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Title

Barriers to prescribing proprotein convertase subtilisin-kexin type 9 inhibitors after coronary revascularisation

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Declaration of interest

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Abstract

Background

Guidelines advocate for intensive lipid-lowering in patients with atherosclerotic cardiovascular disease (ASCVD). In May 2020, evolocumab, a proprotein convertase subtilisin-kexin type 9 (PCSK9) inhibitor, became government subsidised in Australia for patients with ASCVD requiring further low-density lipoprotein cholesterol (LDL-C) lowering.

Aim

To identify barriers to prescribing PCSK9 inhibitors in hospitalised patients with ASCVD.

Methods

A retrospective three-month, single-site, observational analysis was conducted in consecutive patients undergoing percutaneous coronary intervention (PCI) or coronary artery bypass graft (CABG) surgery. Lipid-lowering therapy prescriptions, including PSCK9 inhibitors, were assessed using electronic medical records, compared against the Australian Pharmaceutical Benefits eligibility criteria, and barriers to PCSK9 inhibitor use identified.

Results

Of 331 patients, 244 (73.7%) underwent PCI and 87 (26.3%) underwent CABG surgery. A lipid profile during or within 8 weeks of admission was measured for 202 (82.8%) patients undergoing PCI and 59 (67.8%) undergoing CABG surgery. In patients taking high-intensity statins on admission (n=109), LDL-C ≥1.4, ≥1.8 and >2.6mmol/L were seen in 64 (58.7%), 44 (40.4%) and 19 (17.4%) respectively. High-intensity statin prescribing at discharge was high (>80%); however, ezetimibe was initiated in zero patients with LDL-C ≥1.4mmol/L. There was variable advice given by clinicians for LDL-C targets. No

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patients met criteria for subsidised PSCK9 inhibitor therapy, largely due to lack of qualifying lipid levels following combined statin and ezetimibe therapy.

Conclusion

Prescribing of non-statin LDL-C-lowering therapies remains low in patients with ASCVD. Under-prescribing of ezetimibe and suboptimal lipid testing rates are barriers to accessing subsidised PCSK9i therapy using current Australian eligibility criteria.

Key words

PCSK9 inhibitor

Dyslipidaemia

Low-density lipoprotein cholesterol

Cardiovascular disease

Coronary artery bypass graft

Acronyms

ASCVD - atherosclerotic cardiovascular disease

PCSK9 - proprotein convertase subtilisin-kexin type 9

LDL-C - low-density lipoprotein cholesterol

PCI – percutaneous coronary intervention

CABG - coronary artery bypass graft

ESC - European Society of Cardiology

EAS - European Atherosclerosis Society

ACC - American College of Cardiology

AHA - American Heart Association

NHFA - National Heart Foundation of Australia

CSANZ - Cardiac Society of Australia and New Zealand

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PBS - Pharmaceutical Benefits Scheme

SD - standard deviation

Main Text

Introduction

Elevated low-density lipoprotein cholesterol (LDL-C) is a significant risk factor for atherosclerotic cardiovascular disease (ASCVD) and lowering LDL-C can effectively reduce the risk of ASCVD morbidity and mortality.[1-3] Based on data from recent lipid lowering studies, European guidelines for the management of dyslipidaemia now recommend an intensive stepwise approach to lipid-lowering in patients with established ASCVD to achieve LDL-C levels less than 1.4 mmol/L.[4-6]

Following lifestyle modification, high-intensity statins are the first-line lipid-lowering agent recommended for patients with ASCVD due to their potent reductions in LDL-C, reduction in ASCVD events, low cost and safety.[6,7] In patients not achieving LDL-C targets despite maximally tolerated statin therapy, or in those intolerant to statins, initiation of ezetimibe followed by a proprotein convertase subtilisin-kexin type 9 (PCSK9) inhibitor is recommended.[6] Additionally, guidelines support initiation of PCSK9 inhibitors during hospitalization for eligible patients soon after an acute coronary syndrome.[6,8]

In May 2020, the Australian government extended the subsidy of evolocumab to include patients with symptomatic ASCVD, defined as the presence of symptomatic coronary artery disease (prior myocardial infarction, revascularization procedure, angina with demonstrated significant coronary artery disease or positive functional testing), cerebrovascular disease or symptomatic peripheral arterial disease, and who meet pre-specified criteria (see supplemental Table 1).[9] However, despite

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having access to subsidised therapy, we hypothesized that many patients are not being prescribed PCSK9 inhibitor therapy according to guideline recommendations.

In this study, we evaluated the use of lipid-lowering medications on admission and at discharge from hospital in patients with coronary artery disease undergoing revascularisation during a period after evolocumab became Government subsidised. Our aim was to assess the number of patients eligible for PSCK9 inhibitor prescription during admission and identify barriers to prescribing PSCK9 inhibitor therapy.

Methods

This three-month, single-site, retrospective observational study was conducted at a tertiary hospital cardiac and cardiothoracic surgery unit in Western Australia. The study was approved by the research governance office as a quality improvement study (GEKO Quality Activity: 40263).

Consecutive patients undergoing percutaneous coronary intervention (PCI) or coronary artery bypass graft (CABG) surgery between 1st August 2020 and 31st October 2020 were identified using hospital electronic programs. Patients who were deceased or palliated during admission were excluded. Information relating to demographics, medical history, lipid-lowering medications, lipid profile, HbA1c and liver function tests were obtained from the electronic medical record. History of statin intolerance was obtained from the inpatient medication chart and/or discharge summary. Recommendations to general practitioners regarding lipid management were obtained from discharge summaries and follow-up outpatient clinic letters.

Plasma lipid profile measurements were included if performed during or within eight weeks of hospital admission. Lipid profile data were extracted from the local laboratory database (Pathwest Laboratory Medicine), which services all government hospitals within Western Australia. The local

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laboratory calculates LDL-C using the Friedewald equation unless triglycerides concentration is greater than 4.5 mmol/L, in which case LDL-C is directly measured. Target LDL-C for patients with ASCVD was defined as less than 1.4 mmol/L as per recent European Society of Cardiology (ESC) and European Atherosclerosis Society (EAS) dyslipidaemia guidelines.[6] We also evaluated the number of patients with LDL-C greater than or equal to 1.8 mmol/L, as this is the threshold for addition of ezetimibe and/or PCSK9 inhibitor therapy to statin therapy as per American College of Cardiology (ACC) and American Heart Association (AHA) guidelines and the National Heart Foundation of Australia (NHFA) and the Cardiac Society of Australia and New Zealand (CSANZ) guidelines.[7,10] Statins were categorized according to intensity, where high-intensity statins were defined as atorvastatin 40 to 80 mg and rosuvastatin 20 to 40 mg.[7]

Patients eligible for Government subsidised evolocumab therapy were as defined by the Australian Pharmaceutical Benefits Scheme (PBS) (See supplemental table 1).[9] Based on these criteria, we also evaluated the number of patients with LDL-C greater than 2.6 mmol/L. The Australian PBS drug subsidy program provides eligibility criteria for certain medications based on individual risk factors.[9,11] As this was a retrospective analysis, adherence to lipid-lowering therapy for 12 consecutive weeks prior to the lipid profile result was assumed.

All data is descriptive and presented as means with standard deviations (SD), number with percent (%) or median with first and third quartiles where appropriate.

Results

Baseline characteristics

A total of 331 patients were included in the study; 244 (73.7%) patients undergoing PCI and 87 (26.3%) patients undergoing CABG surgery. Baseline characteristics are presented in Table 1. The mean age was 64.6±11.6 years and over three-quarters of the study cohort were men. Adverse

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reactions or intolerances to statins were reported in 11 (3.3%) patients and included muscle ache or cramps, confusion, constipation, severe headache, nausea, abdominal pain and skin dryness. Absolute contraindications to statin therapy were reported in 13 (3.9%) patients and included pregnancy, severe statin associated myalgia, myositis with creatine kinase elevation more than twice the upper limit of normal or a rising pattern on consecutive measurements and unexplained persistent elevations of serum transaminases more than three times the upper limit of normal.[9,12]

Lipid profile and lipid-lowering medications

A lipid profile was measured during or within the past eight weeks of hospital admission for 202 (82.8%) patients undergoing PCI and 59 (67.8%) patients undergoing CABG surgery, with a mean LDL-C of 2.73±1.14 mmol/L and 2.57±1.01 mmol/L in each group respectively. In 12 patients (9 PCI and 3 CABG), a recent lipid profile was performed but LDL-C values were missing. Plasma lipid profile data are presented in Table 2.

Lipid-lowering medications on admission and discharge are presented in Table 3. In the 109 (32.9%) patients already taking high-intensity statins on admission, LDL-C levels greater than or equal to 1.4 mmol/L, greater than or equal to 1.8 mmol/L and greater than 2.6 mmol/L were seen in 64 (58.7%), 44 (40.4%) and 19 (17.4%) patients respectively. Total statin prescriptions increased from admission to discharge (48.4% to 95.1% for PCI and 70.1% to 96.6% for CABG surgery). Of the 316 patients (95.5%) discharged on a statin, 287 (86.7%) were on high-intensity therapy.

Prescription of non-statin lipid lowering therapy remained low from admission to discharge (see Table 3). In the 64 patients with LDL-C greater than or equal to 1.4mmol/L despite high-intensity statin therapy on admission, ezetimibe was newly initiated at discharge in zero patients. In patients intolerant or who have contraindications to statins, 1 (4.2%) was on ezetimibe on admission and 3 (12.5%) were initiated on ezetimibe on discharge. No patients were newly initiated on a fibrate.

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One patient was on a PCSK9 inhibitor for familial hyperlipidaemia. No patients were initiated on a PCSK9 inhibitor and no patients were eligible for government subsidised PCSK9 inhibitor therapy for symptomatic ASCVD (see Figure 1). If the PBS lowered its LDL-C threshold to <1.4 mmol/L, 3 patients would be eligible for subsidized therapy if (see Figure 2).

Recommendations to general practitioners

Written advice regarding lipid management was documented in 76 (23.0%) patients. There was a variation in LDL-C target advice with a recommendation of <1.4 mmol/L in 10 patients (13.2%), <1.8 mmol/L in 46 patients (60.5%) and no target specified in 20 patients (26.3%). If LDL-C target was not achieved, practitioners were advised to increase statin dose (12 patients; 15.8%), add ezetimibe (29 patients; 38.2%) and/or add PCSK9 inhibitor (5 patients; 6.6%) therapy.

Discussion

Despite the extension of Australian government subsidy for PCSK9 inhibitors to include patients with ASCVD, the prescribing of non-statin lipid-lowering therapy in our study cohort remained low, thus impeding the initiation of PCSK9 inhibitor therapy.[9] We found the barriers to prescribing PSCK9 inhibitor therapy were suboptimal rates of lipid profile measurement and the under prescribing of ezetimibe in this very high-risk group. This was despite many patients not achieving LDL-C targets and who were expected to benefit from further intensive LDL-C-lowering. We also found variation in LDL-C target advice provided to general practitioners, highlighting a need for both guideline consistency and medical practitioner education in this setting.

The cumulative exposure to elevated LDL-C over time is a known cause of ASCVD, thus early and intensive reductions in LDL-C proportionally reduces cardiovascular risk.[1,2,4,5] The 2019 joint ESC and EAS guideline for the management of dyslipidaemia now recommends a more stringent LDL-C target of less than 1.4 mmol/L for patients with established ASCVD.[6,13] Lipid-lowering treatment is

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recommended in a stepwise approach of high-intensity statin followed by the addition of ezetimibe and/or a PCSK9 inhibitor, both of which are therapies that have been shown to safely reduce ASCVD risk.[4,6,13-15] Importantly, the benefits of PCSK9 inhibitors are rapid, potent and durable, contributing to a cumulative reduction in LDL-C exposure.[4,5,8]

Escalation to high-intensity statin therapy following coronary revascularisation is well-established in our cardiology and cardiothoracic surgery units, whereby 32.9% of patients were taking a high-intensity statin prior to admission but overall, 86.7% were prescribed a high-intensity statin at discharge. However, intensification of statin therapy only reduces LDL-C by an additional 6-12%, thus escalation to high-intensity monotherapy may not sufficiently achieve guideline targets.[16] Addition of ezetimibe to statin therapy can reduce LDL-C by approximately 20 to 25% while the PCSK9 inhibitors, evolocumab and alirocumab, can reduce LDL-C by approximately 50 to 60% when administered with statin therapy.[4,5,15] Using a combination of all three lipid lowering agents (high-intensity statin plus ezetimibe plus PCSK9 inhibitor) can reduce LDL-C by 84%.[17] Therefore, using combination therapies would enable the large majority of patients to achieve guideline targets.[17] However, we found new prescriptions for ezetimibe and PCSK9 inhibitors were low even though more than half of the patients on high-intensity statin prior to admission had an LDL-C greater than 1.4 mmol/L.

Low prescription rates of non-statin lipid-lowering therapy are not unique to our environment and have been demonstrated in large observational studies.[16,18] Data from a recent large registry study showed that target LDL-C from the ESC/EAS 2016 and 2019 dyslipidaemia guidelines are attained in less than half and one-fifth of patients prescribed statin therapy respectively.[16]

The complex PBS subsidy criteria for prescribing PCSK9 inhibitors represent a potential barrier to hospital clinicians. Patients must first have a recent lipid profile, the absence of which precluded some of our patients from eligibility to therapy. Additionally, the subsidy of PSCK9 inhibitor therapy is based on a less intensive LDL-C target of greater than 2.6 mmol/L compared to international guideline recommendations (see Table 4), this discrepancy driven by a cost-benefit analysis of prescribing

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PSCK9 inhibitor versus escalating of statin and ezetimibe therapy.[6,7,9,10] At least three months treatment with maximum dose statin and ezetimibe is also required, despite infrequent (<10%) ezetimibe use in the PSCK9 inhibitor trials.[4,5] This requires adequate time and follow-up to up-titrate statin doses or initiate ezetimibe before PSCK9 inhibitor can be considered. PCSK9 inhibitors are also a relatively new class of medication that cardiologists and cardiothoracic surgeons may not be familiar with prescribing. Clinicians and patients may also have reservations towards injectable formulations and concerns of adverse effects and adherence.

The under-prescribing of ezetimibe is a significant issue in the care of patients with ASCVD. Its underutilization and prescribing represent a significant barrier to initiating PSCK9 inhibitor therapy based on the Australian PBS criteria. One reason for low ezetimibe prescription rates may be clinician prescribing inertia or a lack of PBS criteria awareness. Another issue may be uncertainty over the role of ezetimibe given it was not frequently used in the PCSK-9 inhibitors outcome trials and concern of its evidence base. Early ezetimibe trials suggested that reductions in LDL-C did not translate to cardiovascular benefits and its role in guidelines was diminished.[19] Nonetheless, more recently, one major study has demonstrated that in patients with acute coronary syndrome who are already treated with statins, ezetimibe significantly and safely reduces cardiovascular risk and it is now generally accepted that ezetimibe significantly reduces ASCVD risk in high-risk patients. [15,20-25]However, local educational initiatives aimed to update clinicians on the evidence base and guideline changes were unable to increase the prescribing of non-statin lipid-lowering therapies in our cardiology and cardiothoracic units.[26,27] Clinical inertia, whereby clinicians acknowledge the presence of dyslipidaemia, however fail to prioritise, intensify or diversify treatment, may explain the low rates of ezetimibe use.[28] Ezetimibe is easily accessible, inexpensive, well-tolerated and available in combination tablets with statins in Australia. Further strategies are required to improve prescribing of non-statin lipid lowering therapies.

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Initiation of preventative therapies for residual ACSVD risk reduction may be best coordinated by a multidisciplinary cardio-metabolic service that is integrated into inpatient and outpatient care. It is acknowledged that transition from hospital to home can be a particularly vulnerable and overwhelming time for patients. This can potentially influence adherence to therapy, particularly if the therapy is not prescribed by specialists at hospital discharge.[29] It is therefore crucial that lipid-lowering therapies are optimized during hospitalization. We believe implementing a cardio-metabolic service and a systematic post-discharge follow up protocol could potentially have a positive role in long term lipid management and adherence. We envision the cardio-metabolic service as a continuous and shared care model between general practitioners and specialist physicians, where patients return for follow-up post discharge to re-evaluate lipids and have their lipid-lowering therapy optimized accordingly. Future research is needed to evaluate if implementing this service eliminates some of the current barriers to prescribing PCSK9 inhibitors.

Limitations of our study include the small size, short study period and observational nature. We could only access follow-up information from public hospital records. Due to the retrospective nature, we assumed compliance to lipid-lowering therapy for a minimum of 12 weeks prior to admission, unless documented otherwise. We categorised an individual as having at least 50% stenosis in a large vessel if their angiogram report describes the coronary vessel as 'moderate' or 'severe' stenosis, where degree of stenosis was not given as a nominal value.[30,31] Measurement of serum lipids in patients presenting with an acute myocardial infarction may not be a true reflection of the patients' baseline lipid profile, as serum cholesterol temporarily reduces after an event.[32] Additionally, as a single-centre study in a major metropolitan area, our findings may not be generalizable to other settings with differences in care delivery.

Conclusion

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The majority of patients with ASCVD received high-intensity statins at discharge from hospital. However, the prescribing of non-statin lipid lowering therapies in patients still not achieving lipid target remains low despite established guideline recommendations, and recent changes to government subsidy making PCSK9 inhibitors more readily accessible. Low prescriptions rates of ezetimibe present a major barrier to accessing subsidized PCSK9 inhibitor therapy. However, the current Australian subsidy criteria are complex thus representing a potential barrier to accessing PCSK9 inhibitor therapy, as recent lipid profiles are needed, less intensive LDL-C targets are used compared to international guidelines, and the use of statin and ezetimibe combination for at least three months is required. By identifying gaps in current clinical practice for lipid management in patients with ASCVD, we will be able to inform clinicians and develop strategies to optimize the prescribing of non-statin lipid lowering therapies including ezetimibe and PCSK9 inhibitors, to achieve LDL-C targets in this high-risk setting.

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Competing interests

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Ethics

The study was approved by the research governance office of Fiona Stanley Hospital as a quality improvement study.

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Tables

Table 1. Patient baseline characteristics at time of admission

Characteristics	PCI *n* = 244	CABG Surgery *n* = 87	Total *n* = 331
Age (years)	64.8±12.2	64.0±9.7	64.6±11.6
Male gender	202 (82.8)	66 (75.9)	268 (81.0)
Identify as Aboriginal or Torres Strait Islander	8 (3.3)	13 (14.9)	21 (6.3)
Diabetes mellitus	66 (27)	45 (51.7)	111 (33.5)
History of cerebrovascular or peripheral arterial disease	30 (12.3)	19 (21.8)	49 (14.8)
Admission reason			
NSTEMI	81 (33.2)	44 (50.6)	125 (37.8)
STEMI	92 (37.7)	5 (5.7)	97 (29.3)

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Unstable angina Elective admission Other	26 (10.7) 39 (16.0) 6 (2.5)	8 (9.2) 25 (28.7) 5 (5.7)	34 (10.3) 64 (19.3) 11 (3.3)
Length of stay (days)	2 (1-3)	11 (7.5-14)	3 (2-8)
Intolerance or adverse reaction to statins	9 (3.7)	2 (2.3)	11 (3.3)
Absolute contraindication to statins	10 (4.1)	3 (3.4)	13 (3.9)

Values are given as mean±SD, *n* (%) or median (quartile 1-quartile 3)

CABG coronary artery bypass graft, NSTEMI non-ST-segment elevation myocardial infarction, PCI percutaneous coronary intervention, STEMI ST-segment elevation myocardial infarction

Table 2: Plasma lipid profile results

Characteristics	**PCI** ***n* = 202**	**CABG Surgery** ***n* = 59**	**Total** ***n* = 261**
LDL-C (mmol/L)	2.73±1.11	2.57±0.97	2.68±1.1
HDL-C (mmol/L)	1.12±0.3	1.01±0.29	1.09±0.3
Triglycerides (mmol/L)	2.18±1.42	2.23±1.38	2.19±1.41
Non-HDL-C (mmol/L)	3.64±1.31	3.49±1.12	3.61±1.27
Total cholesterol (mmol/L)	4.73±1.32	4.43±1.25	4.68±1.32
LDL-C ≥1.4 mmol/L	173 (85.6)	50 (84.7)	223 (85.4)
LDL-C ≥1.8 mmol/L	150 (74.3)	43 (72.9)	193 (73.9)
LDL-C >2.6 mmol/L	95 (47.0)	25 (42.4)	120 (46.0)

Values are given as mean±SD or *n* (%)

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HDL-C high-density lipoprotein cholesterol, LDL-C low-density lipoprotein cholesterol

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Table 3. Medications on admission and at discharge

Medication	PCI *n* = 244		CABG Surgery *n* = 87		Total *n* = 331	
	Admission	Discharge	Admission	Discharge	Admission	Discharge
Statin (any)	118 (48.4)	232 (95.1)	61 (70.1)	84 (96.6)	179 (54.1)	316 (95.5)
Low intensity	1 (0.4)	1 (0.4)	1 (1.1)	1 (1.1)	2 (0.6)	2 (0.6)
Moderate intensity	50 (20.5)	24 (9.8)	18 (20.7)	3 (3.4)	68 (20.5)	27 (8.2)
High intensity	67 (27.5)	207 (84.8)	42 (48.3)	80 (92.0)	109 (32.9)	287 (86.7)
Ezetimibe	17 (7.0)	20 (8.2)	2 (2.3)	2 (2.3)	19 (5.7)	22 (6.6)
Fibrate	5 (2.0)	5 (2.0)	4 (4.6)	4 (4.6)	9 (2.7)	9 (2.7)
PCSK9 inhibitor	1 (0.4)	1 (0.4)	0	0	1 (0.3)	1 (0.3)
Other*	11 (4.5)	7 (2.9)	1 (1.1)	1 (1.1)	12 (3.6)	8 (2.4)
Not documented	3 (1.2)	3 (1.2)	0	0	3 (0.9)	3 (0.9)

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Values presented at *n* (%)

CABG coronary artery bypass graft, PCI percutaneous coronary intervention, PCSK9 - proprotein convertase subtilisin-kexin type 9

*Other lipid lowering medications included omega-3 fatty acids, niacin and one patient on a blinded placebo-controlled statin trial

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Table 4. LDL-C goals and thresholds from European and American lipid-lowering guidelines compared to Australia's PBS criteria for prescribing PCSK9 inhibitors[6,7,9]

	ESC/EAS 2019 [6]	AHA/ACC 2018 [7]	PBS criteria [9]
	Documented ASCVD which includes previous ACS (MI or unstable angina), stable angina, coronary revascularization, stroke and TIA, and PAD. DM with target organ	History of multiple major ASCVD events (recent ACS within the past 12 months, history of MI or ischaemic stroke or symptomatic PAD) or one major ASCVD event and multiple high-risk conditions.	Documented symptomatic ASCVD AND - atherosclerotic disease in ≥2 vascular territories; or - severe multi-vessel coronary heart disease defined as ≥50%

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	damage, or ≥3 major risk factors, or early onset T1DM of long duration (>20 years). CKD with eGFR <30 ml/min/1.73m^2) SCORE ≥10% for 10-year risk of fatal ASCVD. FH with ASCVD or with another major risk factor.		stenosis in ≥2 large vessels; or - ≥2 major ASCVD events (i.e. MI, unstable angina, stroke or unplanned revascularisation) in the previous 5 years; or - DM with microalbuminuria; or - DM and age ≥ 60 years; or - Aboriginal or Torres Strait Islander with DM; or - TIMI Risk Score for Secondary Prevention ≥4.
Clinical criteria for considering PCSK9 inhibitor			
Recommended LDL-C target or threshold for adding treatment	LDL-C reduction ≥50% with LDL-C goal of <1.4 mmol/L.	LDL-C reduction ≥50% with LDL-C threshold of ≥1.8 mmol/L for adding treatment.	LDL-C level >2.6 mmol/L on treatment.
Recommended pharmacologic treatment prior to PCSK9 inhibitor	If target is not reached on maximally tolerated statin, add ezetimibe. Add PCSK9 inhibitor to maximally tolerated statin and ezetimibe if	If LDL-C above threshold despite maximally tolerated statin, add ezetimibe. Add PCSK9 inhibitor to maximally tolerated statin	Treatment with the maximum recommended or tolerated dose of atorvastatin or rosuvastatin and ezetimibe for ≥3 months. Eligible for subsidised PCSK9

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initiation	LDL-C level remains ≥1.4 mmo/L.	and ezetimibe if LDL-C level remains ≥1.8 mmol/L.	inhibitor if LDL-C >2.6 mmol/L despite statin and ezetimibe treatment.

ACC American College of Cardiology, ACS acute coronary syndrome, AHA American Heart Association, ASCVD atherosclerosis cardiovascular disease, CKD chronic kidney disease, DM diabetes mellitus, EAS European Atherosclerosis Society, eGFR estimated glomerular filtration rate, ESC European Society of Cardiology, FH familial hypercholesterolemia, LDL-C low density lipoprotein cholesterol, MI myocardial infarction, PAD peripheral artery disease, PBS Pharmaceutical Benefits Scheme, PCSK9 proprotein convertase subtilisin-kexin type 9, SCORE Systematic Coronary Risk Estimation, T1DM type 1 diabetes mellitus, TIA transient ischaemic attack, DM diabetes mellitus, TIMI Thrombolysis in Myocardial Infarction

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