Causes of raised Troponin T: Testing & Interpretation

Indication for measurement:
- To support Clinical Decision Making and Risk Stratification in ACS in the assessment of patients with suspected ACS
- Use the Troponin Flow Chart to support clinical decision making.
- TnT DOES NOT REPLACE HISTORY, EXAMINATION AND ECG INTERPRETATION

It may also be elevated in Myocardial injury (reversible or irreversible) due to non-coronary disease (see below).

Risk stratification in ACS:
- This assumes coronary artery disease and atheromatous plaque rupture as the underlying aetiology. Treatment is therefore directed at this with antiplatelets and anticoagulants, followed by secondary prevention and usually invasive imaging/intervention.
- A negative troponin result DOES NOT exclude a diagnosis of ACS, but places the patient in a lower risk category. They may still require urgent intervention.
- Confirmation and extent of MI - this is usually due to atheromatous plaque rupture. Consider also embolisation and dissection.
- In STEMI - immediate referral to a catheter laboratory is mandatory. DO NOT WAIT for a Troponin result.

Myocardial injury due to non-coronary disease:
- This is a false positive for ACS in which serum troponin is actually elevated, but due to myocardial stress from other cardiac causes. These include:
  - Myocarditis, arrhythmias, non ischaemic acute LVF, PE, contusion (eg RTA or other trauma), electrocution (including DC cardioversion), infiltrative cardiac disease, etc.
- ACS treatment with antiplatelets and anticoagulants is unhelpful in the absence of atheromatous plaque rupture AND MAY BE CONTRAINDICATED.

Non cardiac diagnosis with severe systemic compromise:
- This is a false positive for ACS in which serum troponin is actually elevated, but due to myocardial stress from serious systemic illness. These include:
  - Sepsis, non-cardiogenic shock, anaemia (e.g. GI bleed), hypoxia, metabolic and endocrine derangement (e.g. renal failure, acidosis, thyrotoxicos, myxoedema), cerebrovascular accidents, etc.
- ACS treatment is CONTRAINDICATED.

Non-ACS causes of raised Troponin remains an adverse prognostic indicator by virtue of the severity of the underlying diagnosis - Admission to an APPROPRIATE high dependency area (often not CCU) saves lives.

Laboratory False Positives / Negatives:
- This is a true false positive where the serum troponin is NOT actually elevated but may be raised due to analytical interfering factors, technical errors or analyser malfunction.
- Analytical interfering factors include: antibodies (RhF, autoantibodies, heterophile antibodies), immunocomplexes, fibrin clots (anticoagulant therapy, coagulopathy), serum bilirubin, haemoglobin, microparticles.