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Use of a High Sensitivity Troponin T Assay in the Assessment and Disposition of Patients Attending a Tertiary Australian Emergency Department
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Objective: To examine the disposition and outcomes of patients presenting to the emergency department with symptoms suggestive of acute coronary syndrome undergoing measurement of high sensitivity troponin-T (HsTnT).

Methods and results: HsTn-T was measured in 2738 consecutive patients (mean age = 61 [±19] years, 52% male) presenting to the emergency department with symptoms suggestive of an acute coronary syndrome. Overall, 1567 patients predominantly had chest pain, 290 had dyspnoea, and the remainder had a variety of symptoms. Overall, 1089 patients had an Hs-TnT>14 ng/L (upper reference limit), of whom, 376 were admitted to the cardiology service (344 had a final cardiac diagnosis [44 ST-elevation myocardial infarction (STEMI), 62 Non-STEMI, 23 unstable angina, and 215 other cardiac disorders]). Among these 1089 patients, 581 had an eGFR <60 mL/min/1.73 m2, 191 had heart failure, and 124 had sepsis. At 30-days, death rates among patients who had HsTnT levels(s) >14 ng/L with non-cardiac diagnoses and in patients who had ≥1 HsTnT >14ng/L with a cardiac diagnosis were 6.7% and 4.8% (p = 0.204), while hospital death rates among those with a final ACS, non-ACS cardiac and non-cardiac diagnoses were 7.5%, 3.8% and 6.6% (p = 0.153); among patients with normal HsTnT levels, 4 (0.3%) non-cardiac deaths were reported. At late follow-up (median 16 months) that was obtained in 2450 (89.5% of 2738) patients, 32 had myocardial infarction and 253 died (45 cardiac deaths).

Conclusions: The majority of unselected consecutive patients attending emergency department in whom HsTnT levels were elevated did not have an acute coronary syndrome, suggesting chronic myocardial injury, most of whom were admitted to a non-cardiology service.

Key Words: acute coronary syndrome, chest pain, emergency department; troponin T.

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Using Shear Wave Elastography to Characterise Ischaemic Contracture in Rodent Hearts
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Introduction: Shear wave elastography (SWE) quantifies stiffness by measuring the conduction velocity of sound waves through tissue. We hypothesised that SWE would be able to demonstrate global stiffness changes in both warm and cold isolated ischaemic hearts.

Methods:
Part 1
Hearts (n = 8) were explanted from anaesthetised male Sprague Dawley rats (300–400 g). Hearts were flushed with KH and immersed in a 37 °C KH bath. Organs were scanned at regular intervals to determine stiffness over 35 minutes.

Part 2
Rats (n = 14) were anaesthetised, hearts excised and baseline function assessed at 37 °C on a Langendorff apparatus. After 10 minutes, hearts were flushed and stored at 4 °C with either KH (n = 6) or 4 °C STS (n = 8), and scanned for stiffness at regular intervals. Hearts were then reperfused and assessed for function.

Results:
Part 1
Hearts increased in stiffness over 35 mins (p = 0.005). There was a relatively linear increment in stiffness of 0.28 m/sec/min between 13 and 28 minutes. (Fig. 1)

Fig. 1.

Part 2
More hearts recovered rhythmic contraction after STS storage than KH (p = 0.06).

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