HEART MURMURS

Ivor Gerber and Arthur Coverdale
In asymptomatic adults -

1. Are systolic murmurs in asymptomatic adults important?
2. If not, are there exceptions?
3. When is referral necessary?
4. Is echocardiography usually appropriate?
5. Are prophylactic antibiotics required for dental procedures?
ANTIBIOTIC PROPHYLAXIS
FOR (invasive) DENTAL PROCEDURES

BSAC guidelines 2006
- previous IE
- prosthetic valves
- surgically constructed shunts/conduits

ACC/AHA guidelines 2008
- prosthetic valves (or prosthetic material for valve repair)
- congenital heart disease (qualifications)
- HTX with valve regurgitation 2º structurally abnormal valve

NICE guidelines 2008
not recommended (but accept that certain groups at increased risk – e.g. acquired valve disease, prosthetic valves, CHD, previous IE, HCM)

NHF/CSANZ NZ guidelines 2008
- prosthetic valves
- rheumatic valve disease
- previous IE
- unrepaired cyanotic CHD
- surgical or catheter repair of CHD (within 6/12)
National Guidelines for systolic murmurs in asymptomatic patients - 2004

Grade 1-2/6
- Listen again > 1 month later
- ECG
- CXR
- Reassure if normal

Grade 3-6/6
- Refer

Pan or late systolic
- Refer

www.electiveservices.govt.nz
Potential difficulties in implementation

- Poor auscultatory skills of doctors well-documented
- Recognition of a ‘Grade 3/6 murmur’
- Most systolic murmurs < Grade 3/6
- 2 x visits recommended for most patients
- ECG and CXR + interpretation
- Echocardiography resources
345 asymptomatic patients
20% (71 out of 345) asymptomatic patients had significant lesions requiring F/U

Targeted echo in ~ 50% of all patients
Thickened aortic valve leaflets
70 patients

Systolic murmurs due to Ao valve lesions

- Mean age (range)
  - 61.4 (15-83)
  - 67.3 (31-84)
  - 68.7 (39-87)

- Patients
  - <2.5: 48*
  - 2.5-2.9: 10
  - >3.0: 12

- Thrill: 1

- EDM only: 2 patients
- Mosaic valve: 1 patient

*5 patients < 30 yrs
Case History

Mr G - age 68
Mr G - age 68

Referral:
“Thank you for seeing Mr G
- pansystolic murmur – needs echocardiogram”
- “occasional palpitations. Loud PSM loudest at apex but radiates across sternum. ECG normal. Discussed lifestyle issues and stress management”
- Cycles regularly, fit and well
Examination

• ‘Rough’ 2-3/6 mid-systolic murmur at aortic area, radiating to base of neck and apex
• Normal S2 splitting on inspiration
• Normal pulse character

• R waves mildly prominent V4
Targeted echo

- Moderately immobile and thickened aortic valve
- Maximum velocity 3.0m/sec
- Mean aortic gradient 23mmHg
- Normal LV
- No MR

Findings of mild – moderate AS
Comment

• A true ‘pansystolic murmur’ is due to: MR, TR (or VSD)
• MR murmur can also be mistaken for AS, especially due to non-rheumatic causes such as leaflet prolapse or flail leaflet
• AS murmur can transmit well to the apex
• MR murmur can transmit well to the base
• Radiation to the carotids is not specific
Comment

• The intensity of an AS or MR murmur is not always indicative of severity, but a loud murmur is more usually associated with a significant lesion - when LV contractility normal

• A softer and shorter murmur may reflect reduced flow, rather than a less severe lesion

• BUT most murmurs are $\leq$ Grade 3/6
2-year follow-up

- Remains well, cycles daily – including hills
- Grade 3/6 systolic murmur at base
- Splitting of S2 on inspiration is present
- Pulse character ‘virtually normal’
3-year follow-up

- On day of clinic, tightness in chest on jogging to catch transport, felt ‘dizzy’
- Grade 3/6 systolic murmur
- No audible inspiratory splitting of S2
- A2 softer
- Pulse character mildly anacrotic
- Subtle ECG changes cf. 3 years ago
## Echoes

<table>
<thead>
<tr>
<th></th>
<th>AoV mean grad (mmHg)</th>
<th>AVA (cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial visit</strong></td>
<td>23</td>
<td>-</td>
</tr>
<tr>
<td><strong>At 2 years</strong></td>
<td>48</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>At 3 years</strong></td>
<td>47</td>
<td>0.9</td>
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</tbody>
</table>

[normal coronary arteries]

(* onset of symptoms)
Main points

• Systolic murmurs are common – although prevalence uncertain
• Many are ‘soft’, ‘innocent’ and of no importance or apparent significance - but with some exceptions
• Patient anxiety may drive investigations
• ‘Moderately loud’ systolic murmurs are not very common. **Best to refer**
• MR murmurs may indicate MV prolapse, rheumatic valve disease, dilated LV, HF or ischaemia. **Best to refer**
• Aortic ‘sclerosis’ in elderly is common – does not require regular F/U while asymptomatic
• Prophylactic antibiotics are generally no longer recommended (except artificial valves, RHD, etc)