HeFSSA Practitioners Program 2015
Theme - Women and Heart Failure

08:00 - 08:20  Registration & Breakfast
08:20 - 08:25  Welcome and Thank You to Sponsors
08:25 - 08:30  HeFSSA smartphone patient app (video)
08:30 - 09:15  Implantable devices, women and heart failure
09:15 - 10:00  Peri-partum cardiomyopathy
10:00 - 10:30  Tea Break
10:30 - 11:15  Hypertension in pregnancy
11:15 - 11:45  Elderly women with Heart Failure
11:45 - 12:00  Questionnaire
12:00  Departure
CASE STUDY:
Implantable devices, women and heart failure
Mrs V.M. – presents in June 2012

• 50 years old
• Diabetic for 9 years, on metformin 500 mg daily
• Hypertensive for 5 years on Telmisartan 80 mg daily
• Hypothyroid on 200 ug thyroxine
• Brother died aged 43 from MI, father at 60 from MI
• Non smoker
• Total cholesterol 5, HDL 1.2 and LDL 3.7 mmol/l
• Presents in heart failure with no history of chest pain
BP 107/80; Pulse rate 100 beats per min and regular; tachypnoeic on undressing, JVP raised 6cm, bilateral pedal oedema, cool peripheries

LV apex displaced and myopathic, S3 left sided gallop, 2/6 MRSM

Dull R base of lung, diminished vocal resonance

CXR – CTR 60%, ULBD, R pleural effusion

ECG – next slide

Echo – dilated LV (76 mm), EF 16%, LA 58mm, E/A 1.33, DT 80 ms, IVC 32 mm and non collapsing, PAP 55 mmHg, mild mitral regurgitation, dyskinetic anterior LV wall, with a contracting infero - posterior wall

Creat 59, Na 134, GGT 62, TB 22, hsTT 16, HbA1C 10.5%, TSH 0.17
Options- medicine/revascularisation/devices?

- Rest
- Fluid restriction
- Diuretic – furosemide iv bolus/infusion
  - Symptoms related to volume expansion and congestion are far more common than symptoms due to low cardiac output
  - Dyspnoea often improves significantly within hours

- Should the “big 3” be administered concurrently?
- Is there a need for urgent/semi urgent coronary angiogram?
- Should a statin be administered?
- Should a resynchronisation device be implanted on this admission?
- Should an implantable defibrillator be implanted on this admission?
- Are criteria for men requiring devices the same for women?
- Do women benefit equally from implantable devices in heart failure?
Introduction of prognostic drugs – The big 3

• Usually within 24-48 hrs after admission ACEI, MRA and beta blocker can be started in low doses and gradually up titrated
• All 3 are often started simultaneously, encourages compliance on discharge
• An approach is to use 25 mg spironolactone/eplerenone, start low dose ACEI – enalapril 2.5 mg bd (ramipril 1.25 mg bd; lisinopril 2.5 mg daily) and carvedilol 3.125 mg bd or bisoprolol 1.25 mg daily and often up titrate the beta blocker before maximising the ACEI dose- not all on same admission but with close OPD follow up
• The diuretic dose can and should be reduced as up-titration of the “big 3” continue, with fluid restriction
• The first priority is to treat the symptoms of the patient and start and up-titrate the “big 3”
• If resting ischaemia/ACS is diagnosed, urgent coronary angiography is advised
• If the patient is symptomatic of angina then early (on the first admission) coronary angiography is advised
• In a stable patient, responding to standard heart failure care, but the CAD suspicion remains, then elective coronary angiography is suggested with or without viability testing
• CT coronary angiography may be a good first alternative to screen for CAD and allow planning of subsequent revascularisation options
• The risk/benefit of CABG in asymptomatic CHF patients and no viability shown on tests remains uncertain
• Cut off levels appear to be > 10% viability offers a possible greater likelihood of benefit from revascularisation, but unproven
• The final choice: CABG or PCI
  • The attending cardiologist/physician/CT surgeon
  • Important considerations is age/possibility of complete revascularisation/co-morbidities/associated valvular disease

• In this patient, considered at high risk for CAD, once improved had coronary angiography performed 18 days later on enalapril, spironolactone, carvedilol and furosemide
ECG 3 weeks later on therapy – 75 beats/minute
Coronary angiogram

- Tight LAD – 2 lesions including proximally
- Tight Circumflex proximally and tight ramus intermedius
- Normal RCA filling the LAD retrograde
- LVEDP = 32 mmHg
- LV ejection fraction 22%
- No viability study as medical aid unsupportive
- Stenting of all 4 stenoses with DES, uncomplicated
The CORONA/GISSI-HF trials compared rosuvastatin 10 mg with placebo in patients with symptomatic heart failure.

- Ischaemic and non-ischaemic heart failure patients were included.
- Both trials showed no reduction in mortality nor morbidity.
- The evidence does NOT support the initiation of statins in most patients with heart failure.

- This diabetic, hypertensive woman, with a TC of 5.4, LDL = 3.3 was placed on atorvastatin 20 mg!
• ESC guidelines imply that only after REACHING maximally tolerated medication
  • ACEI/ARB
  • Beta-blocker
  • MRA
  • And if symptomatic and heart rate above 70 beats/minute – add Ivabradine
  • If the patient is still NYHA FC II-IV and LVEF <35% : consider device therapy
  • If no LBBB and QRS < 120 ms, LVEF<35% - ICD alone
  • If LBBB and QRS prolonged – CRT-P/CRT-D
The ESC guideline indicates that in primary prevention, an ICD is recommended in a patient with symptomatic HF (NYHA FC II-III) and an EF < 35% **despite at least 3 MONTHS of treatment** with “optimal pharmacological therapy” who are expected to survive more than 1 year.

Patient continued and tolerated a maximum of Carvedilol 12.5 mg bd with a heart rate of 75 beat/minute and BP 110/70; Enalapril 5 mg bd and spironolactone 25 mg daily. Ejection fraction remained unchanged following stent implantations. NYHA FC II.
NYHA functional class III and ambulatory class IV heart failure

**LBBB QRS morphology**

- CRT/P/CRT-D is recommended in patients in sinus rhythm with a QRS duration of ≥120 ms, LBBB QRS morphology, and an EF ≤35%, who are expected to survive with good functional status for >1 year, to reduce the risk of HF hospitalization and the risk of premature death.

**NYHA functional class II heart failure**

**LBBB QRS morphology**

- CRT, preferably CRT-D is recommended in patients in sinus rhythm with a QRS duration of ≥130 ms, LBBB QRS morphology, and an EF ≤30%, who are expected to survive for >1 year with good functional status, to reduce the risk of HF hospitalization and the risk of premature death.

**Recommendations**

- **Secondary prevention**
  - An ICD is recommended in a patient with a ventricular arrhythmia causing haemodynamic instability, who is expected to survive for >1 year with good functional status, to reduce the risk of sudden death.

- **Primary prevention**
  - An ICD is recommended in a patient with symptomatic HF (NYHA class II–III) and an EF ≤35% despite ≥3 months of treatment with optimal pharmacological therapy, who is expected to survive for >1 year with good functional status, to reduce the risk of sudden death.
  - (i) Ischaemic aetiology and >40 days after acute myocardial infarction
  - (ii) Non-ischaemic aetiology
Three Dimensional Coronary Sinus Reconstruction

- Ant interventricular vein
- Lateral marginal vein
- Coronary Sinus
- Right Atrium
- Post interventricular vein
• The LV lead proved technically impossible due to anatomic reasons
• Paced RV and RA but paced in VVI back up mode at 50 beats/minute so as not to pace unless significantly bradycardic and ICD programmed for VF only and VT to be monitored
• Presented October with VF and survived a successful “Shock” with 34J, duration 18 secs
• Her family doctor had placed her on cipramil 20 mg, QTC was 602 ms. Cipramil stopped
• Carvedilol uptitrated to 25 mg bd by November and heart rate 69/minute
• After resigning initially, returns to full time employment in June 2013 – a year after first presenting
• ProBNP in January 2014 is 295pg/ml on enalapril 10 mg bd, carvedilol 25 mg bd, spironolactone 25 mg daily, Lasix 40 mg daily and atorvastatin 40 mg daily, aspirin 100 mg daily
• EF unchanged from initial admission!
• Had further ventricular arrhythmias and treated VF episode January 2015 with 35J shock-duration of episode 17 seconds
ECG pre and post CRT-P
18 SECONDS PRIOR TO CARDIOVERSION FROM VF in OCTOBER 2012
ECG November 2012 – heart rate 66 b/min
• The response to CRT-P/D includes reduction in symptoms, improvement in functional capacity, and decrease in hospitalisation and mortality

• Best responders to CRT-P are symptomatic patients, with a LBBB and a QRS duration of 150 ms or more, sinus rhythm and EF< 35%

• Presence of LBBB is key! QRS prolongation alone with no LBBB predicts a non-responder

• Approximately 30% of patients still fail to respond adequately to CRT-P/D therapy

• Untreated patients are often not cared for by cardiology specialists (need DOCTOR level of care awareness)
• **Intra-left ventricular dyssynchrony**: With LBBB, the LV septum contracts first against a non-activated LV free wall followed by the LV free wall contraction when the septum is already relaxed.

• **Inter-ventricular dyssynchrony**: With LBBB, the RV contracts before the LV.

• With RBBB, although there is inter-ventricular dyssynchrony, there is no intra-LV-dyssynchrony.
Women comprise between a quarter to a third of trial or registry patients (underrepresented)

Mortality benefit equal between the sexes, possibly better in women

Fewer women than men undergo ICD implantation for the primary prevention of sudden cardiac death (undertreated), BUT CRT underutilised in both!

Some registries have shown a greater reduction in heart failure hospitalisations in women vs men (women may be greater responders)
  • Women have smaller LV cavities
  • Women more likely to have true LBBB
  • Less ischaemic cardiomyopathy
  • QRS duration > 140 ms in women confers same response as men with QRS > 150 ms
  • Less AF in women
  • Less renal dysfunction in women
NYHA FC I, EMPLOYED FULL DAY, EXERCISING, EF 20%, ON FULL DOSES OF BB, ACEI, MRA+ICD
Episode of VFLUTTER cardioverted by the ICD in March 2015
• Diabetics, women are more likely to present “atypically” with CAD – often silent ischaemia

• A steady, thorough approach to all aspects of diagnosis, aetiology and precipitating factors is successful
  • Coronary angiography once stable
  • Stopping toxic anti-depressants (be aware of QT prolonging drugs)

• Having normal renal function favours a better heart failure prognosis

• Gradually, persistently maximising the “big 3” is crucial, adding other agents according to guideline mandated therapy must be followed

• Being aware of the crucial role of device therapy (CRT-P/D) and timely insertion. Individualise and assess patient context if more invasive options to be considered (like epicardial leads)

• Understanding that a persistently low EF does not prevent the patient from improving clinically- EF does not relate to functional class

• Sometimes doctors use their own judgement and may ignore guidelines – the statin choice: combining evidence based medicine with clinical judgement
• Chronic heart failure therapy involves commitment from the doctor, patient and health funder
• Attention to detail is fundamental
• Although initial rest, removal from work is necessary sometimes for months, the ultimate aim is to return the patient to normal working life, travel and recreation
• An exercise program once stable is encouraged to re-condition
• Following guideline mandated therapy in chronic heart failure is a minimum requirement!
• She has survived 2 episodes of VF, 3 years apart, DEFIBRILLATORS in heart failure save lives!!
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