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Validation of the RETRIEVE (REverse TRIage EVEnts) Criteria for Same Day Return of Non-ST Elevation Acute Coronary Syndrome Patients to Referring Non-PCI Centres

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Background

There are continuing bed constraints in percutaneous coronary intervention centres (PCI) so efficient patient triage from referral hospitals is pivotal. To evaluate a strategy of PCI centre (PCIC) bed-sparing we examined return of patients to referral hospitals screened by the RETRIEVE (REverse TRIage EVEnts) criteria and validated its use as a tool for screening suitability for same day transfer of non-ST-elevation acute coronary syndrome (NSTEMI) patients post PCI to their referring non-PCI centre (NPCIC).

Methods

From May 2008 to May 2011, 433 NSTEMI patients were prospectively screened for suitability for same day transfer back to the referring hospital at the completion of PCI. Of these patients, 212 were excluded from same day transfer using the RETRIEVE criteria and 221 patients met the RETRIEVE criteria and were transferred back to their NPCIC.

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Results

Over the study period, 218 patients (98.6%) had no major adverse events. The primary endpoint (death, arrhythmia, myocardial infarction, major bleeding event, cerebrovascular accident, major vascular site complication, or requirement for return to the PCIC) was seen in only three transferred patients (1.4%).

Conclusions

The RETRIEVE criteria can be used successfully to identify NSTEMI patients suitable for transfer back to NPCIC following PCI. Same day transfer to a NPCIC using the RETRIEVE criteria was associated with very low rates of major complications or repeat transfer and appears to be as safe as routine overnight observation in a PCIC.

Keywords

Systems of care • Same day transfer • Percutaneous coronary intervention • Hospital over-crowding
• Bed block • Acute coronary syndrome

Introduction

Systems of care, efficient resource use, and evidence driven management of hospital transfer have the potential to affect both the morbidity and mortality of our patients. Hospital overcrowding, referred to as “access block” or “bed block”, prevents timely access to ward admission and specialist care, and is associated with adverse patient outcomes, increased costs, prolonged hospital length of stay, and in some studies increased mortality [1–6]. A growing appreciation of the importance of systems of care has been seen in medical literature in recent years. Protocols and algorithms to facilitate timely safe care and transfer for interventional procedures have become increasingly important. Same day discharge for elective percutaneous intervention in stable patients has been used for 16 years in selected patients in many hospitals [7–9]. Same day discharge is not recommended for patients with acute coronary syndromes (ACS). European Society of Cardiology (ESC) guidelines recommend hospitalisation for at least 24 hours post percutaneous coronary intervention (PCI) in non-ST elevation acute coronary syndrome (NSTEMI) patients, but do not comment on appropriateness of transfer to non-PCI centre (NPCIC), nor do American Heart Association (AHA) guidelines [10–13]. Our purpose in this study was to validate the criteria used within our institutions to identify patients suitable for same day transfer back to their referring hospitals following in-hospital PCI for NSTEMI.

Methods

The study group consisted of 433 patients screened for suitability for same day transfer back to the referring hospital using the Reverse Triage Events study (RETRIEVE) criteria. Two hospitals within the South West Sydney Hospital Network were included in this study. The PCI-centre (PCIC), Liverpool Hospital, is a large tertiary referral teaching hospital, with four cardiac catheterisation laboratories. The referring hospital, Campbelltown Hospital, had no cardiac catheterisation facility at that time. All patients referred from the NPCIC who subsequently underwent PCI were screened using RETRIEVE criteria. The primary endpoint for this study was survival free from major adverse events, death, arrhythmia, myocardial infarction, major bleeding, cerebrovascular accident, major vascular site complication, or

symptoms suspicious for the above endpoints mandating transfer to a tertiary hospital for observation or investigation. Patients were enrolled from May 2008 to May 2011. This work was a quality project guided by the state-wide Essentials of Care Program (EOC) and, as such, granted approval under this program and the NSW principles of Practice Development (PD).

RETRIEVE Criteria

The RETRIEVE criteria were developed following review of available published literature regarding safe transfer or discharge following PCI. Interventional cardiologists and non-interventional cardiologists from both institutions were involved with the development of the protocol. Senior nursing staff were consulted in the review of the final protocol prior to application of the criteria and protocol.

Table 1 shows the RETRIEVE criteria in detail. Patients were transferred if eligible following screening with the

Table 1 The RETRIEVE Criteria.

The RETRIEVE Criteria
1. Haemodynamically stable post procedure
2. Angiographically successful PCI
3. Absence of coronary dissection
4. Absence of coronary perforation
5. No major arrhythmias
6. No major bleeding
7. No anaphylaxis
8. No new neurological event
9. *Arterial closure device successfully deployed
Patients excluded where:
10. Procedural indication primary PCI for STEMI
11. Procedural indication rescue PCI
12. Complex PCI performed
13. Proceduralist discretion
14. Coronary artery bypass grafting recommended
15. *Glycoprotein IIb/IIIa inhibitor use

Abbreviations: PCI = Percutaneous intervention; STEMI = ST elevation myocardial infarction.

*Criteria 9 and 15 were removed in Phase 2 of this study from Jan 2009 to June 2011.

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