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Secondary prevention following myocardial infarction:

a clinical update

INTRODUCTION

Better secondary prevention after myocardial infarction (MI) could prevent over 30 000 deaths a year in England and Wales.[1] GPs have a crucial role and should be aware of recent changes in recommended antiplatelet therapy.

PHARMACOLOGICAL SECONDARY PREVENTION

There is no 'one-size-fits-all' secondary preventative drug regimen, owing to the ranging presentations of MI (ST-segment elevation [STEMI] and non-ST-segment elevation [NSTEMI]), the timing of reperfusion therapy (emergency versus urgent percutaneous coronary intervention [PCI] or coronary artery bypass surgery [CABG]), and the range of comorbidities (such as, heart failure, atrial fibrillation, or hypertension).

Currently in the UK, >80% of STEMI patients receive primary PCI, with <1% receiving urgent CABG. Among NSTEMI patients, more than 90% receive some form of anticoagulation and approximately one-third undergo revascularisation (Box 1).[2]

Most patients will need dual antiplatelet therapy (DAPT) for 12 months, an angiotensin-converting enzyme inhibitor (ACEI), a beta-blocker, and a statin, all of which have been shown to reduce the risk of coronary death.[3]

Antiplatelets

Aspirin should be commenced immediately and continued lifelong in all patients post-MI unless aspirin intolerant, when clopidogrel is recommended.[3]

DAPT is indicated in all patients. DAPT has traditionally combined aspirin with clopidogrel, but newer agents (for example, ticagrelor) have emerged as favourable alternatives to clopidogrel, with fewer major adverse cardiovascular events.

Up to 12 months of DAPT with aspirin and ticagrelor is recommended in NSTEMI and STEMI patients following treatment with either PCI or CABG.

DAPT with aspirin and clopidogrel is now only recommended in NSTEMI and STEMI patients who cannot receive ticagrelor (previous intracranial haemorrhage or ongoing bleeds) or in patients who require oral anticoagulation.[4]

In patients with a high bleeding risk, the patient's cardiologist may advise a shorter DAPT duration of 6 months.[4] Conversely,

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Box 1. UK reperfusion recommendations and antiplatelet therapy[a]

Role	Details	Comment
STEMI[5]	• Eligible patients must have timely reperfusion (primary PCI or fibrinolysis) • If ineligible for reperfusion therapy, conservative medical therapy should be offered • If >12 hours of symptom onset with evidence of ongoing ischaemia or cardiogenic shock, consider angiography ± primary PCI if indicated or with a view to CABG	Aspirin 75 mg daily for life plus: ticagrelor 90 mg twice daily for a year
NSTEMI[6]	• All NSTEMI patients should be risk-stratified • Intermediate or high-risk patients should undergo coronary angiography (± PCI if indicated) within 96 hours of presentation or sooner if clinically unstable • Low-risk patients should be offered conservative management only without early coronary angiography	Aspirin 75 mg daily for life plus: ticagrelor 90 mg twice daily for a year

[a]From NICE guidelines. CABG = coronary artery bypass surgery. NSTEMI = non-ST-segment elevation. STEMI = ST-segment elevation. PCI = percutaneous coronary intervention.

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in patients at high risk of major adverse cardiovascular events (patients with diabetes, multivessel disease, or congestive cardiac failure) and low risk of bleeding (young age), longer DAPT beyond 12 months may be advised.[4]

Patients at high risk of gastrointestinal bleeding should be placed on a proton pump inhibitor alongside antiplatelet agents.[3] Omeprazole interacts with clopidogrel, so lansoprazole should be used in these patients.

Anticoagulants

Anticoagulants are only indicated for a left ventricular (LV) thrombus or comorbid conditions (such as atrial fibrillation or deep vein thrombosis). Co-prescription of antiplatelets and anticoagulants results in a very high bleeding risk, and are currently tailored on an individual basis by a cardiologist. A typical regimen would be 3 months of triple therapy (aspirin, clopidogrel, and warfarin), followed by lifelong clopidogrel and warfarin.

Angiotensin-converting enzyme inhibitors and angiotensin receptor blockers

An ACEI (for example, ramipril), or angiotensin receptor blocker (ARB) (for example, candesartan) if intolerant, should be up-titrated to a maximum tolerated dose while monitoring renal function. It is indicated lifelong in all patients with systolic dysfunction (LV ejection fraction <40%).[3]

Beta-blockers

A cardioselective beta-blocker (for example, bisoprolol) should be commenced in all patients once haemodynamically stable and up-titrated to a maximum tolerated dose. This should be continued for 12 months, or lifelong if evidence of systolic dysfunction.[3]

Statin

A statin (for example, atorvastatin) should be commenced in all patients post-MI without delay, regardless of lipid profile. A lipid profile should be performed at 4–6 weeks post-MI. Additional lipid-lowering agents should be introduced in cases of refractory dyslipidaemia (LDL ≥1.8 mmol/L).[4]

HEALTH PROMOTION

All patients should be offered:

- smoking cessation counselling if needed[3] as smoking cessation halves the risk of recurrent MI;[7]
- a structured programme of cardiac rehabilitation within 10 days of discharge, incorporating stress management and regular cardiorespiratory exercise (20–30 minutes per day of physical activity to the point of slight breathlessness). Exercise is deemed safe even in those with LV dysfunction, provided they are stable;[3]
- dietary advice: a 'Mediterranean-style' diet is recommended (increased fruit, vegetables, and fish; less meat; reduced total fat and a greater ratio of polyunsaturated to saturated fat). There is no evidence for oily fish or omega-3 fatty acid supplements as a preventative measure; and[3]
- GP review to optimise control of comorbidities that contribute to cardiovascular disease: patients with diabetes require good glycaemic control (HbA1C), and patients with hypertension should have a target clinic systolic blood pressure <140 mmHg.[8]

GETTING BACK TO NORMAL LIFE

Sexual intercourse

Sexual intercourse following MI bears no greater risk of a further MI than it did before, and can be resumed when patients feel comfortable to do so (usually 1 month). For erectile dysfunction, sildenafil and other phosphodiesterase-5 inhibitors are considered safe after 6 months in uncomplicated MIs, but are contraindicated in patients taking nitrates.[3]

Driving

Drivers do not need to notify the DVLA (unless they possess a specific bus, coach, or lorry licence), but must not drive for either 1 week (successful PCI and preserved LV systolic function, and no significant bystander coronary artery stenoses) or 4 weeks (impaired LV systolic function, or remaining significant bystander coronary artery stenoses).

Flying

The UK Civil Aviation Authority recommends that low-risk patients (complication-free with no further treatment planned) can fly after 10 days post-MI. If features of heart failure are present, or if there are plans for further treatment, patients should be considered high risk and should not fly without advice from a cardiologist. All patients should liaise with their travel operator, airline, and insurers before flying.[3]

CONCLUSION

GPs have an important role in overseeing effective secondary prevention following MI. This includes antiplatelet management, risk factor modification, lifestyle counselling, and management of comorbidities.