The chest pain patient dilemma and discussion for chest pain units

Patients with an acute coronary syndrome (ACS) and ST-segment elevation (STEMI) benefit from immediate revascularization by percutaneous coronary intervention (PCI) or, if such is not readily available, from thrombolytic therapy. Furthermore, some of those without such electrocardiographic (ECG) findings benefit from early revascularization. Therefore, patients with a possible ACS should be assessed immediately to confirm the diagnosis, to initiate medical therapy, and to verify whether ECG findings and subsequent biochemical markers of myocardial necrosis (preferable troponin T or I) warrant invasive therapy. In order to provide a rapid response, different methods of working have been developed: pre-hospital diagnosis of STEMI, chest pain clinics, and fast track at the emergency unit.

When an ambulance is called by the patient, his/her relatives or a physician, a complete 12-lead ECG should be taken to decide whether an ACS with ST elevation is present. This ECG may be interpreted by a physician if present on the ambulance, or by an onsite computer system, as was introduced in Rotterdam in the 1980s. Alternatively, the ECG may be transmitted to a hospital for interpretation by a physician. Patients with STE elevation can be immediately transferred to a hospital with PCI facilities or may receive immediate, pre-hospital thrombolytic therapy.

A chest pain unit, adjacent to the general emergency unit, was introduced in Amsterdam in the 1980s. This principle was subsequently adopted by other hospitals in The Netherlands and abroad. Patients with chest pain and a possible ACS are assessed in this unit and can stay in the chest pain unit for a maximum of a few hours, until a final diagnosis is made, based on ECG, repeat troponin measurements, or other markers of myocardial injury or other investigations as appropriate. Once a diagnosis is confirmed, the patient is either admitted to the appropriate hospital ward or discharged. The chest pain unit is supervised by a cardiologist and managed by a cardiology resident.

In many hospitals worldwide, patients are assessed at the general emergency unit in a hospital. In the emergency unit, a patient may be seen by an emergency physician, an internist, or a cardiologist. Several studies have shown that in patients with ACS, optimal treatment according to guidelines is best provided if a cardiologist is in charge. Nevertheless, other physicians can assume responsibility provided that they comply with the same guidelines, avoiding unnecessary delay of treatment in those patients with evolving myocardial infarction (STEMI). Such delay may be avoided when the nurses are instructed to record an ECG immediately upon arrival of the patient and call for attention if ST elevation or ST depression is apparent. It should be appreciated that patients with STEMI are a minority among those presenting with chest pain or similar symptoms. Accordingly, it is a challenge to differentiate those patients requiring immediate PCI from those with other diagnoses in whom, generally, a longer observation period is warranted. The protocol of the emergency department is crucial to guarantee optimal treatment of patients with chest pain. It should include registration of the admission diagnoses of all patients seen at the unit, with the time from entry to ECG recording and diagnosis. A regular review of such registry will help to optimize patient management.

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