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CAPITAL DISTRICT HEALTH AUTHORITY

RESCUE PCI

Protocol

ST Elevation Myocardial Infarction Guidelines Implementation Committee

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Approximately one third of patients with ST elevation myocardial infarction (STEMI) do not reperfuse after thrombolytic therapy. The outcome of these patients can be improved with rapid transfer to a centre where cardiac catheterization, percutaneous intervention (PCI) and cardiac surgery can be performed in a timely manner. This document provides guidelines for rapid transfer of eligible patients to QEII Health Sciences Centre for prompt revascularization.



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ST Elevation Myocardial Infarction Guidelines **Implementation Committee**

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Introduction

Studies involving thrombolytic therapy in the treatment of ST elevation myocardial infarction (STEMI) suggest that approximately 25-30% of patients do not reperfuse after receiving thrombolytic therapy for the ST elevation myocardial infarction¹⁻². These patients are considered high risk by virtue of no reperfusion. Several studies have clearly demonstrated that such individuals have a higher mortality and morbidity compared to those who reperfuse effectively³⁻⁴.

There are several markers for the lack of reperfusion post thrombolytic therapy and these include: continuing chest pain, lack of resolution of ST-segment-elevation, and delayed peak in cardiac enzymes. One of the more reliable markers of lack of reperfusion post thrombolytic therapy is lack of resolution of ST-segment-elevation by 50% at 90 minutes post thrombolytic therapy³. Patients with lack of ST- segment resolution by 50% at 90 minutes after thrombolytic therapy benefit most from early rescue PCI⁵⁻⁸.

The total number of STEMI in the province of Nova Scotia is approximately 725 per year. Of these approximately 285 are in CDHA. Approximately 25-30% of STEMI patients do not receive thrombolytics due to various reasons. 25-30% of people do not reperfuse post thrombolytic therapy. Therefore the projected number of patients requiring Rescue PCI from outside CDHA is approximately 110-130 per year

The Nova Scotia Guidelines for Acute Coronary Syndromes (Cardiovascular Health Nova Scotia 2008) mandate a provision of rescue PCI to these patients from throughout the province. QEII receives requests for rescue PCI from various areas in the province and there are variable practices in triage and transfer of these patients to the Cardiac Catheterization Laboratory and the Coronary Care Unit at the QEII. In order to streamline the process of rescue PCI for patients in Nova Scotia a step wise approach is proposed.

Eligibility Criteria

Patients with following criteria should be considered for an immediate transfer to QE II Health Sciences Centre for early revascularization unless contraindicated

- Patients with STEMI presenting within 12 hours of the onset of symptoms and having received a thrombolytic agent



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- **Lack of ST-segment resolution**
 - Electrocardiogram at 90 minutes post thrombolytic therapy showing persistent ST segment elevation i.e., less than 50% reduction in ST segment elevation in the lead showing the greatest ST-segment elevation measured at the isoelectric line with or without chest discomfort
- These patients should be considered for transfer to the Halifax Infirmary for rescue PCI unless contraindicated.

Contraindications to Rescue PCI

- Terminal co-morbidities limiting lifespan to < 1 year
- Severe Dementia

Important considerations

- Prior history of Coronary Artery Bypass Graft Surgery
- Significant peripheral vascular disease
- Aspirin allergy or inability to tolerate dual antiplatelet therapy

It is important to note that these conditions if present should be communicated to the triage/interventional cardiologist at the QE II Health Sciences Centre.

Where to call

- Outcomes in patients undergoing Rescue PCI are also time dependent and require an early transfer to the Cardiac Catheterization Laboratory. In order to facilitate the early transfer the referring physician should contact the triage/interventional* cardiologist on-call (**473 2220**) at 90 minutes post thrombolytic therapy when there is lack of significant (<50%) resolution of ST-segments, ongoing/recurrent chest pain, or when patient is hemodynamically unstable.

Land or Air Transfer

- The decision to transfer the patient via ground or Life Flight should be made after a discussion between the referring physician, the triage/interventional* cardiologist (**473 2220**) and the Life Flight physician



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(1 800 743 1334). This will place things into perspective for emergency resources of the EHSNS interfacility transport system for the province.

- Once the decision is made regarding the transfer of the patient this should be implemented promptly and in doing so the triage/interventional* cardiologist should be informed by the EHSNS dispatch centre regarding the expected time of arrival of the patient at the Halifax Infirmary.

Guidelines for considering Life Flight

Please consider transporting patients using Life Flight if the following criterion exists. In all other situations consider ground transport with an ACP (Advanced Care Paramedic) or a Critical care nurse or a physician to save transfer time.

Physiologic Criteria: Persistent hypotension requiring fluids or ionotropes, Hypoxemia, Significant Brady or Tachy arrhythmias, and in patients requiring intubation and mechanical ventilation.

Logistic Criteria: If the out of hospital time (Load to Unload time from referring centre to QEII HSC) is greater than 120 minutes.

Communication between EHSNS and Cardiologist on call

- The EHSNS Dispatch Centre (Tel: **832 7040**) will provide a report regarding patient's condition to the triage/interventional* cardiologist when ambulance/life flight are 40-60 minutes away from the Halifax Infirmary.
- If the patient is unstable (i.e., persistent pain, ST elevation, hypotension, significant arrhythmia) then the triage/interventional* cardiologist will activate Cardiac Catheterization Laboratory call staff to ensure the Cardiac Catheterization laboratory is ready to receive the patient.
- On the other hand if the patient is stable then he/she should be transferred to CCU and the cardiology senior resident will evaluate the patient and discuss the patient with interventional/triage cardiologist.
- For stable patients (i.e., lack of chest discomfort, resolution of ST segment elevation, stable heart rate and blood pressure) the decision to perform PCI rests with the interventional cardiologist on call.



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Bed Management at QE II Health Sciences Centre

- It will be the responsibility of the triage/interventional* cardiologist to request a bed in the Coronary Care Unit, inform the Cardiology Senior Resident and the Coronary Care Unit Charge Nurse regarding the patient. Bed Manager's office (Tel: **473 6571**) will facilitate this process during the regular working hours (Mon-Fri, 0800-15:30 hrs)
- If bed is not available on all cardiac units then all efforts should be made to accommodate that patient in CCU by transferring a stable patient out of the Coronary Care Unit to another unit and in turn moving another stable patient off-service from other units.
- Rescue PCI will not be refused for the lack of availability of the bed alone. All efforts will be made to ensure that non-availability of a bed does not delay the transfer of patients to the QEII Cardiac Catheterization Laboratory.

Repatriation

- More than 2000 patients are transferred to different cardiac units at the QE II Health Sciences Centre from various health districts in the province
- Number of beds available to cardiology are limited and appropriate turnover of patients is necessary to accommodate the referred patients in a timely manner
- Therefore to run an efficient rescue PCI program it is of prime importance that all referring hospitals agree to **repatriate** the stable patients within 24-hours of PCI procedure for further recuperation. This will help in continuing the good flow of patients through the Coronary Care Unit and cardiac catheterization laboratory. The efficiency of this service will be seriously compromised if timely repatriation does not occur.

**** Call triage cardiologist during regular working hours Mon-Fri 0800-1730 hrs (except holidays)***

Call interventional cardiologist after 1730 hours on working days, and on holidays and weekends



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