Use of an Accelerated Diagnostic Protocol in the assessment of Emergency Department patients with possible Acute Coronary Syndrome

Cullen L1, George, T2, Parsonage W1, Larsen P2, Coverdale, S3, Ashover S1, Bilesky J1, Bailey K2, Boulton B3, Gibson J2, Currie J4
1 Royal Brisbane and Women’s Hospital, Queensland, Australia, 2 Nambour General Hospital, Queensland, Australia, 3 Sunshine Coast Clinical School, 4 Clinical Access Redesign Unit, Queensland Health, Australia.

Background: Assessment of possible cardiac chest pain presents a constant challenge to emergency physicians.1 Despite up to 85% of those presenting with chest pain eventually being diagnosed with non-cardiac causes, they account for 6-10% of all ED presentations, an estimated at 500,000 per annum in Australia.2 Current risk stratification guidelines for possible ACS dictate extended ED stays (>6-8 hours) or admission for diagnostic workup. A lengthy ED stay is at odds with National Emergency Access Targets (NEAT), which (with interim targets) mandate that by 2015, 90% of patients presenting to a public ED are to leave the ED for home, admission or transfer within 4 hours.

Recently published high level evidence has shown safe and effective use of accelerated diagnostic protocols (ADPs) to assess patients with possible ACS.3 With evidence suggesting the translation of research findings into clinical practice traditionally takes around 17 years4, this project set out to fast track the process.

Aim: To implement an ADP for assessment of patients with undifferentiated chest pain at a pilot site to improve NEAT compliance and shorten the traditional cycle of evidence – guideline – clinical practice in a manner acceptable to patients and staff.

Methods: The existing chest pain guidelines at Nambour General Hospital ED were modified to incorporate a pathway termed SLIC (Short Low Intermediate risk Chest pain). Patients directed along this pathway were discharged from the ED for an outpatient exercise stress test (EST) and then followed up by telephone at 30 days to monitor outcomes and safety. Documents detailing follow-up instructions and a letter to provide to their GP were given on discharge. Data was extracted from Emergency Department Information Systems (EDIS), the database used throughout QLD Health. Outcomes and patient satisfaction were determined from follow up telephone contact.

Results:

Chest Pain Presentations: Over seven months (Jul 2012 - Jan 2013) there were 1,762 chest pain presentations to NGH, of which 214 (12%) were designated SLIC. State-wide modification of EDIS diagnostic codes in mid October 2012 enabled exclusion of patients presenting with chest pain that was not potentially cardiac in nature (figure 1). In the following three months approximately 13% of all chest pain, and 19% of ‘possible cardiac chest pain’ presentations were designated SLIC.

ED Length of Stay (LOS): The average ED LOS for SLIC patients was significantly shorter than for non-SLIC and for chest pain presentations as a whole (figure 2). Comparing the most recent six months (Aug 2012 – Jan 2013) to the six months immediately before implementation of ACRE (December 2011 – May 2012) the average ED LOS for all chest pain presentations had fallen from 425 to 344 minutes. While not all attributable to SLIC, this represents an average reduction of 81 minutes, when multiplied by 1,762 chest pain presentations over this time equates to 99 days of ED time saved.

Patient Outcomes: Patient follow-up was achieved in 195 (91%) of SLIC patients, none of whom reported a major adverse cardiac event (MACE) [Acute myocardial infarction, urgent revascularization or death]. Two patients were diagnosed with coronary artery disease and managed medically and two patients were diagnosed with pericarditis.

NEAT Data: The majority of patients presenting to ED with chest pain are triaged as category 2 (‘imminently life threatening’). Figure 3 compares SLIC patients to all category 2 presentations over the seven months (July 2012 – January 2013). NEAT performance of SLIC patients exceeded all other category 2 presentations. SLIC patients make up a proportion of both the admitted (when admitted to short stay unit) and discharged groups.

Limitations: This trial set out to implement existing published research findings into clinical practice and assess outcomes, rather than investigate a research hypothesis. This should be taken into consideration when interpreting results. Follow up was not able to be completed in all patients on the SLIC pathway and it is possible a MACE in this group could have been missed.

Conclusion: Given the encouraging results at the pilot site, the clinical redesign will be extended to other Queensland Health hospitals over the next 12 months.

References:

5. Stoll Morris Z, Wooding S, Grant J. The answer is 17 years, what is the question: understanding time lags in translational research. J R Soc Med. 2011; 104:510-520

Figure 1: Distribution of chest pain presentations to Nambour General Hospital ED (1 Nov 2012 – 31 Jan 2013): (a) All chest pain (b) Possible cardiac chest pain

Figure 2: Average ED LOS at NGH for All chest pain, SLIC and non-SLIC patients from July 2012 to January 2013

Figure 3: NEAT data (% ED LOS ≤ 4 hours) for all category 2 patients compared to SLIC between July 2012 and January 2013

Figure 4: SLIC patient satisfaction scores (1 ‘very dissatisfied’ – 10 ‘very satisfied’)

Notes: This trial is funded by a grant from the Queensland Health Priority Health Research Program. SLIC patients presenting with chest pain are triaged as category 2. SLIC is not an acronym. SLIC was developed as a practical tool to assist clinicians with the assessment of patients presenting with undifferentiated chest pain. The authors report no conflicts of interest.