Table 1: Study Inclusion and Exclusion Criteria

Inclusion Criteria:	***Reason:***
- Patients undergoing primary multi-vessel CABG with at least two saphenous vein grafts, with or without cardiopulmonary bypass	- The population of clinical interest
Preoperative Exclusion Criteria:	***Reason:***
- Emergency surgery	- Unable to obtain consent
- Valve surgery	- Requirement of postoperative anticoagulation
- Redo CABG	- Higher risk of postoperative bleeding and low cardiac output syndrome
- Left ventricle ejection fraction <25%	- Higher risk of postoperative low cardiac output syndrome and mortality
- Serum creatinine >130 μmol/L	- Contraindication to use of postoperative angiography
- Preoperative use of clopidogrel (with the exception of the current admission)	- Contraindication to randomization, confounding of results
- Preoperative use of warfarin	- Requirement of postoperative anticoagulation
- Allergy to aspirin or clopidogrel	- Contraindication to use of aspirin or clopidogrel
- History of cerebrovascular accident	- Concurrent indication for clopidogrel
- History of severe liver disease	- Contraindication to use of clopidogrel
- Morbid obesity	- Unable to perform postoperative angiography
- Residence outside of Ottawa region	- Unable to perform postoperative angiography
- Current malignancy	- Higher risk of early postoperative mortality
- Inability to provide informed consent	- Ineligible for research study enrollment
Postoperative Exclusion Criteria:	***Reason:***
- Low cardiac output syndrome with inotropic support for greater than 24 hours	- Unstable patient unlikely to benefit from treatment
- Recurrent ventricular arrhythmias	- Unstable patient unlikely to benefit from treatment
- Intubation for more than 24 hours	- Unstable patient unlikely to benefit from treatment
- Postoperative bleeding or cardiac tamponade requiring surgical exploration	- Contraindication to use of clopidogrel
- Postoperative gastrointestinal bleeding	- Contraindication to use of clopidogrel
- Postoperative warfarin requirement	- Contraindication to use of clopidogrel

severe ischemic left ventricular dysfunction or those undergoing redo-CABG. High-risk patients participating in previous clopidogrel studies have been found to derive an enhanced benefit with the combined treatment of clopidogrel and aspirin [42]. Furthermore, there is no reason to anticipate differences in the pathophysiology of vein graft disease between high risk patients and those of the proposed study group.

Conclusion

Saphenous vein graft disease continues to be a major limitation of surgical revascularization for coronary artery disease. The process of saphenous vein intimal hyperplasia begins just days after surgery, setting the stage for graft atherosclerotic disease and its sequalae. Clopidogrel has been demonstrated to improve outcomes in patients with coronary and vascular disease, and it is effective at reducing intimal hyperplasia in animal models of thrombosis. However, no prospective study to date has been conducted in humans regarding the use of clopidogrel after CABG to prevent vein graft intimal hyperplasia. The CASCADE trial is a randomized, placebo-controlled trial comparing clopidogrel plus aspirin versus aspirin alone in CABG patients revascularized with saphenous vein. The effects of clopidogrel on vein graft intimal hyperplasia will be studied with coronary angiography and intravascular ultrasound one year following CABG.

Abbreviations

CABG – coronary artery bypass graft surgery

CASCADE – Clopidogrel after Surgery for Coronary Artery Disease Trial

CBC – complete blood counts

IVUS – intravascular ultrasound

MI – myocardial infarction

OHI – University of Ottawa Heart Institute

OPCAB – off-pump coronary artery bypass graft surgery