

## CASE 4

**Short case number: 3\_2\_4**

**Category: Cardiovascular**

**Discipline: Medicine**

**Setting: Emergency Department**

**Topic: Coronary artery disease –unstable angina, economic impact of IHD**

### Case

Martin Angus aged 54 years presents with worsening angina. Previously he experienced one episode a month that was rapidly relieved with nitrates. However, he has experienced three episodes in the past week. The most recent episode of chest pain started 1 hour ago and came on at rest. Although relieved by nitrates, he still feels unwell.

### Questions

1. What elements of the history cause most concern?
2. What further history and examination is warranted?
3. What investigations would you order?
4. What is the economic impact of cardiovascular disease in Australia?
5. What interventions have been demonstrated to improve mortality in asymptomatic individuals with risk factors?
6. What interventions have been demonstrated to improve mortality in symptomatic individuals?

### Suggested reading:

- Colledge NR, Walker BR, Ralston SH, Penman ID, editors. Davidson's Principles and Practice of Medicine. 22nd edition. Edinburgh: Churchill Livingstone; 2014. Chapter 18.
- Australian Bureau of Statistics
- National Heart Foundation of Australia

### Advanced Reading

- Chan PS, Nallamothu BK, Gurm HS, Hayward RA, Vijan S. Incremental benefit and cost-effectiveness of high-dose statin therapy in high-risk patients with coronary artery disease. *Circulation*. 115(18):2398-409, 2007 May 8.  
<http://circ.ahajournals.org/content/115/18/2398.long>

## ANSWERS

### 1. What elements of the history cause most concern?

Changes in the frequency of angina

Angina occurring at rest

Ongoing sensation of feeling unwell despite taking nitrates, which previously have relieved pain well.

### 2. What further history and examination is warranted?

Further history must try and ascertain whether this could be a presentation of a myocardial infarction. This includes type and nature of the pain, radiation of the pain, whether there was a change in the pain with the application of the nitrate patch, associated physical symptoms such as breathlessness, light-headedness, nausea, vomiting, sweating, change in the pain with the application of the nitrate patch or a sense of fear or impending doom?

Undertake a physical examination for signs of sympathetic activation i.e. pallor, sweating and tachycardia, or vagal activation i.e. bradycardia and vomiting.

Check for pallor and cool peripheries, pulse (character and rate), blood pressure (hypotension), JVP, character of the apex beat, auscultate for heart sounds (quiet S1, S3) and auscultate the chest for crackles.

### 3. What investigations would you order?

Blood tests (FBC, EUC, LFT, coagulation screen, ESR, C-reactive protein, serial levels of troponins or if this was not available, CK, CKMB)

Serial ECG

Chest x-ray

Fasting blood Glucose, fasting lipid profiles

Echocardiography

### 4. What is the economic impact of cardiovascular disease in Australia?

Despite improvements in survival, cardiovascular disease remains one of the most common causes of mortality and morbidity in Australia.

National Heart Foundation figures quote CVS disease as accounting for 36 per cent of all deaths in Australia in 2004 and responsible for the death of one Australian every ten minutes.

Furthermore, more than 3.5 million Australian are currently diagnosed with heart disease which prevents 1.4 million people from living a full life because of disability caused by the disease.

The Australian Bureau of Statistics reports that in relation to direct health care expenditure, cardiovascular disease is the most expensive health condition, costing 11% or 5.4 billion dollars of the total allocated health system expenditure in 2000-01. Most worryingly, this is predicted to increase as the incidence of cardiovascular disease increases with age and the number of people with cardiovascular disease may increase in the future as the number of older Australians increases.

**5. What interventions have been demonstrated to improve mortality in asymptomatic individuals with risk factors?**

- Moderate to high levels of physical activity
- Cessation of smoking and modification of risk factors (e.g. diabetes, lipid profile, hypertension)

**6. What interventions have been demonstrated to improve mortality in symptomatic individuals?**

- Prescription of statins (whatever the cholesterol is), aspirin, ACE-inhibitors, beta blockers
- Life style modifications such as smoking cessation, weight reduction, increasing physical activity