Takotsubo cardiomyopathy

1. Takotsubo cardiomyopathy

This condition is named after an octopus trap!!

Also called broken heart syndrome, apical ballooning syndrome and stress cardiomyopathy.

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1.1. Why do we need to know about it?

It is being diagnosed more commonly – about 2% of those with an initial ACS diagnosis actually end up with a diagnosis of takotsubo.

1.2. Key facts

- Acute stress (emotional or physical) results in ventricular dilation and LV dysfunction.
- Clinical picture is that of acute MI; however, no coronary artery obstruction is present.
- 90% of cases are in postmenopausal women.
- 95% make a full recovery.

1.3. Physiology

The exact physiology is not understood, but stress (emotional or physical) causes the left ventricle to dilate (usually at the apex), resulting in reduced ejection fraction and acute heart failure. The apical dilatation gives the heart the appearance of octopus traps used in Japan, from which the name 'takotsubo' comes!

It is thought that the adrenergic system drives the changes, although exactly how or why this causes apical ballooning is not clear. However, adrenergic changes are unlikely to be the only cause because:

- Many people experience severe stress without developing takotsubo.
- Takotsubo doesn't occur in those with phaeochromocytoma, where catecholamine levels are often very high.

Some wonder if there may be an element of vascular dysfunction because it

has been noted that both migraine and Raynaud's (which involve vascular dysfunction) are also more common in women.

1.4. Presentation

- Similar to acute myocardial infarction.
    - Symptoms: chest pain, dyspnoea, dizziness, generalised weakness, sometimes syncope.
    - Signs: tachycardia, often lung crackles, hypotension. A systolic ejection murmur may be heard because ventricle ballooning may cause mitral regurgitation. Peripheral oedema is rare.
- Investigations suggest acute MI:
    - ECG changes: ST elevation and T-wave inversion.
    - Biomarkers (troponin, NT-proBNP) rise.
    - **BUT coronary angiogram reveals no blockage.**

In about a quarter, a trigger (stress) is not identified.

Diagnosis is by the specialist, using the Mayo criteria (in brief: transient dyskinesis of left ventricle without evidence of obstructive coronary disease).

1.5. Treatment

- **Treatment is supportive, until left ventricular function returns to normal. In most, this is usually within 21 days.** Some require intensive input, while others have much milder symptoms needing minimal

support.

- Serial echocardiograms are done to monitor recovery.
- Pulmonary oedema is treated with vasodilators (e.g. GTN) and diuretics.
- ACE inhibitors/ARBs and beta-blockers are often used to reduce cardiac load and control hypertension (if present).
- Mineralocorticoid receptor antagonists (e.g. spironolactone) may be used for cardioprotection.
- If there are large areas of ventricular hypokinesis, anticoagulation is used.

1.6. Prognosis, recurrence and mortality

- 95% return to normal cardiac function within a few weeks.
- Hospital mortality is around 5%, mainly from haemodynamic instability. Men are more at risk of death than women, as are those with atrial fibrillation (although this is thought to be due to haemodynamic instability and reduced ejection fraction rather than thromboembolic events).
- In 7% of people with takotsubo, a major CV event (CVA, MI) occurs in the first 30 days after diagnosis.
- The risk of recurrence is about 1.5%/year, with a cumulative incidence of about 5% in the first 6 years.
    - ACE inhibitors/ARBs may reduce the risk of recurrence (mixed data from trials).
    - Beta-blockers probably don't reduce the risk of recurrence.

1.7. What does this mean in practice?

- We will never diagnose this in primary care!
- If a patient is discharged from hospital with takotsubo cardiomyopathy, remember that their coronary arteries are normal by definition so aspirin/clopidogrel/statins are not required. Some may be on ACE inhibitors/beta-blockers: the hospital should advise how long these should be continued for.
- Don't forget to exclude them from CHD for QOF!

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- A secondary care diagnosis!
- Remember, this is not coronary disease so aspirin/clopidogrel/statins are not indicated.