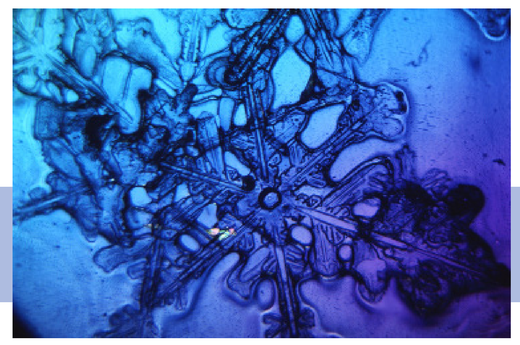
Diagnostic Accuracy of History and Physical Examination for Predicting Major Adverse Cardiac Events in Acute Chest Pain Patients

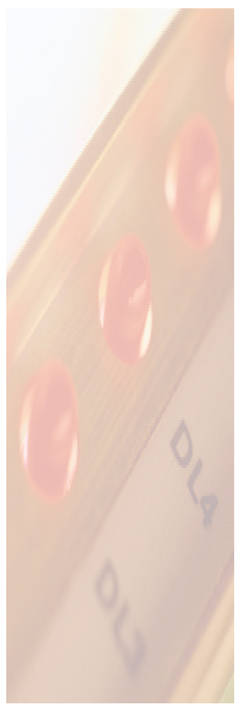


Conclusions

No clinical findings reliably ruled in 30-day MACE, whereas episodic chest pain lasting seconds and pain lasting more than 24 hours virtually ruled out 30-day MACE. Consequently, these two findings can be an important adjunct in ruling out 30-day MACE.

Background

The cornerstones in the assessment of emergency department (ED) patients with suspected acute coronary syndrome (ACS) are the patient history and physical examination, the ECG, and cardiac troponins. However, many aspects of the history and physical examination are not well studied. We evaluated the diagnostic and prognostic accuracy of elements of patient history and the physical examination in ED chest pain patients for predicting major adverse cardiac events (MACE), including ACS, within 30 days.



Methods

This was a prospective observational study. 1167 ED patients with non-traumatic chest pain/discomfort and no STEMI were included. Clinical data were collected by research assistants. The primary outcome was 30-day MACE defined as acute myocardial infarction, unstable angina, cardiac arrest, cardiogenic shock, ventricular arrhythmia or AV-block requiring acute intervention, or death of a cardiac or unknown cause.

Results

Pain radiating to both arms increased the probability of 30-day MACE (positive likelihood ratio; LR+ 2.7), whereas episodic chest pain lasting seconds (LR+ 0.0) and > 24 h (LR+ 0.1) markedly decreased the probability of 30-day MACE. In the physical examination, pulmonary rales (LR+ 3.0) increased the risk of MACE while pain reproduced by palpation (LR+ 0.3) decreased the risk. Among cardiac risk factors, a history of diabetes (LR+ 3.0) and peripheral arterial disease (LR+ 2.7) were the most predictive factors.

Table 1: Value of history and clinical features for predicting 30-day MACE

	Number pf patients (N)i	Positive likelihood ratio (LR +)
Episodic pain lasting seconds	57	0
Pain lasting more than 24 hours	194	0.1
Pain reproduced by palpation	391	0.3
History of diabetes	162	3.0
Pulmonary rales	59	3.0
Pain radiating to both arms	113	2.7

Discussion

Our findings suggest a very low risk for patients with chest pain lasting for seconds and > 24 h, suggesting this finding can be helpful in identifying patients with low risk of 30-day MACE. This has not reliably been shown before.

No clinical findings reliably ruled in 30-day MACE. Pain radiating to both arms was the pain characteristic with the largest impact on MACE likelihood. Physical examination was also important in predicting the risk of MACE.

In contrast to traditional teaching, pain radiating to the left arm, chest pain described as pressure, ongoing chest pain or the presence of cardiovascular risk factors only had a small impact on the likelihood of MACE.

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