

# GRAND WARD ROUND 1-THE GOLDEN 2 HOURS, Lessons from the grand round for general non-medical public and medical personnel

Author: Dr. Musa Mayayise, Cert. Cardio SA (Phys)

Date of publication: 17/08/2021



The case that was presented in grand ward round (“the grand ward round case”) involved an elderly woman. The facts of the case were as follows: the patient presented in the emergency unit with confusion, vital signs were normal, cardiovascular examination revealed a systolic murmur, which was confirmed as aortic stenosis. ECG showed arrow shaped T-wave inversion laterally (suggestive of ischaemia (inadequate blood flow in a specific area of the heart)). Troponin I was more than 500 times the upper limits of normal.

As it would be explained in detail in this article, elderly women are high-risk for atypical presentation of angina symptoms. Typical angina symptom is chestpain, which was absent in the grand ward round case, where the elderly woman presented signs of confusion.

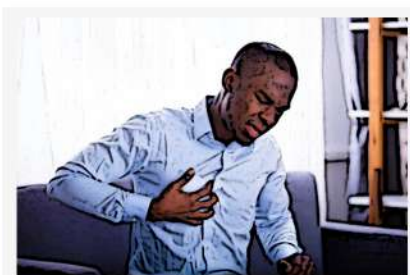
Additional and other possible atypical symptoms of angina are shortness of breath and loss of consciousness, which were not present in the grand round case.

Lessons from a case are as follows:

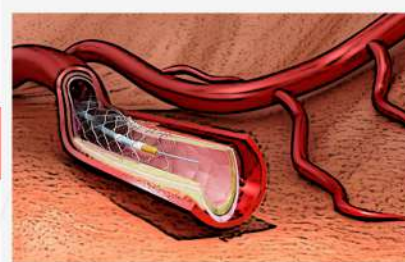
**LESSONS FOR THE NON-MEDICAL** (general public from non-medical background)

Several lessons can be drawn from the grand ward case. The following are the most critical.

1. When a patient experiencing chest pain, calls an ambulance immediately, or present to the nearest emergency department, those preparing and moving the patient to theatre should always bear in mind the golden 2 hours. In terms of the golden 2 hours principle, if coronary artery blockage is relieved within 2 hours of experiencing chest pain, there is more than 80% of lives saved (mortality reduction).
2. After treatment with a coronary stent, the patient needs to continue lifelong treatment as guided by the medical doctor, as this would prevent clotting.



< 2 Hours



## **LESSONS FOR MEDICAL/NURSING PROFESSIONALS**

ANGINA PAIN - According to European Society of Cardiology (ESC) the following features of chest pain typical of acute coronary syndrome (heart attack) are as follows: prolonged >20 minutes angina pain at rest; new onset (de novo) angina (class II or III the Canadian Cardiovascular Society classification; and recent destabilisation of previously stable angina, with at least Canadian Cardiovascular Society Class III angina characteristics (crescendo angina) or Post-MI angina

Atypical symptoms of a heart attack are as follows: Dyspnoea (shortness of breath), syncope (loss of consciousness), or cardiac arrest, weakness, nausea and/or vomiting, palpitations. Diabetics and older patients, especially women are high-risk for presenting with atypical symptoms.

The first and most important investigation in the diagnosis of acute myocardial infarction is ECG. In this regard, ruling out ST-segment elevation on the ECG is the first step in the diagnosis of acute myocardial infarction. This involves conducting repeated ECGs over time. The second step and test in the diagnosis of heart attack (acute myocardial infarction) is a blood test called troponin. Repeated troponin over time are required to diagnose or rule out the diagnosis of acute myocardial infarction. In a patient with ST-segment elevation myocardial infarction, troponin level does not add additional value on the outcome of the test to the patient. Normal troponin level at presentation and 6 hours after the first test rules out acute myocardial infarction in 90% of cases.

Time is of essence in dealing with heart attack. From the onset of chestpain to treatment, which aims to reopen the blood vessels, less than 2 hours is recommended to save more than 80% of lives. Heart muscle is critical to the management of heart attack, so every hour of treatment delay results in more loss of heart muscle and lives.

Delayed treatment leads to mechanical and electrical complications of heart attack. The mechanical complications are as follows: Acute myocardial regurgitation, free-wall rupture and ventricular septum rupture. Electrical complications include: Ventricular tachycardia-arrhythmias in the form of tachycardia and fibrillation. Moreover, complete atrio-ventricular block, complete trio-ventricular block carries a high-mortality risk in acute anterior myocardial infarction, associated with late presentation i.e. more than 12 hours of onset of chest pain, Higher Killip Classification, and mortality. Four (4) classes of Killip exist and these are: Class I, where there are no clinical signs of heart failure; Class II, in which there are rales or crackles in the lungs, manifestation of an S3 gallop, and elevated jugular venous pressure, Class III, which manifests acute pulmonary oedema; and Class IV which presents cardiogenic shock and systolic blood pressure <90mmHg, which is evidence of low cardiac output. Killip classification correlates with mortality of up to 6% in Class I and 70% in Class IV.

Treatment of heart attack (acute myocardial infarction) include immediate administration of medical treatment. The following drugs must be administered immediately i.e. aspirin, beta-blocker, statin, low-molecular weight heparin. Diagnostic angiogram and coronary artery stenting is recommended within 2 hours of onset of chest pain. In cases when there is delay in this specialised treatment, medical treatment i.e. thrombolysis or fibrinolysis need to be administered.

Whatever the treatment administered, the overarching principle is that resolution of problem within 2 hours saves lives in heart attack. Longevity has its place. For this reason, long-term treatment should be considered. This could include smoking cessation, starting an exercise regime and adopting a healthy diet.

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## Contact



**+27 12 440 1045**



**081 726 6654**



**[info@drmayayise.co.za](mailto:info@drmayayise.co.za)**