To revascularise or not to revascularise that is the question...

Dr Oliver Watson
St8 Sheffield Teaching Hospitals Foundation Trust
BSH Presentation 24th Nov 2017
Case – IW  4.7.17

- 61yr Male
- 3/52 progressive dyspnoea
- SOB & dizziness on climbing stairs & getting dressed
  - NYHA 3
- Oedema to above knees

- 6/12 gradual SOB, prior walked for miles
- No PND or orthopnoea
- No CP, syncope or palpitations
Additional history

- **PMHx**
  - Fractured Hip 2016

- **SHx**
  - Postman now in depot sorting
  - 20 cigarettes/day 45yrs
  - 40-50 Units alcohol/wk

- **DHx**
  - Nil

- **FHx**
  - Son Congenital AS
Sheffield – City of 7 Hills - all steep!
Examination

- Anxious
- (68kg, 178cm, BMI 21.2)
- 115/80mmHg
- P 79 SR
- JVP 6cm
- Quiet PSM at left sternal edge of MR
- Bi-basal crepitation on auscultation
- Pitting oedema to above knee bilaterally
<table>
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<tr>
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**Comments:**

- RBBB
- LAD
- RAD

**Device:**

- Speed: 25 mm/sec
- Limb: 10 mm/mV
- Chest: 10.0 mm/mV

**Requested By:** GP
**Technician:** BH
Blood tests

- Hb 143 g/L
- WCC 8.9
- Platelets (Plt) 129
- PT 13
- APTT 32.4

- Sodium (Na) 123
- Potassium (K) 4.4
- Urea (Ur) 1.2
- Creatinine (Cr) 53

- Alanine Transaminase (ALT) 35
- Albumin (Alb) 35
- Bilirubin (Billi) 18

- Thyroid Stimulating Hormone (TSH) 2.6 mIU/L

- N-Terminal Pro BNP (NT Pro BNP) 20,654 pg/ml
Echo findings

- Severe Global LV systolic impairment EF (Simpsons Bi-plane EF 16%)
- Dilated EDD 64mm
- RV moderate impairment
  - Mild dilatation
- Bi-atrial dilatation
- No valve dysfunction
What investigations would be requested for the patient?
Initial assessment & management

- PTWR - Dx –DCM uncertain cause
- Frusemide 40mg IV BD
- Daily weights & fluid balance
- Bisoprolol 1.25mg PO OD
- Ramipril 1.25mg PO OD
- Spironolactone 12.5mg OD
- Left Heart catheter
<table>
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<tr>
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<tr>
<td>6/17/22</td>
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<td>12:45 PM</td>
<td>25 m.</td>
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<td>SF 12x4</td>
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Diagram:
- Label: 95, 100, 190, 90, 300, 240
- Text: Caliber 3VD
- Notes: Consider patient needs, if not normal, negative.
MRI scan – day 6 (10.7.17)
MRI scan – day 6 (10.7.17)
Progress

- Dizziness limits up-titration of drugs despite discontinuing Benzodiazepines
- BP fell 80/57 on initial triple therapy
  - Ramipril 1.25mg OD, Bisoprolol 2.5mg, Spironolactone 12.5mg
- 4-5 episodes of 10-15bt of NSVT on telemetry
- Discussion with surgeon for IP CABG
- Seen by HF nurses for early clinic F/U at D/C
  - Advised Alcohol abstinence and to stop smoking
- 8-9 pints Stella Artois 4d/wk only 2-3pints on nights – 108-136 units/wk
Lifestyle advice for the patient?
The association between alcohol intake and the risk of developing de novo HF is U-shaped, with the lowest risk with modest alcohol consumption (up to 7 drinks/week). Greater alcohol intake may trigger the development of toxic cardiomyopathy, and when present, complete abstention from alcohol is recommended.
Natural History and Prognostic Factors in Alcoholic Cardiomyopathy

Gonzalo Gómez-López, MD, PhD, MSc, MBA
Marta Corella, MD
Manuel Pujol, MD, PhD
Pablo Costas, MD, PhD
Josep Llonch, MD, PhD

Figure 4: Changes in Left Ventricular Ejection Fraction in ACM

Comparison between left ventricular ejection fraction at baseline and at last follow-up according to alcohol consumption in patients with alcoholic cardiomyopathy (ACM).
Discussions with CT Surgeon

- Good graft targets
- LV and RV function a serious concern
- Is IP PCI an option? Discuss at MDT
Discussions with CT Surgeon

- Good graft targets
- LV and RV function a serious concern
- Is IP PCI an option? Discuss at MDT

Complex surgical MDT
- PCI challenging due to Ca^{++} but unable to open RCA
- CABG – very high risk STS mortality 5.25% (Mort & Morb 32%) Euroscore 4.25%, real risk felt higher due RV dysfunction.
- May be mixed aetiology not just ischaemia driven LVSD
- Medical therapy and reassess for early revascularisation & ICD
HFSN F/U clinic

- Making excellent progress – No dizziness but tired
- BP 117/68mmHg, P68, Lungs clear - NYHA 2
- 7d monitor no VT/NSVT
- Under 1/2 mile on flat but slow & full flight of stairs
- No alcohol or cigarettes since admission

- Frusemide 40mg OD
- Bisoprolol 2.5mg OD, Ramipril 2.5mg OD, Spironolactone 25mg OD,
- Atorvastatin 40mg OD, Aspirin 75mg OD
Discussion with patient about CABG surgery

- LV function improved with abstinence and drug treatment
  - Still plenty of scope for increased drug treatment
- No indication for device therapy given function
- Patient terrified of prospect of surgery – won’t wake up

- “Do I need surgery if my heart is better?”
- “Will I die if I don’t have surgery?”
Ischaemia testing – Myoview
BSH expert MDT questions

- What role for revascularisation now with HF in context of improvement?
Revascularisation in Heart Failure

2014 ESC/EACTS Guidelines on myocardial revascularization

The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

Recommendations on revascularizations in patients with chronic heart failure and systolic LV dysfunction (ejection fraction ≤ 35%)

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
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<tr>
<td>CABG is recommended for patients with significant LM stenosis and LM equivalent with proximal stenosis of both LAD and LCx.</td>
<td>I</td>
<td>C</td>
<td>-</td>
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<tr>
<td>CABG is recommended for patients with significant LAD artery stenosis and multivessel disease to reduce death and hospitalization for cardiovascular causes.</td>
<td>I</td>
<td>B</td>
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- CABG with surgical ventricular restoration may be considered in patients with scarred LAD.

- Myocardial revascularization should be considered in the presence of viable myocardium.

- Should be considered in patients with a large LV aneurysm, if there is a risk of rupture, large thrombus formation or the aneurysm is the origin of arrhythmias.
Revascularisation in Heart failure

2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure

The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC)
Revascularisation in Heart failure

- Recommendation for revascularisation in HF is based on expert opinion (level B/C)
- STICH trial, CABG is recommended in patients with HFrEF, significant CAD and LVEF ≤35% to reduce death and hospitalization for cardiovascular causes.
- Viability assessment not a proven strategy but >10% viability may help guide revascularisation
Coronary-Artery Bypass Surgery in Patients with Ischemic Cardiomyopathy
10yr F/U of 1212 pt with LVSD EF<35%

Initial 5yr analysis showed no benefit for CABG over OMT but 10yr analysis suggests benefit

High initial surgical risk 3-4 fold increase mortality

40% only received 1 or 2 grafts

Benefit greater for younger patients
Progress update

- Had “agreed” reluctantly to meet with a surgeon to discuss CABG
- HF nurse follow up to titrate medical therapy
- Managing hills in Sheffield, “a bit slower”
- NYHA 1
- 5 months of stability and forward progress
- Stopped smoking, no alcohol,
- Returning to work
Summary

- Simple management in heart failure often very effective
- “High risk” coronary anatomy not always the aetiology
- Early CABG has significant upfront mortality in HF patients
  - Potentially delayed mortality benefit in younger patients.
- CABG benefits not certain in our patient given improved EF
- Alcoholic CM has potential for dramatic & early recovery
- Limitations to the evidence base and guidelines in this field
Thank you

ANY QUESTIONS?