ABSTRACTS IN URGENT CARE

- Seasoned Eyes and ECGs
- Comparing ACS Decision Tools
- Does TMACS Stack Up?
- Cluing Patients in on Chest Pain
- Gender Differences in Chest Pain Assessment
- Duration of Chest Pain in Diagnosing MI

■ IVAN KOAY, MBChB, FRNZCUC, MD

When It Comes to Reading ECGs, Experience Counts

Key Point: Advanced practice practitioners (APP) in this study had a level of skill in ECG interpretation equal to first-year EM attendings. These skills could be utilized, potentially, as screening pathways to improve clinical flow of patients in both emergency departments and urgent care facilities.

Citation: Hoang A, Singh A, Singh A. Comparing physicians and experienced advanced practice practitioners on the interpretation of electrocardiograms in the emergency department. *Am J Emerg Med.* 2020;S0735-S6757(20)30047-4.

Relevance: There is an increasing number of APPs (physician assistants and nurse practitioners) who provide healthcare in a variety of urgent care centers and emergency departments. This paper investigates the accuracy of interpretation of electrocardiograms by emergency department attendings, residents, and APPs.

Summary: The authors identified 36 ECGs from previous patients, of whom 24 had a culprit lesion noted on cardiac catheterization. These ECGs were analyzed by ED physicians of various years' experience, from attendings to residents and advanced practitioners. The study found that accuracy in interpreting ECGs improved with increasing years of experience—attendings better at accurately identifying STEMI when compared to junior residents in the emergency program. The APPs in the study with 10 years of experience had interpretation skills equivalent to fourth- and fifth-year residents/first-year attendings.

Limitations: This study was limited by small sample size in a single center. In centers with less experienced APPs, there may be differing results in the interpretation of ECGs. ■

How Do ACS Clinical Decision Rules Stack Up?

Key Point: All the decision tools used in this study were effective in ruling out AMI/ACS in >90% of subjects. T-MACS appears to be the more sensitive tool for use in ruling out AMI in patients presenting with chest pain, while EDACS was the most efficient tool to allow early discharge. Interestingly, the HEART score, which is perhaps the most widely used, was the least sensitive.

Citation: Body R, Morris N, Reynard C, Collinson PO. Comparison of four decision aids for the early diagnosis of acute coronary syndromes in the emergency department. *Emerg Med J.* 2020;37(1):8–13.

Relevance: There are a variety of risk-stratifying tools to help with the decision-making process for patients presenting with acute chest pain to UC and the ED. This paper compares the accuracy of four commonly used decision tools. Having a reliable risk-stratifying tool helps in the decision-making process when assessing patients presenting with chest pain.

Summary: The authors directly compared four presently available and frequently used clinical decision tools for chest pain risk stratification–TMACS (Troponin-only Manchester Acute Coronary Syndromes), HEART (History, ECG, Age, Risk factors, Troponin), TIMI (Thrombolysis in Myocardial Infarction) and EDACS (Emergency Department Assessment of Chest Pain). This was a multicentered study looking at 999 patients assessed in emergency departments and using the four tools to rule out acute myocardial infarction (AMI) in them. Results showed that the TMAC tool was the most accurate with the ability to rule out AMI in 99.2% of patients and the HEART the least accurate with a rule out rate 91.8% of patient. EDACS was the most efficient tool used to discharge patients from the emergency department.

Ivan Koay, MBChB, FRNZCUC, MD, is an urgent care physician presently working in Dublin, Ireland and is an Examiner for the Royal New Zealand College of Urgent Care.

"The findings suggest that in rural areas and centers where laboratory testing is not available, POC testing is suitable for risk stratification of very-low-risk patients with chest pain using the T-MACS tool."

Limitations: There were large numbers of exclusions from the study due to missing data, particularly in the patients who were stratified with the HEART scoring tool. The authors state that these omissions did not invalidate the data when performing the comparisons. ■

Assessing T-MACS as an Aid in Assessing Low-Risk Chest Pain Patients

Key Point: The T-MACS POC algorithm may be a useful tool in identifying low-risk chest pain patients suitable for early discharge.

Citation: Alghamdi A, Reynard C, Morris N, et al. Diagnostic accuracy of the troponin-only Manchester acute coronary syndromes (T-MACS) decision aid with a point-of-care cardiac troponin assay. *Emerg Med J.* 2020;37(4):223–228.

Relevance: Point-of-care (POC) testing can be useful as an aid for risk stratification where formal laboratory assays may not be available.

Summary: The authors used the Troponin-Only Manchester Acute Coronary Syndrome (T-MACS) decision tool for chest pain risk stratification. In this study, 396 adults >18 years were enrolled (n=396) and stratified as very-low, low-, moderate-, or high-risk. POC testing was done for the very-low and low-risk patients, and serial troponins for the moderate- and high-risk patients deemed to require more investigation. Using the T-MACS system, the study was able to risk stratify 35.4% of patients to be suitable for early discharge. When serial laboratory troponin testing was done at 3 hours, the POC test performed equally as well as the laboratory test to allow for appropriate discharge to be performed safely. These findings suggest that in rural areas and centers where laboratory testing is not available, POC testing is suitable for risk stratification of very-low-risk patients with chest pain using the T-MACS tool. The algorithm accurately rules out patients for ACS in 99.2% of cases.

Limitations: The study had small numbers enrolled, which the authors acknowledge. The study used a specific POC testing kit. There is no discussion about the reliability of other POC kits in the marketplace. ■

Keep Patients in the Loop About How We Evaluate Chest Pain

Key point: Effective communication regarding pathways and results of testing is an important factor in reassuring patients with chest pain.

Citation: Ferry AV, Strachan FE, Steward SD, et al. Exploring patient experience of chest pain before and after implementation of an early rule-out pathway for myocardial infarction: a qualitative study. *Ann Emerg Med.* 2020;75(4):502-513.

Relevance: Rapid rule-out pathways have been established in EDs to enable safe discharge for patients deemed low risk for ACS. This paper assesses the perceptions of patients regarding the implementation of such pathways. Understanding patients' perceptions enables better communication between clinicians and patients.

Summary: This study was a subset study of a larger prospective investigation of an early rule-out pathway in treating patients presenting with chest pain. The authors recruited patients from a wide age range within the larger study. These patients were interviewed 1 week after discharge. Common threads emerged from these interviews:
- Patients rarely presented to the ED without having already had contact with another healthcare provider. This made the patient believe that their presentation was serious.
- There was a disparity between the clinician's interpretation of the troponin results and the patient's illness experience. Some patients had ongoing symptoms at the time of the interviews.
- Reassurance about negative testing was better received by the patient if an alternative diagnosis was offered to explain their symptoms.
- There was frustration in some participants about the need for overnight observation, repeat testing, and recounting history to multiple clinicians.
- Participants used the presentation to the ED as an opportunity to consider their future heart health.

Limitations: Patients sampled in this study were from a single center in Scotland and may not represent patients from diverse ethnic populations and differing cultures. Patients' previous ill-

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ness experiences were not taken into consideration by the authors. ■

Does Patient Gender Affect Chest Pain Risk Assessment?

Key point: Gender bias exists when treating patients presenting with atraumatic chest pain. This should be considered when evaluating all patients.

Citation: Mnatzaganian G, Hiller JE, Braitbarg G, et al. Sex disparities in the assessment and outcomes of chest pain presentations in emergency departments. *Heart.* 2020;106(2):111–118.

Relevance: This study sought to determine if there is gender bias in the early management and decision making for female patients presenting to EDs with nontraumatic chest pain. It has been previously shown that women are treated differently than men with similar medical presentations.

Summary: This was a 5-year retrospective study looking at presentations of chest pain at three metropolitan emergency rooms in Melbourne, Australia. The authors found that women were more likely to have longer wait times in the ED, less likely to be triaged as urgent for medical review, less likely to have an urgent triage category by the triage nurse, less likely to be prioritized over men for ICU and CCU admissions, less likely to have troponin testing, and less likely to be reviewed by a physician within 1 hour when compared with men. This could be surprising to some in light of the fact that 90% of ED nurses in the study were female. Greater awareness of gender bias is needed when dealing with female patients presenting with nontraumatic chest pain.

Limitations: There were no data available concerning subsequent management of patients once admitted to hospital or discharged to the community. This paper represents the attitudes of staff in an Australian city, which may not be similar in other areas of the world. ■

Duration of Chest Pain and the Risk for ACS

Key point: There are many different symptoms that lead to a diagnosis of ACS and MACE, especially in the elderly population. Vigilance is needing when assessing patients with chest pain. Chest pain lasting <1 minute or >24 hours is unlikely to be due to AMI.

Citation: Zitek T, Chen E, Gonzalez-Ibarra A, Wire J. The association of chest pain duration and other historical features with major adverse cardiac events. *Am J Emerg Med.* 2020;38(7):1377–1383.

Relevance: History forms a crucial part of the assessment for patients with chest pain. This study investigates the relevance of duration of chest pain in the diagnosis of myocardial infarction. It also aims to determine if other clinical factors could predict whether patients were having a myocardial infarction (MI) or suffering from other major adverse cardiac events (MACE) within 6 weeks. The ability to predict patients having MI or MACE improves the stratification of patients presenting to urgent care with chest pains.

Summary: This was a single-centered, prospective cohort study to investigate whether the duration of chest pain had any relevance to the diagnosis of AMI in patients presenting to the ED. The patients enrolled were asked to describe the symptoms that led to the ED presentation. The symptoms noted were variable and included pain lasting less than 1 min, pain lasting more than 1 hour, pain radiating to back, left and right shoulders, arms, abdomen, neck and throat; describing pressure, sharpness, tightness, pins and needles, tingling; presence of diaphoresis, nausea, vomiting, light-headedness, and cough. The authors found that pain lasting <1 min or >1 hour were unlikely to represent ACS.

Limitations: This was a single-center study that may not be reproducible elsewhere. The participants were highly selected and some types of chest pain (eg, pleuritic) were not included in the study. The authors also conceded that some patients presenting with ACS may not have symptoms of chest pain. ■

Symptoms Leading Patients to Visit the ED:

- Pain lasting less than 1 min
- Pain lasting more than 1 hour
- Pain radiating to back, left, and right shoulders, arms, abdomen, neck, and throat
- Pressure, sharpness, tightness, pins and needles, tingling
- Presence of diaphoresis, nausea, vomiting, light-headedness, and cough