section of the trust formulary).

Primary prevention

To achieve cost-effective primary prevention, statin therapy is recommended for all adults who have a 20% or greater 10 year risk of developing CVD. The level of risk should be estimated using the recommended CVD risk equations (eg www.jbs3.com) or by clinical assessment in people for whom these are not available or appropriate (eg people aged > 75 years).

Drug treatment should only be considered after hypercholesterolaemia has been confirmed by repeated measurement and assay of the fasting lipid profile (i.e. total cholesterol, HDL cholesterol and triglycerides) to enable accurate risk stratification.

A very high cholesterol (>7.5mmol/L) may be indicative of familial hypercholesterolaemia and referral to a lipid specialist should be considered. A target for total or LDL cholesterol is not recommended for primary prevention of CVD.

Use Atorvastatin 20mg daily or pravastatin 40mg daily.

If a patient is stable on Simvastatin 40mg once daily, continue with this.

Secondary prevention

Treatment with a statin is recommended for all patients with proven vascular disease and for all type II diabetics aged over 40 years.

Use atorvastatin 40-80mg once daily

All patients with Acute Coronary Syndrome should be initiated on a high intensity statin.

Use atorvastatin 80mg daily

For severe cholesterolaemia ezetimibe 10mg daily can be added to an optimal statin dose. Ezetimibe can also be used in combination with a low dose of statin when side effects produced by high statin doses prevent optimal lipid control.

Try atorvastatin 20mg with ezetimibe 10mg daily initially.

Note: there is insufficient evidence to support the use of ezetimibe monotherapy.

Statin interactions

High dose statins should be avoided in combination with drugs that interact with cytochrome P450 metabolism. No more than atorvastatin 40mg or simvastatin 20mg should be given with verapamil or amiodarone, and a maximum of simvastatin 40mg should be used with diltiazem and consider reducing atorvastatin doses. Simvastatin therapy should be stopped during short-term use of potent inhibitors, such as clarithromycin, and atorvastatin reduced to maximum of 20mg daily. Patients taking ciclosporin should have their simvastatin or atorvastatin reduced to 10mg daily.
http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON084705

Monitoring

Cholesterol and LFTs should be measured before initiation, at 3 months and at 12 months. Do not measure again unless clinically indicated. Stop treatment if serum transaminases rise to and persist at more than three times the upper limit of normal. Routine CK monitoring is not required but if myopathy is suspected, CK should be measured. The statin should be stopped if CK levels are more than five times the upper limit of normal. Muscle pain without elevated CK is not a reason to stop the drug, unless severe and disabling.
http://publications.nice.org.uk/lipid-modification-cg67

Hypertriglyceridaemia

A fasting lipid profile must be measured before determining need for treatment of hypertriglyceridaemia. Dietary and other lifestyle modifications are the mainstay of treatment.

In isolated, severe hypertriglyceridaemia a fibrate is usually more appropriate than a statin. However, mixed hyperlipidaemia should be treated with a statin, initially. Combination therapy with a statin and a fibrate should only be considered after specialist assessment. The recommended fibrate treatment is gemfibrozil 600mg twice daily. If combination therapy with a statin is being considered, use fenofibrate 200mg daily but be aware that there may be an increased risk of myositis.

Further treatment

If the above measures do not work, the patient may have severe familial hypercholesterolaemia or severe mixed hyperlipidaemia and should be referred to a specialist.

Hypertension

http://www.nice.org.uk/guidance/CG127

Aims of treatment

In hypertension, the aim of treatment is to keep blood pressure (BP) below 140/85mmHg. *BHS-IV. BMJ 2004;328:634*

Treatment of high blood pressure is recommended when:

- the BP is very high (i.e. BP >180/110mmHg) or
- the BP is sustained at >160/100mmHg(measured at least three times on three separate occasions)

A BP >140/90mmHg should be treated if there are other significant risk factors that give the patient a cardiovascular risk greater than 20% over 10 years.

Patients with diabetes or with established vascular disease should be treated if the BP is >140/80mmHg, and the target BP is lower (<130/80mmHg).

If proteinuria is present, this target is further reduced to <125/75mmHg

If diastolic blood pressure (DBP) >110mmHg or there are acute neurological symptoms or signs, the possibility of accelerated phase hypertension should be considered. In such cases, it is crucial to examine the fundi. Grade III or IV retinopathy should prompt emergency specialist referral.

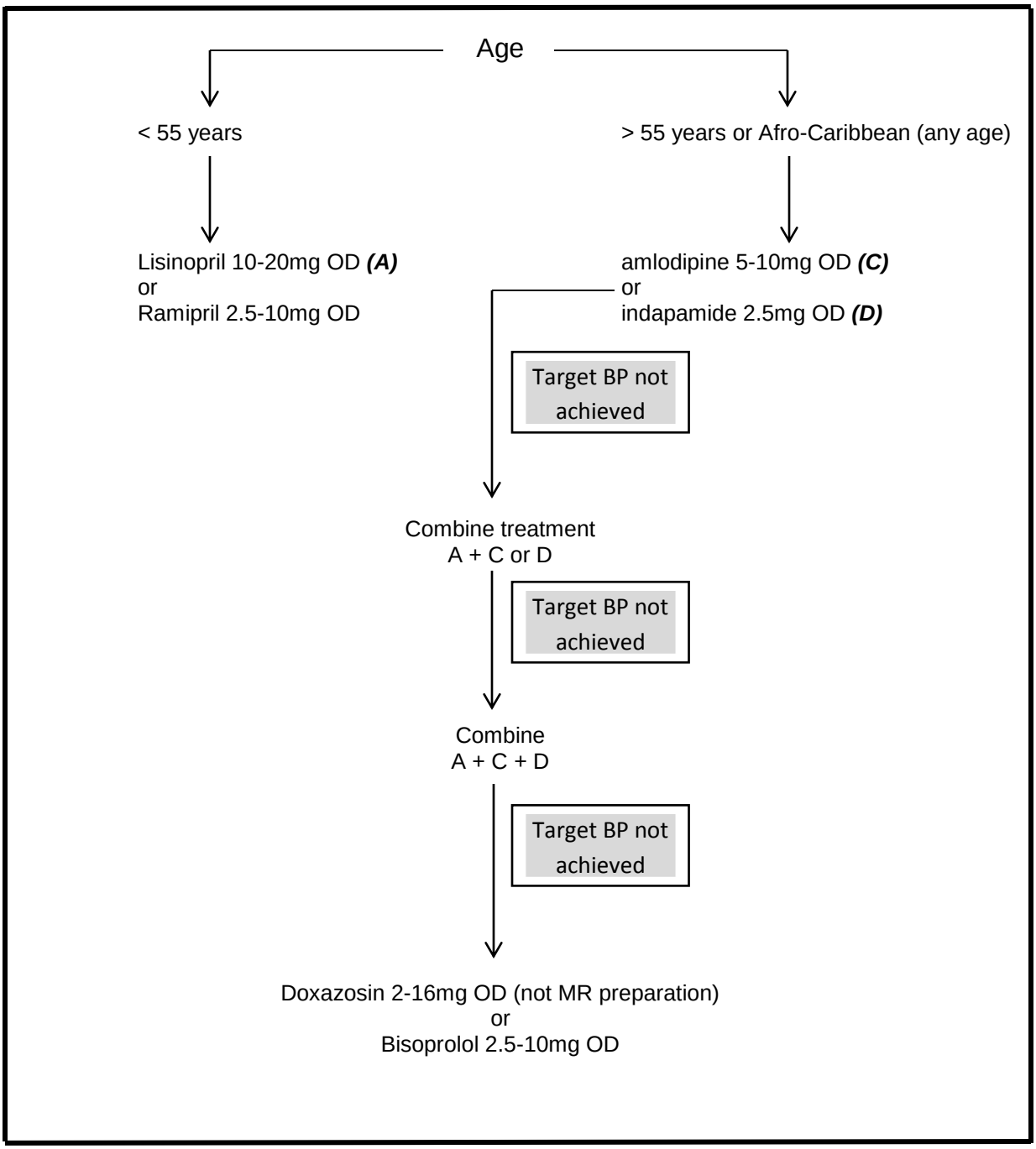
Lifestyle advice should be given to all patients with hypertension.
They should:

- Stop smoking
- Reduce alcohol intake
- Aim for ideal weight and healthy diet-follow the ”five-a-day” message
- Reduce sodium intake
- Take regular aerobic exercise

Drug therapy

The choice of antihypertensive used is frequently dictated by comorbidity. For example, a beta-blocker should be given for ischaemic heart disease, and a diuretic or ACE inhibitor for heart failure. If there are no other factors to consider, use the flow chart overleaf to guide your choice. Allow at least four weeks for a full response to take place to each change in therapy.

How to choose an antihypertensive



If BP control is still inadequate, consider referring the patient to a specialist

Points to note

• Thiazides and ACE inhibitors are contraindicated in pregnancy. Use labetolol 200mg twice daily if pregnant. Consider bisoprolol 5mg daily as an alternative first line drug for women of childbearing age.

• If a patient has hypokalaemia at baseline or if it is readily induced by therapy with low dose diuretics, refer them promptly for further investigation, as this could be a sign of hyperaldosteronism. If potassium <4.5 and eGFR >60ml/min add spironolactone to their treatment rather than giving a potassium supplement.

• If a patient experiences cough or multiple side effects induced by an ACE inhibitor, consider using losartan 25-100mg daily instead.

• If amlodipine causes peripheral oedema in a patient, substitute it with diltiazem (e.g. Adizem XL 180mg daily).

Statins

Add a statin if the patient's cardiovascular disease risk is > 20% over 10 years.

Use atorvastatin 20mg daily.

Secondary prevention post-MI

http://publications.nice.org.uk/mi-secondary-prevention-cg172

All patients should be considered for long-term secondary prevention therapy after a myocardial infarction (MI). This consists of:

• Aspirin 75mg dispersible tablet one daily with or after food.

If a patient has true aspirin allergy, they can be given clopidogrel 75mg daily instead of aspirin.

• Atorvastatin 80mg daily.

If not tolerated consider a lower dose or simvastatin 40mg daily.

• Bisoprolol - aim for 10mg daily.

If the patient cannot tolerate this and has preserved left ventricular systolic function, use verapamil SR 120 to 240mg daily, or diltiazem up to 300mg daily.

• Ramipril- aim for 10mg daily.

• Eplerenone 25 to 50mg daily.

Only use this drug if there is clinical heart failure and moderate-to-severe or severe left ventricular systolic dysfunction on echocardiography. However, close monitoring of renal function is required - refer to the heart failure nurse.

If you need advice

If you need advice about a patient, contact:

Dr Stewart at The James Cook University Hospital on ext: 54623

Dr Graham at The Friarage Hospital on ext: 63931

Any comments?

If you have comments to make about this formulary, please email them to:

Dr Michael Stewart, Consultant Cardiologist
The James Cook University Hospital
(michael.stewart@stees.nhs.uk)

and to

John Stapleton, Clinical Pharmacist
The James Cook University Hospital
(john.stapleton@stees.nhs.uk).
2011