Canadian Cardiovascular Society
Anti Platelet Guideline 2010

RECOMMENDATIONS

Alan D. Bell, MD, CCFP; André Roussin, MD, FRCP; Raymond Cartier, MD; Wee Shian Chan, MD, FRCP; James D. Douketis, MD, FRCP; Anil Gupta, MD, FRCSC; Maria E. Kraw, MD, FRCP; Thomas F. Lindsay, MD, CM, FRCSC; Michael P. Love, MB, ChB, MD, MRCP; Neesh Pannu, MD, SM, FRCP; Rémi Rabasa-Lhoret, MD, PhD; Ashfaq Shuaib, MD, FRCP; Philip Teal, MD, FRCP; Pierre Théroux, MD; A. Graham Turpie, MD; Robert C. Welsh, MD, FRCP, FACC; Jean-François Tanguay, MD, CSPQ, FRCP(C), FACC, FAHA, FESC

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Antiplatelet Therapy for Secondary Prevention in the First Year Following an Acute Coronary Syndrome

RECOMMENDATIONS

Working Group: Jean-François Tanguay, MD, CSPQ, FRCP(C), FACC, FAHA, FESC; Michael P. Love, MB, ChB, MD, MRCP; and Robert C. Welsh, MD, FRCP, FACC
Antiplatelet Therapy for Secondary Prevention in the First Year Following an Acute Coronary Syndrome

1. For all patients with ACS who survive to hospital discharge, indefinite therapy with low-dose ASA (75-162 mg daily) is recommended (Class I, Level A). For patients allergic to or intolerant of ASA, indefinite therapy with clopidogrel 75 mg daily is recommended (Class IIa, Level B).

2. For patients presenting with STEMI who are medically managed, clopidogrel 75 mg daily is recommended in addition to ASA 75-162 mg daily for at least 14 days (Class I, Level B) and up to 12 months in the absence of an excessive risk of bleeding (Class IIb, Level C).

3. For patients presenting with STEMI who are managed by PCI, clopidogrel 75 mg daily is recommended in addition to ASA 75-162 mg daily for 12 months (Class I, Level B). Continuation of combined therapy beyond 12 months may be considered in patients with a high risk of thrombosis and a low risk of bleeding (Class IIb, Level C).
Antiplatelet Therapy for Secondary Prevention in the First Year Following an Acute Coronary Syndrome

5. For patients presenting with NSTEACS who are medically managed, clopidogrel 75 mg daily is recommended in addition to ASA 75-162 mg daily for at least 1 month (Class I, Level A) and up to 12 months in the absence of an excessive risk of bleeding (Class I, Level B).

6. For patients presenting with NSTEACS who are managed by PCI, clopidogrel 75 mg daily is recommended in addition to ASA 75-162 mg daily for 12 months (Class I, Level A). Continuation of combined therapy beyond 12 months may be considered in patients with a high risk of thrombosis and a low risk of bleeding (Class IIb, Level C).

7. For patients presenting with NSTEACS who are managed by coronary artery bypass grafting (CABG), clopidogrel 75 mg daily is recommended in addition to ASA 75-162 mg daily for a minimum of 1 month and up to 12 months (Class I, Level B).
Antiplatelet Therapy for Secondary Prevention in the First Year Following an Acute Coronary Syndrome

8. For patients with ACS who undergo stent implantation and have an increased risk of stent thrombosis (eg, STEMI, history of diabetes mellitus, or prior documented stent thrombosis), prasugrel 10 mg daily may be considered in addition to ASA 75-162 mg daily for 12 months (Class IIa, Level B). Prasugrel should be avoided in patients with an increased bleeding risk, likely to undergo CABG within 7 days, with a history of stroke or transient ischemic attack (TIA), aged ≥75 years, or weight <60 kg (Class III, Level B).

9. For patients with ACS, ticagrelor 90 mg twice daily may be added to ASA 75-162 mg daily for 12 months (Class I, Level B).

10. In general, the ADP P2Y$_{12}$ receptor antagonist added to ASA in the acute setting should be maintained for the duration of therapy (Class I, Level A).
Antiplatelet Therapy for Secondary Prevention in the First Year Following Percutaneous Coronary Intervention

RECOMMENDATIONS

Working Group: Jean-François Tanguay, MD, CSPQ, FRCP(C), FACC, FAHA, FESC; Michael P. Love, MB, ChB, MD, MRCP; and Robert C. Welsh, MD, FRCP, FACC
Antiplatelet Therapy for Secondary Prevention in the First Year Following Percutaneous Coronary Intervention

1. Indefinite therapy with ASA 75-162 mg daily should be used in all patients with acute or chronic ischemic heart disease without contraindications to its therapy (Class I, Level A). This includes patients who have undergone PCI.

2. All patients who have undergone PCI with bare-metal stent (BMS) implantation should be given clopidogrel 75 mg daily in addition to ASA 75-162 mg daily for at least 1 month (Class I, Level B) and up to 12 months in the absence of an excessive risk of bleeding (Class I, Level B) after stent implantation.

3. For patients with recent bleeding or at increased risk for bleeding, a BMS should be implanted and clopidogrel 75 mg daily should be added to ASA 75-162 mg daily for a minimum of 2 weeks (Class I, Level B).

4. All patients who have undergone PCI with DES implantation should be given clopidogrel 75 mg daily in addition to ASA 75-162 mg daily for 12 months (Class I, Level A).
Antiplatelet Therapy for Secondary Prevention in the First Year Following Percutaneous Coronary Intervention

5. Continuation of dual antiplatelet therapy with ASA 75-162 mg daily and clopidogrel 75 mg daily beyond 1 year may be considered in patients with an increased risk of stent thrombosis as long as the perceived risk of bleeding is deemed acceptable (Class IIb, Level C).

6. For patients with ACS who undergo stent implantation and have an increased risk of stent thrombosis (eg, STEMI, history of diabetes mellitus, or prior documented stent thrombosis), prasugrel 10 mg daily may be considered in addition to ASA 75-162 mg daily for 12 months (Class IIa, Level B). Prasugrel should be avoided in patients with an increased bleeding risk, likely to undergo CABG within 7 days, with a history of stroke or TIA, aged ≥75 years, or weight <60 kg (Class III, Level B).

7. For patients with ACS who undergo stent implantation, ticagrelor 90 mg twice daily may be added to ASA 75-162 mg daily for 12 months (Class I, Level B).
Antiplatelet Therapy for Secondary Prevention Beyond 1 Year Following Acute Coronary Syndrome or Percutaneous Coronary Intervention

RECOMMENDATIONS

Working Group: Anil Gupta, MD, FRCPC and Pierre Théroux, MD, FRCPC
1. For all patients with ACS who survive to hospital discharge, indefinite therapy with low-dose ASA (75-162 mg daily) is recommended (Class I, Level A).

2. For patients allergic to or intolerant of ASA, indefinite therapy with clopidogrel 75 mg daily is recommended (Class IIa, Level B).

3. Dual antiplatelet therapy with ASA 75-162 mg daily and clopidogrel 75 mg daily may be considered beyond 1 year in patients with ACS (see post-ACS recommendations) who are medically managed provided the risk of bleeding is low (Class IIb, Level C).

4. For all post-PCI patients, indefinite therapy with ASA 75-162 mg daily is recommended, regardless of type of stent (Class I, Level A).

5. Dual antiplatelet therapy with ASA 75-162 mg daily and clopidogrel 75 mg daily may be considered beyond 1 year in patients with ACS who receive a BMS or DES provided their risk of bleeding is low (Class IIb, Level C).
Antiplatelet Therapy for Secondary Prevention Following Coronary Artery Bypass Grafting

RECOMMENDATIONS

Working Group: Raymond Cartier, MD, FRCS
Antiplatelet Therapy for Secondary Prevention Following Coronary Artery Bypass Grafting

1. For all patients who undergo saphenous vein CABG surgery, ASA 75-162 mg daily is recommended as lifelong therapy unless contraindicated (Class I, Level A). ASA should be initiated within 24 hours of surgery completion (Class IIa, Level B).

2. For all patients who undergo saphenous vein CABG surgery and have a contraindication to ASA, clopidogrel 75 mg daily is preferred over ticlopidine 250 mg twice daily due to the superior safety profile of clopidogrel (Class IIa, Level C).

3. In patients undergoing CABG after PCI, dual antiplatelet therapy with ASA 75-162 mg daily and clopidogrel 75 mg daily may be maintained for 9-12 months unless the stented vessel is adequately bypassed (Class IIb, Level C).
Antiplatelet Therapy for the Secondary Prevention of Cerebrovascular Disease

RECOMMENDATIONS

Working Group: Ashfaq Shuaib, MD, FRCP and Philip Teal, MD, FRCP
1. Patients who suffer a TIA or ischemic stroke of noncardiac origin should be treated with an antiplatelet agent (Class I, Level A). Initial therapy should be ASA 75-162 mg once daily, clopidogrel 75 mg once daily, or ER-dipyridamole 200 mg twice daily plus ASA 25 mg twice daily (Class I, Level A). The choice of antiplatelet therapy regimen is determined by consideration of cost, tolerance, and other associated vascular conditions. Available data does not allow for differentiation of antiplatelet regimen by specific stroke subtype (Class IIb, Level C).

2. The combination of ASA 75-162 mg daily plus clopidogrel 75 mg daily in the first month after TIA or minor ischemic stroke may be superior to aspirin alone in patients not at a high risk of bleeding (Class IIb, Level C).

3. The combination of ASA 75-162 mg daily plus clopidogrel 75 mg daily should not be used for secondary stroke prevention beyond 1 month unless otherwise indicated and the risk of bleeding is low (Class III, Level B).
Antiplatelet Therapy for Vascular Prevention in Patients with Peripheral Arterial Disease

RECOMMENDATIONS

Working Group: André Roussin, MD and Thomas F. Lindsay, MD, CM, FRCSC
Antiplatelet Therapy for Vascular Prevention in Patients with Peripheral Arterial Disease

1. For patients with asymptomatic PAD with an ABI <0.9, low-dose ASA (75-162 mg daily) may be considered for those at high risk because of associated atherosclerotic risk factors in the absence of risk factors for bleeding (Class IIb, Level C).

2. For patients with symptomatic PAD without overt CAD or cerebrovascular disease, low-dose ASA (75-162 mg daily) or clopidogrel 75 mg daily is recommended providing the risk for bleeding is low (Class IIb, Level B). The choice of drug may depend on patient preference and cost considerations.

3. For patients allergic or intolerant to ASA, use of clopidogrel is suggested (Class IIa, Level B).

4. For patients with intermittent claudication, dipyridamole should not be used in addition to ASA (Class III, Level C).

5. For patients with intermittent claudication, using clopidogrel 75 mg daily in addition to ASA 75-162 mg daily is not recommended unless the patient is judged to be at high vascular risk along with a low risk of bleeding (Class IIb, Level B).
Antiplatelet Therapy for Vascular Prevention in Patients with Peripheral Arterial Disease

6. For patients with symptomatic PAD with overt CAD or cerebrovascular disease, antiplatelet therapy as indicated for the CAD and/or cerebrovascular status is recommended (Class I, Level A).

7. For patients with symptomatic PAD without compelling indications for oral anticoagulation such as atrial fibrillation or venous thromboembolism, oral anticoagulation should not be added to antiplatelet therapy (Class III, Level B).

8. For patients with symptomatic PAD with an indication for oral anticoagulation such as atrial fibrillation, venous thromboembolism, heart failure or mechanical valves, antiplatelet therapy should not be added to oral anticoagulation (Class III, Level A).

9. Long-term antiplatelet therapy with ASA 75-162 mg daily should be given to patients who undergo lower-extremity balloon angioplasty with or without stenting for chronic symptomatic PAD (Class IIa, Level C). Anticoagulation with heparin or vitamin K antagonists should be avoided in this setting (Class III, Level B).
10. For all infrainguinal reconstructions, low-dose ASA (75-162 mg daily) should be given (Class IIa, Level B). In those with infrainguinal grafts and a high risk of thrombosis or limb loss, combination therapy with a vitamin K antagonist and ASA may be of benefit (Class IIb, Level C).

11. Low-dose ASA (75-162 mg daily) may be considered for all patients with an AAA, particularly those with clinical or subclinical PAD (Class IIb, Level C).
Antiplatelet Therapy for the Primary Prevention of Vascular Events

RECOMMENDATIONS

Working Group: Alan D. Bell, MD, CCFP and James D. Douketis, MD, FRCP
Antiplatelet Therapy for the Primary Prevention of Vascular Events

1. For men and women without evidence of manifest vascular disease, the use of ASA at any dose is not recommend for routine use to prevent ischemic vascular events (Class III, Level A).

2. For men and women without evidence of manifest vascular disease, the use of clopidogrel 75 mg daily plus ASA at any dose is not recommended to prevent ischemic vascular events (Class III, Level B).

3. In special circumstances in men and women without evidence of manifest vascular disease in whom vascular risk is considered high and bleeding risk low, ASA 75-162 mg daily may be considered (Class IIb, Level C).
Antiplatelet Therapy in Patients with Diabetes

RECOMMENDATIONS

Working Group: Maria E. Kraw, MD, FRCP and Rémi Rabasa-Lhoret, MD, PhD
Antiplatelet Therapy in Patients with Diabetes

1. There is currently no evidence to recommend routine use of ASA at any dose for the primary prevention of vascular ischemic events in patients with diabetes (Class III, Level A).

2. For patients with diabetes aged more than 40 years and at low risk for major bleeding, low-dose ASA (75-162 mg daily) may be considered for primary prevention in patients with other cardiovascular risk factors for which its benefits are established (Class IIb, Level B).

3. Low-dose ASA therapy (75-162 mg daily) may be considered for secondary prevention in patients with diabetes and manifest vascular disease for which its benefits are established (Class I, Level A).

4. Clopidogrel 75 mg daily may be considered for secondary prevention in patients with diabetes who are unable to tolerate ASA (Class IIa, Level B).
Antiplatelet Therapy in Patients with Heart Failure

RECOMMENDATIONS

Working Group: Alan D. Bell, MD, CCPF and James D. Douketis, MD, FRCP
Antiplatelet Therapy in Patients with Heart Failure

1. For individuals with HF of ischemic etiology, antiplatelet therapy should be dictated by the underlying CAD (Class IIa, Level A).

2. For individuals with HF of nonischemic etiology, routine use of antiplatelet agents is not recommended (Class III, Level C).

3. Low-dose ASA (75-162 mg daily) and an ACE inhibitor in combination may be considered for patients with HF where an indication for both drugs exists (Class IIa, Level B).
Antiplatelet Therapy in Patients with Chronic Kidney Disease

RECOMMENDATIONS

Working Group: Neesh Pannu, MD, SM, FRCP and Alan D. Bell, MD, CCFP
**Antiplatelet Therapy in Patients with Chronic Kidney Disease**

1. ASA 75-162 mg daily may be considered for primary prevention of ischemic vascular events in patients with ESRD and a low risk of bleeding (Class IIb, Level C).

2. Antiplatelet therapy should be considered for secondary prevention in patients with CKD and manifest vascular disease for which its benefits are established (Class IIa, Level C).
Antiplatelet Therapy in Women who are Pregnant or Breastfeeding

RECOMMENDATIONS

Working Group: Wee Shian Chan, MD, FRCP


**Antiplatelet Therapy in Women who are Pregnant or Breastfeeding**

1. For cardio- or cerebrovascular disease in which antiplatelet therapy would be indicated in non-pregnant women, there should be similar considerations for its use in pregnancy (Class IIa, Level A).

2. Low-dose ASA (75-162 mg daily) is likely safe for use during the first trimester of pregnancy (Class IIa, Level A). Low-dose ASA can be used safely during the second and third trimester of pregnancy (Class I, Level of Evidence A).

3. Use of antiplatelet agents other than low-dose ASA for cardio- or cerebrovascular indications during pregnancy should only be considered if maternal benefits clearly outweigh potential fetal risks (Class IIb, Level C).

4. Low-dose ASA (75-162 mg daily) may be considered for use in breastfeeding women (Class I, Level C). Use of agents other than low-dose ASA by breastfeeding mothers should only be considered after weighing maternal benefits with potential risks for the newborn (Class IIb, Level C).
Management of Patients on Antiplatelet Therapy who Require a Surgical or other Invasive Procedure

RECOMMENDATIONS

Working Group: James D. Douketis, MD, FRCPC and A. Graham Turpie, MD
Management of Patients on Antiplatelet Therapy who Require a Surgical or other Invasive Procedure

1. Patients who are receiving ASA and undergoing a diagnostic test associated with a low risk for bleeding may continue ASA without interruption, whereas patients undergoing a noncardiac procedure associated with a high risk for bleeding should discontinue ASA 7-10 days before the procedure (Class IIa, Level C). Patients who are receiving ASA and clopidogrel should discontinue clopidogrel 7-10 days before the procedure if it can be done so safely (Class IIb, Level C); ASA should also be discontinued before diagnostic tests associated with a high risk for bleeding (Class IIa, Level C).

2. Whenever possible, elective surgery in patients receiving ASA and clopidogrel secondary to coronary stent implantation should be deferred for at least 6 weeks after BMS placement and at least 12 months after DES placement (Class I, Level B).
Management of Patients on Antiplatelet Therapy who Require a Surgical or other Invasive Procedure

3. For patients who are receiving ASA and clopidogrel for a BMS and require urgent surgery within 6 weeks of placement, ASA and clopidogrel should be continued in the perioperative period (Class I, Level B). For patients who are receiving ASA and clopidogrel for a DES and require urgent surgery within 12 months of placement, ASA and clopidogrel should be continued in the perioperative period (Class I, Level B).

4. Patients who are receiving ASA and are to have arthrocentesis may continue ASA through the time of the procedure (Class IIb, Level C). Patients who are receiving ASA and clopidogrel should discontinue clopidogrel 7-10 days before the procedure if it can be done safely (Class IIb, Level C).

5. Patients who are receiving ASA and are undergoing a minor dental, eye or skin procedure/surgery may continue ASA around the time of the procedure (Class IIa, Level A). Patients who are receiving ASA and clopidogrel should discontinue clopidogrel 7-10 days before the procedure if it can be done safely (Class IIa, Level C).
6. Patients who are receiving ASA and require elective non-cardiac surgery should discontinue ASA 7-10 days prior to surgery if the risk for cardiovascular events is low but continue therapy if cardiovascular risk is high (Class IIa, Level B). Patients who are receiving ASA and clopidogrel, who are likely to be at high cardiovascular risk, should continue ASA up to surgery (Class IIa, Level C) but discontinue clopidogrel 7-10 days before surgery if it can be done so safely (Class IIb, Level C).

7. Patients who are receiving ASA and require CABG should continue ASA up to the time of surgery (Class I, Level B). Patients who are receiving ASA and clopidogrel should continue ASA until the time of surgery but discontinue clopidogrel at least 5 days before surgery (Class I, Level B).
Management of Antiplatelet Therapy in Association with Minor Bleeding

RECOMMENDATIONS

Working Group: James D. Douketis, MD, FRCPC and A. Graham Turpie, MD
Management of Antiplatelet Therapy in Association with Minor Bleeding

1. Patients who are receiving ASA or ASA and clopidogrel and develop ecchymosis and petechiae should undergo testing with a complete blood count and international normalized ratio (INR) and activated partial thromboplastin time (aPTT) monitoring to investigate for thrombocytopenia or a coagulopathy (Class IIa, Level C). In the absence of superimposed abnormalities in haemostatic function, antiplatelet drugs can be continued with clinical observation, whereas in patients with thrombocytopenia or a coagulopathy, ASA (or clopidogrel) should be stopped pending further investigations (Class IIa, Level C).

2. Patients who are receiving ASA or ASA and clopidogrel in whom there is excessive bleeding after a dental procedure should receive application of local pressure and/or use of tranexamic acid mouthwash 2-4 times daily for 1-2 days (Class IIa, Level C).

3. Patients who are receiving ASA or ASA and clopidogrel in whom subconjunctival bleeding develops should continue treatment and be monitored for bleeding (Class IIa, Level C).
Combination Therapy with Warfarin and ASA: When to Use, When to Consider, When to Avoid

RECOMMENDATIONS

Working Group: James D. Douketis, MD, FRCPC and A. Graham Turpie, MD
# Combination Therapy with Warfarin and ASA: When to Use, When to Consider, When to Avoid

1. In patients with a mechanical prosthetic heart valve, combination warfarin (target INR, 2.0-3.0) and ASA 75-162 mg daily should be considered, especially in patients with any mechanical mitral valve or in patients with an older caged-ball or bileaflet mechanical aortic valve (Class IIa, Level A).

2. In patients who have a clinical indication for long-term warfarin and develop an ACS that is treated with medical therapy alone, combination warfarin (target INR, 2.0-3.0)/ASA (75-162 mg daily) therapy is reasonable for up to 12 weeks, at which time ASA may be withdrawn if there are no further cardiac events (Class IIb, Level C).
Interaction between Clopidogrel and Proton Pump Inhibitors

RECOMMENDATIONS

Working Group: Wee Shian Chan, MD, FRCP and Alan D. Bell, MD, CCFP
Interaction between Clopidogrel and Proton Pump Inhibitors

- The pharmacodynamic interaction between clopidogrel and PPIs and the initial findings from observational studies suggested an increased risk of cardiovascular events in concomitant users of clopidogrel and PPIs. Recently published data from a randomized clinical trial suggest that this risk is likely clinically insignificant. Nevertheless, because of potential limitations with study design and patients recruited, PPIs that minimally inhibit CYP2C19 are preferred for patients taking clopidogrel who are considered to be at increased risk of upper gastrointestinal bleeding (Class IIb, Level of Evidence B).
Interaction between Acetylsalicylic Acid and Nonsteroidal Anti-inflammatory Drugs

RECOMMENDATIONS

Working Group: Alan D. Bell, MD, CCFP and Wee Shian Chan, MD, FRCP
Interaction between Acetylsalicylic Acid and Nonsteroidal Anti-inflammatory Drugs

1. Individuals taking low-dose ASA (75-162 mg daily) for vascular protection should avoid the concomitant use of traditional (non-coxib) NSAIDs (Class III, Level C).

2. If a patient taking low-dose ASA (75-162 mg daily) for vascular protection requires an anti-inflammatory drug, specific cyclooxygenase-2 inhibitors (coxibs) should be chosen over traditional NSAIDS (Class IIb, Level C).

3. Both coxib and traditional NSAIDs increase cardiovascular risk and if possible, should be avoided in patients at risk of ischemic vascular events (Class III, Level A).