



Canadian Cardiovascular Congress

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Addressing Care Gaps in Acute Coronary Syndromes

Toronto - Morbidity and mortality subsequent to acute coronary syndromes (ACS) have declined substantially with the development of and increasing adherence to evidence-based management practices, but numerous gaps in evidence and ACS care remain. Some of the more prominent issues, relating to risk assessment, timing of intervention, use of medications and long-term follow-up, were examined here. Among the possible systematic steps for improvement are more frequent transfer from community to tertiary hospitals of patients with large infarcts, expanded use of dual antiplatelet therapy, and greater use of cardiac rehabilitation programs.

Toronto – L'élaboration de guides de pratique fondés sur des données probantes et l'observance croissante de ces guides se sont traduites par une diminution substantielle de la morbi-mortalité consécutive aux syndromes coronariens aigus, mais le fossé qui sépare les données probantes de la pratique demeure présent à bien des égards. Les congressistes se sont penchés sur quelques-uns des principaux enjeux, dont l'évaluation du risque, le moment optimal pour intervenir, le recours au traitement médicamenteux et le suivi à long terme. Au nombre des mesures systématiques qui permettraient d'améliorer la situation figurent le transfert plus fréquent des victimes d'un infarctus de grande taille aux établissements de soins tertiaires; la généralisation du double traitement antiplaquettaire; et une utilisation plus importante des programmes de rééducation cardiaque.

By Carol Duthie

Which STEMI Patients to Transfer?

Development of systems of care for STEMI has been a major research focus over the last several years, remarked Dr. Robert Welsh, Associate Professor of Medicine and Co-Director, University of Alberta Chest Pain Program, Edmonton. Ideally, reperfusion with fibrinolysis should occur within 30 minutes of first medical contact; 90 minutes is the recommended maximum delay for primary percutaneous intervention (PCI). However, in many regions of Canada, these benchmarks are not being met and patients who might benefit are not receiving evidence-based treatment. For instance, some 30% of patients with STEMI are not experiencing reperfusion. "Even if you exclude late presenting patients, we still have a major concern in that a large group of patients is lacking appropriate therapy," he added. More than half of Canadian patients for whom mechanical reperfusion is appropriate have a door-to-balloon time exceeding three hours. Prolonged delays approximately double the risk of recurrent ischemia, cardiogenic shock and mortality, and increases hospitalization in acute coronary syndromes (ACS) survivors, Dr. Welsh reminded the audience. "We still have a long way to go to enhance care."

Various systems can be put in place to improve on timing and performance of decision-making and performance of ACS care. One reason for slower action is the delay or failure by ER physicians to perform thorough risk stratification, both initially and on an ongoing basis. The initial stratification process guides early decisions on management, while ongoing risk stratification may dictate the need for rescue PCI. "Patient selection is something that we need to do and we need to do well," Dr. Welsh stressed.

Rescue PCI is safer than repeat lysis or conservative care for patients in whom initial lysis has been ineffective, reducing the risk of negative outcomes by about 50%. In Canada, up to one in four STEMI patients are transferred from a community hospital without cardiac catheterization facilities; this step is a common contributor to treatment delay. Current guidelines indicate that transfer to a tertiary care centre should take place

in patients with high-risk characteristics such as cardiogenic shock, hemodynamically significant arrhythmia, heart failure, and inadequate pharmacologic reperfusion (defined as <50% resolution of ST segment abnormality) within 90 minutes. The TRANSFER-AMI trial (Trial of Routine ANgioplasty and Stenting after Fibrinolysis to Enhance Reperfusion in Acute Myocardial Infarction (Cantor et al. American College of Cardiology Annual Scientific Session, Chicago, March/April 2008) suggested that in addition, any patient with a significant territory of MI on initial ECG should be transferred for angiography and PCI. This study compared a "pharmacoinvasive" approach involving patient transfer for PCI within six hours after tenecteplase with standard management involving rescue PCI if fibrinolysis failed/suggested PCI after successful medical therapy. All patients received antiplatelets (ASA +/- clopidogrel) and an antithrombin (heparin or enoxaparin). With PCI typically performed within about three hours, the pharmacoinvasively treated patients were significantly less likely to experience the composite end point of death, repeat MI, heart failure, severe recurrent ischemia or shock at 30 days (10.6% vs. 16.6%, $P=0.0013$). These results were primarily driven by clear reductions in reinfarction and recurrent ischemia. "I think these are very important results," Dr. Welsh remarked. Final rates of PCI were 84% (performed two to four hours after fibrinolysis) and 62% (mean, 27 hours) in the two groups; bleeding rates were not different. Six-month data from TRANSFER-AMI will be presented here on Wednesday.

Adjunctive Therapies

Antithrombotic and antiplatelet therapies are considered crucial for most patients with ACS, irrespective of the management strategy selected. Current ACC/AHA guidelines for STEMI note that anticoagulant therapy should continue for at least 48 hours and preferably for the entire duration of the patient's hospitalization for the ACS, up to eight days. Along with ASA, 75 mg/day clopidogrel should be given for at least 14 days and for up to one year depending on stent placement and type. In

NSTEMI, a 300-mg loading dose of clopidogrel is followed by daily maintenance dosing for up to one year.

In an organized debate on the relative importance of these classes as adjunctive therapy to reperfusion, Dr. Jean-François Tanguay, Professor of Medicine, Université de Montréal, Quebec, and Senior Research Scientist, Institut de cardiologie de Montréal, noted that since the landmark ISIS-2 (Second International Study of Infarct Survival) trial, antiplatelet therapy has become a cornerstone in reperfusion therapy, along with fibrinolysis. "We need to think about platelet activation, adhesion and activation... the baseline phenomenon here is ruptured plaque, platelet activation and secretion," he remarked.

Dr. Shaun Goodman, Associate Professor of Medicine, University of Toronto, Ontario, and Associate Head of Cardiology, St. Michael's Hospital, countered that thrombin is the greatest stimulator of platelet activation, and that while ASA and clopidogrel will block thromboxane and ADP receptors, respectively, anticoagulant therapies are even more potent antiplatelet agents. If a decision must be made, he suggested, anticoagulant therapy is superior for establishing infarct artery patency and reduces mortality even in the absence of antiplatelet therapy, he concluded.

Debating arguments aside, Dr. Goodman stated, "I think dual antiplatelet therapy is pivotal in almost all ACS patients, at least intermediate- to high-risk patients. We have evidence now that in addition to ASA, all patients should receive clopidogrel in STEMI, whether they do or don't get reperfused... In patients who get fibrinolysis, we have to be a little more careful with the dosing, but [dual antiplatelet therapy] should be given across the board."

Dr. Tanguay agreed. "The guidelines recognize that... dual antiplatelet therapy plus a very safe and good antithrombin agent [are] what give the best result for the patient – making sure he has the best chance of reperfusion without vessel re-occlusion and not having a bleed."

Higher Dose, Better Effect?

The international CURRENT/OASIS-7 trial (Clopidogrel Optimal Loading Dose Usage to Reduce Recurrent Events/Optimal Antiplatelet Strategy for Interventions) is addressing the question whether a 600-mg loading dose of clopidogrel followed by 150 mg/day for one week, then standard 75-mg daily dosing, will offer additional efficacy over a 300-mg bolus/75-mg daily oral dose for patients with STEMI or UA/NSTEMI. In addition, it will allow further clarification of the optimal dose of ASA, Dr. Tanguay noted. The trial is recruiting patients with either STEMI or NSTEMI who are

scheduled for early invasive therapy. "Small studies suggest a benefit [of the 600-mg dose], so we will be able to see in a larger population if there is a difference in adding the higher dose."

Dual Therapy Underused

Data presented here (Abstracts 1000, 1004) suggest that despite the strong evidence for dual antiplatelet therapy, clopidogrel is underused. "A number of registries have shown that indeed... there continues to be a gap between those patients who should ideally receive dual antiplatelet therapy and those that are not. This is a challenge for all health care providers. To close the gap, we have to appropriately risk-stratify patients because we often underestimate their risk [and therefore omit clopidogrel from prescribed therapy]. In addition, having a standard protocol in place is crucial when the patient comes in to hospital, during the course of the hospitalization, and again at discharge," Dr. Goodman advised.

Longer-term Care Gaps

Additional care gaps exist in longer-term management of patients with ACS. During the index hospitalization for STEMI, more than one in three patients aged 65 and older are diagnosed with new-onset heart failure, and another 38% develop heart failure in the five years after their MI. Emerging evidence suggests this phenomenon may be more common in patients receiving mechanical reperfusion, and that it will be important to undertake strategies to improve myocardial perfusion following primary PCI, and to minimize no-reflow phenomenon and distal clot embolization. "We have a long way to go to enhance care. This isn't all based on reperfusion, obviously, but maximal medical therapy good treatment secondary prevention and long term risk reduction," remarked Dr. Welsh.

The underuse or lack of availability of cardiac rehabilitation programs involving multiple-risk intervention strategies also constitutes an ACS care gap. According to Dr. Philip Ades, Professor of Medicine, University of Vermont College of Medicine, Burlington, rehabilitation programs lead to a 25% decrease in mortality in the months following an ACS, through various secondary prevention strategies ranging from exercise to optimization of medications. US data suggest that fewer than 20% of eligible patients aged at least 65—the group who have the most to gain—take part in this type of program. Strong encouragement and a computerized discharge/referral sheet from the cardiologist are simple ways to enhance participation, he suggested. □

Based on:

"New Concepts in Acute Coronary Syndromes: Beyond 2000 (XIV)." Sunday, October 26, 2008, 8:00-12:00, Hall G (Level 800).

This symposium is accredited and co-developed as an Accredited Group Learning Activity under Section 1 of the framework of Continuing Professional Development options as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada (RCPSC).

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