Condition	Indication	Recommendations	Grade
Acute ST-Segment Elevation Myocardial Infarction	All patients who have ischemic symptoms ≤ 12 hours duration and persistent STE	Administer fibrinolytic therapy (streptokinase, anistreplase, alteplase, reteplase or tenecteplase) ASAP (ideally within 30 minutes of arrival to hospital) **or** pre-hospital administration where feasible	1A
FIBRINOLYTICS	Patients who have ischemic symptoms ≤ 6 hours duration and persistent STE	Administer alteplase or tenecteplase	1A
		Administer reteplase over streptokinase	2B
	Patients who have ischemic symptoms ≤ 12 hours duration and left BBB with associated STE changes	Administer fibrinolytic therapy (streptokinase, anistreplase, alteplase, reteplase or tenecteplase) if primary PCI is not readily available	1B
	For high-risk patients with ongoing symptoms characteristic of acute MI or hemodynamic compromise and duration of 12 to 24 hours who have persistent STE or left BBB with STE changes	Administer fibrinolytic therapy (streptokinase, anistreplase, alteplase, reteplase or tenecteplase) if primary PCI is not readily available	2B
Acute ST-Segment Elevation Myocardial Infarction	All patients	ASA 160 to 325mg po then 75-162mg daily indefinitely[1] Clopidogrel in addition to ASA ≤ 75 years old: 300mg po bolus then 75mg/d > 75 years old: no bolus, 75mg/d	1A
ANTIPLATELETS		Continue clopidogrel 28 days (1A) and up to 1 year	2B
	Patients undergoing primary coronary intervention (PCI)	Clopidogrel bolus of at least 300mg po, then 75mg/d in addition to ASA	1B
		Abciximab (0.25 mg/kg IV bolus, then 0.125 ug/kg/min [maximum 10ug/min] for 12 hours	1B
Acute ST-Segment Elevation Myocardial Infarction	All patients (including those receiving fibrinolysis, primary PC or no reperfusion therapy)	UFH or LMWH or fondaparinux or bivalirudin (avoid bivalirudin as an alternative to UFH in patients streptokinase – 2B) (avoid fondaparinux for patients undergoing primary PCI – 1A)	1A
ANTICOAGULANTS	Patients receiving alteplase, tenecteplase, or reteplase	Weight-adjusted UFH (60 U/kg bolus for a maximum of 4000 U, followed by 12 U/Kg/h [1000 U/h maximum]), adjusted to maintain an APTT of 50-70 sec for 48 h	1B
	Patients undergoing primary PCI	IV UFH over no UFH therapy (No Gp2b/3a: IV UFH 60-100 U/kg [target ACT 250-350 sec] With a Gp2b/3a: IV UFH 50-70 U/kg [target ACT > 200 sec])	1C
	Patients receiving fibrinolytic therapy with preserved renal function (SrCr< 220 umol/L for males, <175 umol/L for females)	Enoxaparin over UFH, continued for up to 8 days (Age < 75 years: Enoxaparin 30mg IV bolus, then 1mg/kg SC q12h [max 100mg for the first 2 doses], Age > 75 years: No IV bolus, 0.75mg/kg SC q12h [max 75mg for the first 2 doses])	2A
	Patients not receiving reperfusion therapy	Fondaparinux over no therapy	1A
PCI + STENT Implantation	All patients	ASA 75-100 mg/d[1] indefinitely	1A
Post Procedural	PCI with BMS	ASA 75-100 mg/d plus clopidogrel 75 mg/d	1A
		Following ACS – ASA plus clopidogrel 12 months duration	1A
	PCI with DES	ASA 75-100 mg/d plus clopidogrel 75 mg/d for at least 12 months [1A – 3 to 4 months; 1B – 4 to 12 months]	1A/1B
		Beyond 1 year – continue both indefinitely if no bleeding or other tolerability issues	2C
	Stent placement with a strong concomitant indication for warfarin	Triple therapy [ASA, clopidogrel and warfarin (INR 2.0-3.0)]; BMS – 4 weeks of clopidogrel; DES – 1 year clopidogrel	2C

Condition	Indication	Recommendations	Grade
Coronary Artery Bypass Graft Surgery (CABG)	Saphenous Vein Grafts (SVG)	ASA 75-100 mg/d indefinitely; started 6 hrs post-op or as soon as possible	1A/2A
	Saphenous Vein Grafts (SVG) – Combination with dipyridamole	**No** dipyridamole in addition to ASA	1A
	Saphenous Vein Grafts (SVG) – ASA allergic patients	Clopidogrel; 300 mg LD started 6 hours post-op followed by 75 mg/d	1B
	Saphenous Vein Grafts (SVG) – Non ST elevation ACS	Clopidogrel 75mg/d in addition to ASA following procedure for 9-12 months	2B
	Saphenous Vein Grafts (SVG) – Clopidogrel Pre-CABG	Discontinue clopidogrel 5 days prior to CABG surgery	2A
	Saphenous Vein Grafts (SVG) – Indication for warfarin (e.g. Heart valves)	Warfarin in addition to ASA	2C
	Internal Mammary Artery (IMA) Grafts	ASA 75-162 mg/d indefinitely	1A
	Internal Mammary Artery (IMA) Grafts – No other indication for warfarin	**No** warfarin	1C
Secondary Prevention	Post-MI (with meticulous INR monitoring and highly skilled dose titration of warfarin)	High Intensity warfarin (INR 3.0-4.0) monotherapy (up to 4 years) **or** Moderate-intensity warfarin (2.0-3.0, for at least 3 months) PLUS ASA ≤ 100mg/d	2B
	High Risk patients post MI (e.g. large anterior MI, significant HF, intracardiac thrombus, AF or history of thromboembolic event)	Moderate-intensity warfarin (2-3, for at least 3 months) plus ASA ≤ 100mg/d	2A
	Symptomatic CAD	ASA 75-100mg/d PLUS clopidogrel 75mg/d	2B
Primary Prevention	ALL patients who would benefit from primary prevention	Do NOT add clopidogrel to ASA therapy	1A
	Non-ischemic CHF	**No** ASA or warfarin	1B
	Primary prevention for patients with at least moderate risk (based on age and Framingham 10-y risk of cardiac event > 10%)	ASA 75-100 mg/d	2A
	High risk (Framingham 10-year risk ≥ 20%) patients (with readily accessible INR monitoring	Low-dose warfarin (target 1.5)	2A
	Moderate to high risk (Framingham 10-year risk ≥ 20%) with ASA intolerance	Clopidogrel 75mg/d	1B
	Women < 65 years at risk of ischemic stroke[2], with low risk of major bleed	ASA 75-100mg/d	2A
	Women > 65 years at risk of ischemic stroke[2] or MI, with low risk of major bleed	ASA 75-100mg/d	2B

Strength of recommendations: Grade 1 are **strong**; Grade 2 are **weak**. **A** is high-quality evidence, **B** is moderate-quality evidence, C is low or very low-quality evidence. Refer to Chest 2008;133:123S-131S for further details on the approach to grades of recommendations.

Abbreviations: AF = atrial fibrillation; **ACS** = acute coronary syndrome; **BMS** = bare metal stent; **DES** = drug eluting stent; **CABG** = coronary artery bypass graft; **CAD** = coronary artery disease; **CHF** = congestive heart failure; **DM** = diabetes mellitus; **EF** = ejection fraction; **GIB** = gastrointestinal bleed; **HTN** = hypertension; **LA** = left atrium; **LD** = loading dose; **LMWH** = low molecular weight heparin; **LV** = left ventricle; **MI** = Myocardial infarction; **NBTE** = nonbacterial thrombotic endocarditis; **NSR** = normal sinus rhythm; **PCI** = percutaneous intervention; **SE** = systemic embolism; **STE** = ST-segment elevation; **TIA** = transient ischemic attack; **UFH** = unfractionated heparin

This pocket reference briefly summarizes the key results of the Eighth ACCP Consensus Conference on Antithrombotic Therapy (Chest 2008;133(6;Suppl):67S-814S). It is intended to be used by individuals with a detailed understanding of the complete report.

[1] Consider clopidogrel 75 mg daily as an alternative to ASA allergic or intolerant patients.

[2] Stroke risk factors include hypertension, smoking, DM, physical inactivity, high alcohol consumption, high cholesterol and homocysteine [Neurology 1999;53(7 Suppl 4):S15-24)

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CCPN RCPC
CANADIAN CARDIOVASCULAR PHARMACISTS NETWORK
RÉSEAU CANADIEN DES PHARMACIENS IMPLIQUÉS EN SOINS CARDIOVASCULAIRES

Antithrombotic and Thrombolytic Therapy Guidelines

POCKETCARD

A summary of cardiac indications from the Antithrombotic and Thrombolytic Therapy: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines – 8th edition
Chest 2008; 133(6;Suppl):67S-814S

This pocket reference briefly summarizes the key results of the Eighth ACCP Consensus Conference on Antithrombotic Therapy. It is intended to be used by individuals with a detailed understanding of the complete report.

Condition	Indication	Recommendations	Grade
Non-Valvular Fibrillation (AF) [Persistent or Paroxysmal]	**Very High risk** - Prior ischemic stroke, TIA, SE	Warfarin INR 2.5 (2.0 – 3.0)	1A
	High risk - Presence of 2 risk factors: age > 75, history of hypertension, diabetes mellitus, moderately-severely impaired LV function or heart failure	Warfarin INR 2.5 2.0 – 3.0)	1A
	Intermediate risk - Presence of one risk factor: age > 75, history of hypertension, diabetes mellitus, moderately-severely impaired LV function or heart failure	Warfarin INR 2.5 (2.0 – 3.0) preferred [1A], option of ASA 75 - 325 mg/d [1B]	1A 1B
	Low-risk: age < 75 with no evidence of other risk factors	ASA 75 - 325 mg/d	1B
Valvular Atrial Fibrillation	Prosthetic heart valves	Warfarin (target intensity and addition of ASA dependent upon type of prosthesis, its position and other risk factors – see Mechanical Prosthetic Valves)	2C
	Mitral stenosis	Warfarin INR 2.5 (2.0 – 3.0)	1B
Atrial Flutter	Follow the same risk-based recommendations as AF		1C
Post-Operative Atrial Fibrillation	Occurring shortly after surgery and lasting more than 48 hours	Warfarin (if bleeding risks are acceptable) 2.5 (2.0-3.0) continued for 4 weeks following conversion to NSR, particularly if patients have risk factors for thromboembolism.	2C
Cardioversion	Elective; AF duration **≥ 48** hrs or of unknown duration	Warfarin INR 2.5 (2.0-3.0) 3 weeks prior and 4 weeks post cardioversion	1C
Atrial Fibrillation & Flutter	Elective; AF duration **< 48** hrs	Full dose UFH/LMWH during pericardioversion period	2C
	Non-elective: hemodynamically unstable (angina, CHF, hypotension or syncope)	Full dose UFH or LMWH as soon as possible and warfarin INR 2.5 (2.0-3.0) x **≥** 4 weeks post cardioversion	2C
Valvular Heart Disease	Rheumatic Mitral Valve Disease (mitral stenosis &/or mitral regurgitation) with AF, history of SE, or left atrial thrombus	Warfarin INR 2.5 (2.0-3.0)	1A
	Rheumatic Mitral Valve Disease (mitral stenosis &/or mitral regurgitation) with NSR and LA diameter > 55mm	Warfarin INR 2.5 (2.0-3.0)	2C
	Rheumatic Mitral Valve Disease (mitral stenosis &/or mitral regurgitation) with SE or have left atrial thrombus despite therapeutic INR	Add ASA 50 -100 mg/d or adjust to high target INR of 3.0 (2.5 – 3.5)	2C
	Mitral Valve Prolapse – **High-risk:** AF, or documented SE or recurrent TIA despite ASA	Warfarin INR 2.5 (2.0 – 3.0)	2C
	Mitral Valve Prolapse – **Moderate-risk:** TIA or ischemic stroke	ASA 50-100 mg/d	1B
	Mitral Valve Prolapse – **Low-risk:** no AF, TIA, ischemic stroke or SE	No therapy	1C
Infective & Non-Infective Endocarditis	Infective Endocarditis and other indication for antithrombotic therapy	Substitute full-dose IV UFH until stabilized without signs of CNS involvement	2C
	Mechanical valve and endocarditis	Warfarin INR (target intensity and addition of ASA dependent upon type of prosthesis, its position and other risk factors – see Mechanical Prosthetic Valves)	2C
	NBTE and SE or pulmonary emboli	Full-dose IV UFH or SC LMWH	1C
	Disseminated cancer or debilitating disease with aseptic vegetations	Full-dose IV UFH or SC LMWH	2C

Condition	Indication	Recommendations	Grade
Mechanical Prosthetic Valves	**All Patients**	Warfarin [1A]; use IV UFH or LMWH until INR stable at a therapeutic level x 2 days [2C]	1A/2C
	High-risk: caged ball or caged disk valve [1B];OR mechanical valve (either aortic or mitral) plus additional risk factor AF, (antero-apical ST segment elevation MI, LA enlargement, hypercoagulable state, or low EF) [1B]	Warfarin INR 3.0 (2.5-3.5)	1B
	High-risk: Mitral position bileaflet or tilting disk valve	Warfarin INR 3.0 (2.5-3.5)	1B
	Low-risk: Aortic position: bileaflet or Medtronic Hall tilting disk valve provided normal sinus rhythm without LA enlargement	Warfarin INR 2.5 (2.0-3.0)	1B
	Additional risk factor of AF, hypercoagulable state, low EF, or atherosclerotic vascular disease [1B]; suggest ASA not be added if patient > 80 years or history of GI bleed [2C]	Add ASA 50-100 mg/d	1B/2C
	SE despite therapeutic INR	Add ASA 50 – 100 mg/d OR up-titration of INR to 3.0 (2.5 – 3.5) **or** 3.5 (3.0 – 4.0)	2C
Bioprosthetic Valves	**All Patients – MITRAL**	IV UFH or SC LMWH until INR stable at a therapeutic level x 2 days [2C]	2C
	All Patients – **MITRAL**	Warfarin INR 2.5 (2.0-3.0) x 3 months, then ASA 50-100 mg/d	1B
	All Patients – **AORTIC**	ASA 50-100mg/d	1B
	With History of SE	Warfarin INR 2.5 (2.0-3.0) for 3 months from valve insertion then reassess	1C
	With LA thrombus at surgery	Warfarin 2.5 (2.0 – 3.0) until thrombus resolution	1C
	With AF, hypercoagulable state, low EF [1C]	Warfarin INR 2.5 (2.0 – 3.0)	1C
	With History of atherosclerotic vascular disease	Suggest ASA 50-100 mg/d (avoid if > 80 yr or Hx GIB)	2C
Non-ST-Segment Elevation Acute Coronary Syndrome (ACS)	All Patients	ASA 162 to 325 mg po then 75-100mg daily (clopidogrel 300mg po bolus then 75mg/d indefinitely if ASA allergic)	1A
Acute Management	Moderate or greater risk and will undergo an early invasive strategy of management	Upstream clopidogrel 300 mg po bolus then 75mg/d or Gp 2b/3a inhibitor (eptifibatide or tirofiban)	1A
		Combination clopidogrel + Gp 2b/3a inhibitor	2A
ANTIPLATELETS	Moderate or greater risk and will undergo an early conservative or a delayed invasive strategy of management	Upstream clopidogrel 300 mg po bolus then 75mg/d	1A
		Clopidogrel + Gp 2b/3a inhibitor (eptifibatide or tirofiban)	2B
	NSTE ACS patient undergoing PCI	Clopidogrel plus a Gp 2b/3a inhibitor	1A
		Loading dose of clopidogrel 600mg at least 2h prior to PCI (if none started upstream) followed by 75 mg/d	1B
		Use of Gp 2b/3a inhibitor (abciximab or eptifibatide) in pt with moderate risk features	1A
Non-ST-Segment Elevation Acute Coronary Syndrome (ACS)	All Patients	UFH or LMWH or bivalirudin or fondaparinux	1A
	Early invasive strategy of management	UFH (with Gp 2b/3a inhibitor) over LMWH or fondaparinux	1B
Acute Management	Early conservative or a delayed invasive strategy of management	Fondaprinux over enoxaparin (with additional UFH and IV fondaparinux for PCI)	1A (1B)
		Enoxaparin over UFH (with additional enoxaparin if PCI 8-12h from last dose)	1B (1B)
ANTICOAGULANTS	Low to moderate risk undergoing coronary intervention (PCI)	Bivalirudin with provisional Gp 2b/3a inhibitor **or** UFH plus a Gp 2b/3a inhibitor	1B

Contraindications to Thrombolysis

Absolute Contraindications

- Any prior Intracranial hemorrhage
- Known structural cerebral vascular lesion (e.g. arteriovenous malformation)
- Known malignant intracranial neoplasm (primary or metastatic)
- Ischemic stroke within 3 months, except acute ischemic stroke within three hours
- Suspected aortic dissection
- Active bleeding or bleeding diathesis (excluding menses)
- Significant closed head or facial trauma within 3 months

Relative Contraindications

- History of chronic severe, poorly controlled hypertension
- Severe uncontrolled hypertension on presentation (Sys-BP greater than 180 mmHg or diastolic BP greater than 110 mmHg)
- History of prior ischemic stroke greater than 3 months, dementia or known intracranial pathology not covered in contraindications
- Traumatic or prolonged (greater than 10 minutes) CPR
- Major surgery (within 3 weeks)
- Recent internal bleeding (within 2 to 4 weeks)
- Noncompressible vascular puncture
- Pregnancy
- Active peptic ulcer
- Current use of anticoagulants: the higher the INR, the higher the risk of bleeding