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

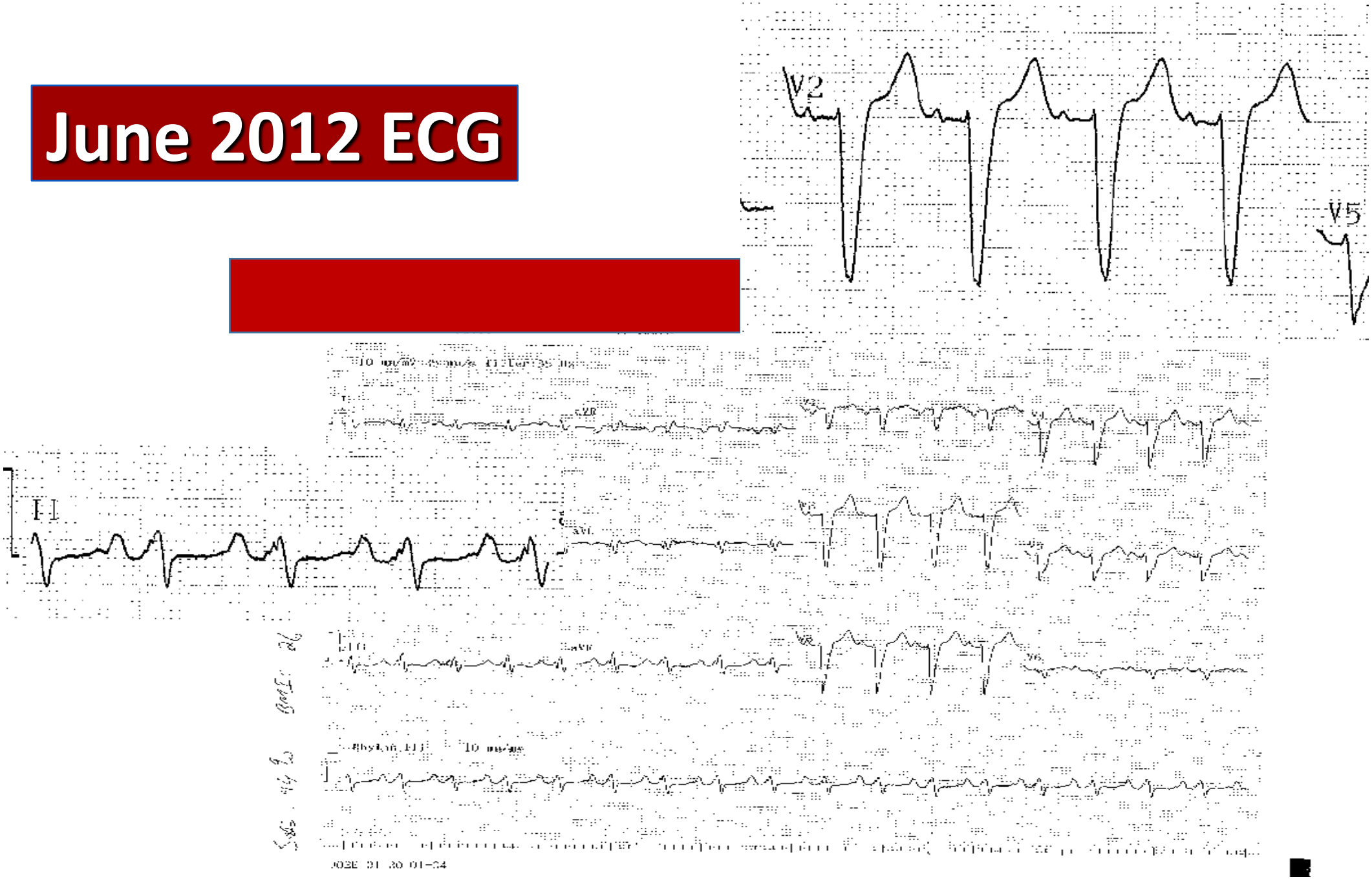
Mrs V.M. – presents in June 2012

- 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

Mrs V.M. – clinical, ECG, blood tests, echo

- 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

June 2012 ECG



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

Coronary angiography and chronic heart failure

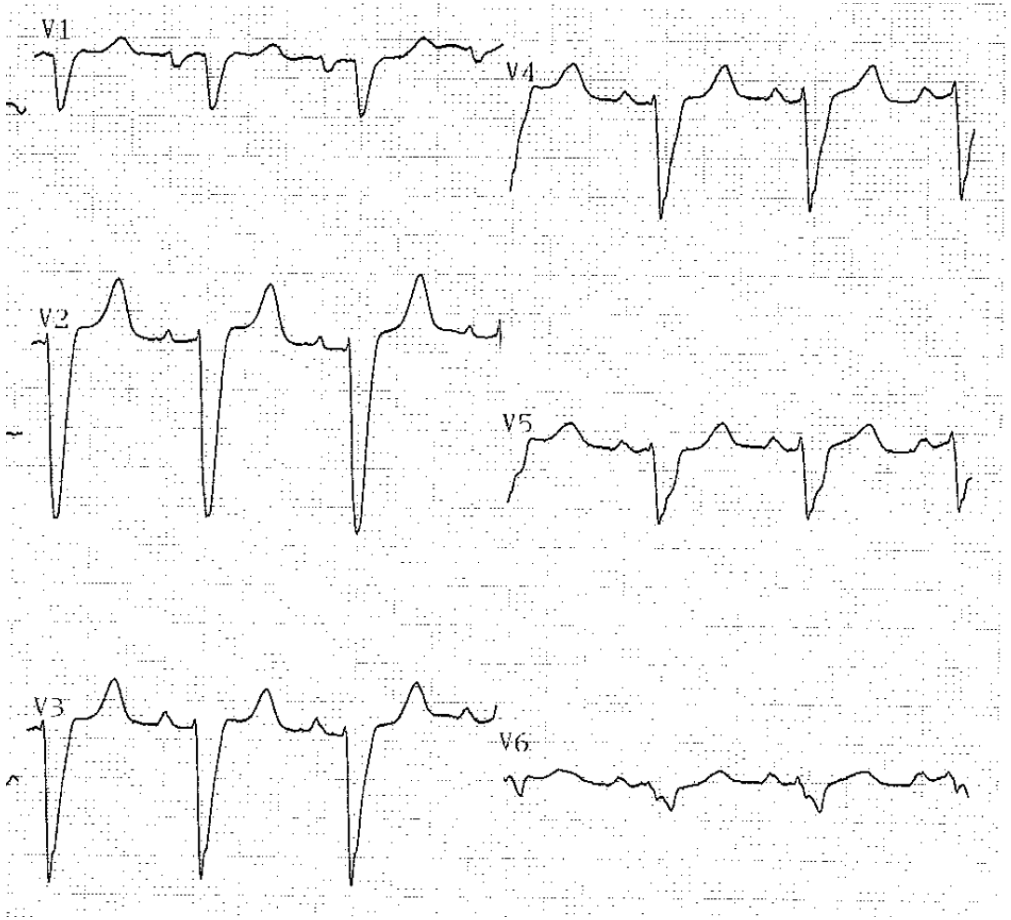
- The first priority is to treat the symptoms of the patient and start and up-titrate the “big 3”
- If resting ischaemia/ACS is diagnosed, urgent coronary angiography is advised
- If the patient is symptomatic of angina then early (on the first admission) coronary angiography is advised
- **In a stable 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

Viability and Revascularisation

- 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 revsacularisation, 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

Statin in heart failure

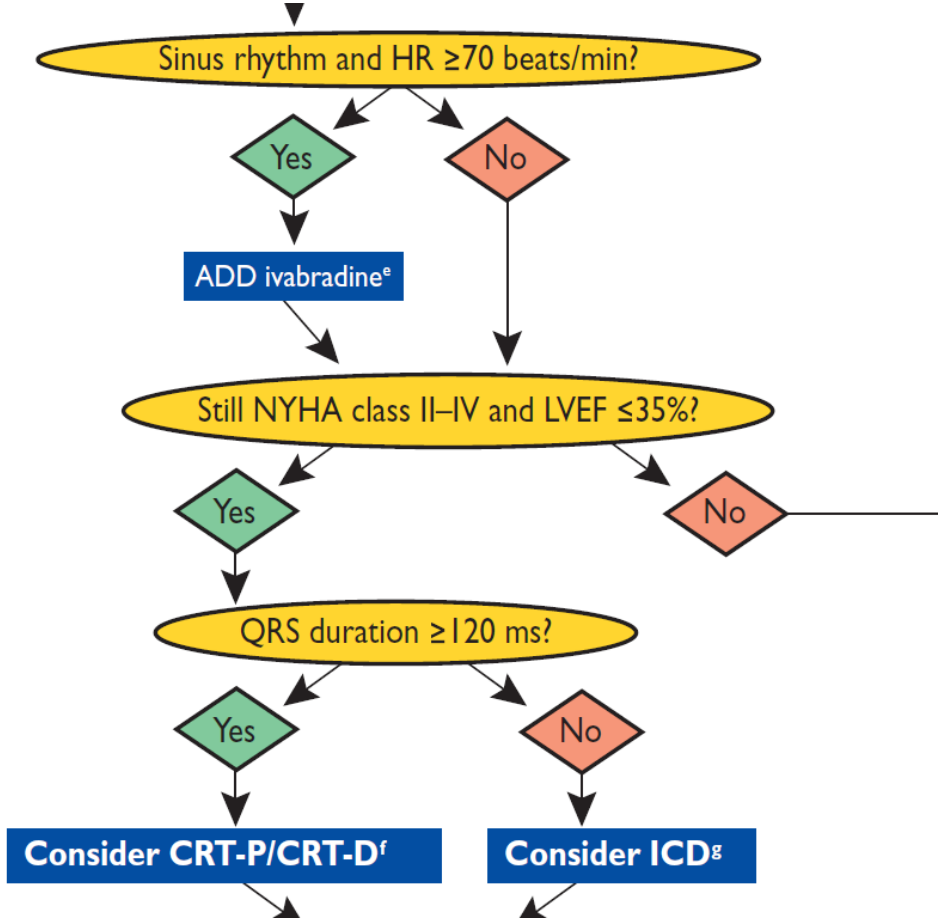
- The CORONA/GISSI-HF trials compared rosuvastatin 10 mg with placebo in patients with symptomatic heart failure
- Ischaemic and non-ischaemic heart failure patients were included
- Both trials showed no reduction in mortality nor morbidity
- The evidence does NOT support the initiation of statins in most patients with heart failure

  - This diabetic, hypertensive woman, with a TC of 5.4, LDL = 3.3 was placed on atorvastatin 20 mg!

Timing of device therapy in symptomatic HF

- 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

ESC Guideline: European Heart Journal (2012) 33, 1787–1847



S Afr Med J 2013;103(9 Suppl 2):661-667.
DOI:10.7196/SAMJ.7319

Timing of device therapy in symptomatic HF

- 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.

ESC Guideline: European Heart Journal (2012) 33, 1787–1847

NYHA functional class III and ambulatory class IV heart failure

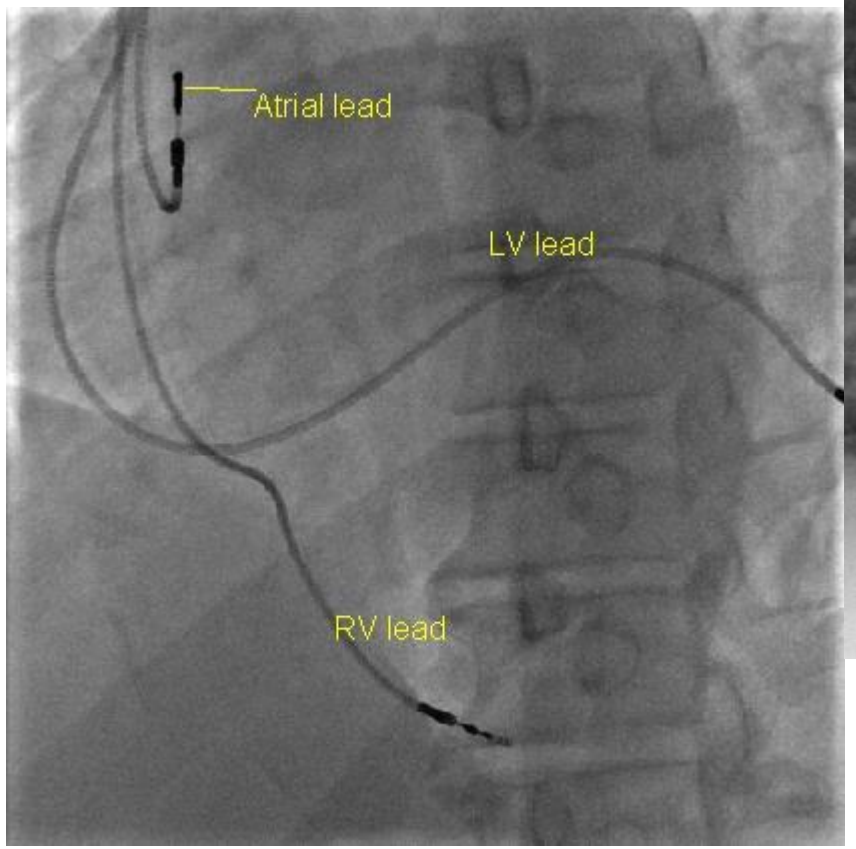
Recommendations	Class[a]	Level[b]
LBBB QRS morphology CRT-P/CRT-D is recommended in patients in sinus rhythm with a QRS duration of ≥120 ms, LBBB QRS morphology, and an EF ≤35%, who are expected to survive with good functional status for >1 year, to reduce the risk of HF hospitalization and the risk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

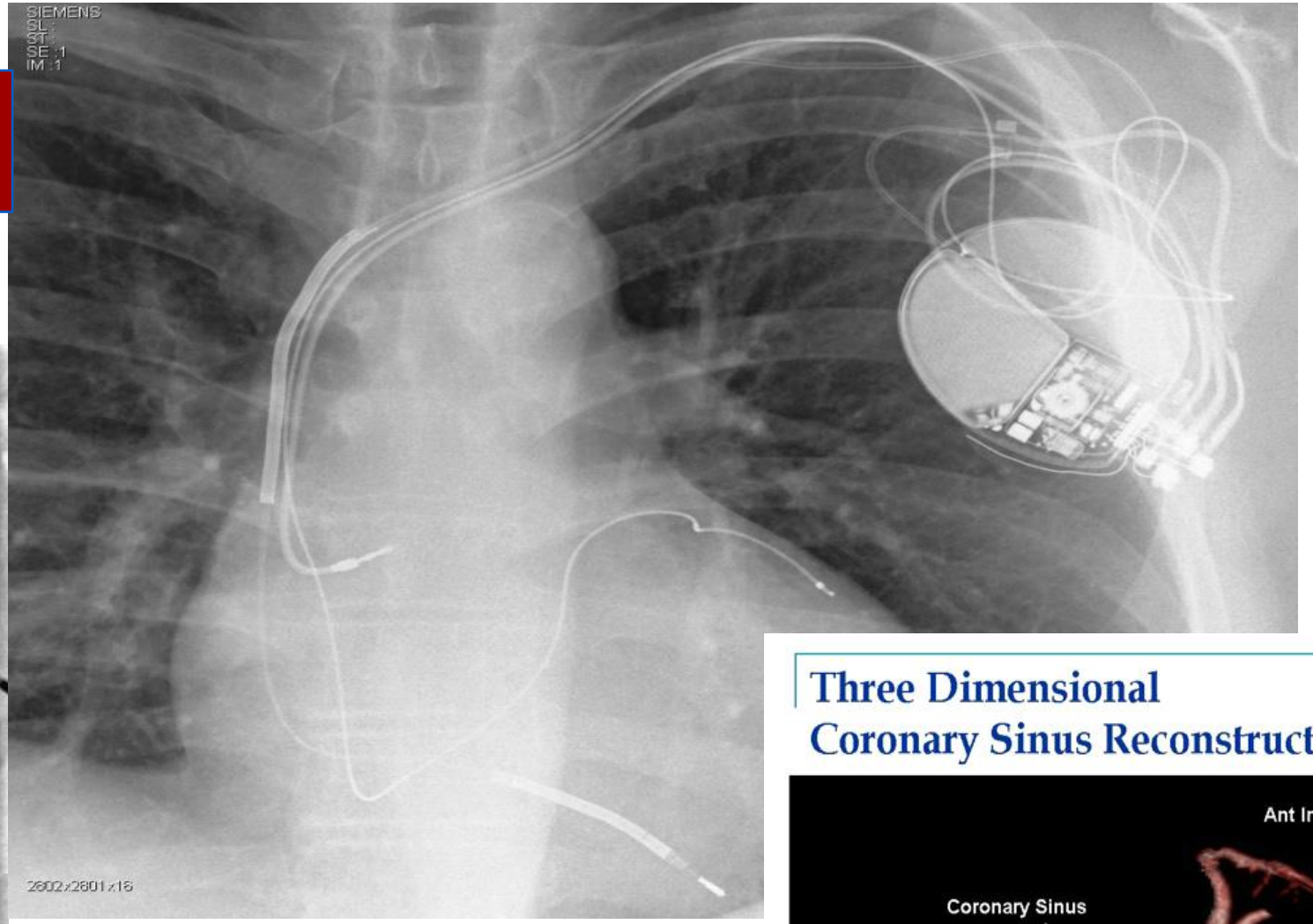
NYHA functional class II heart failure

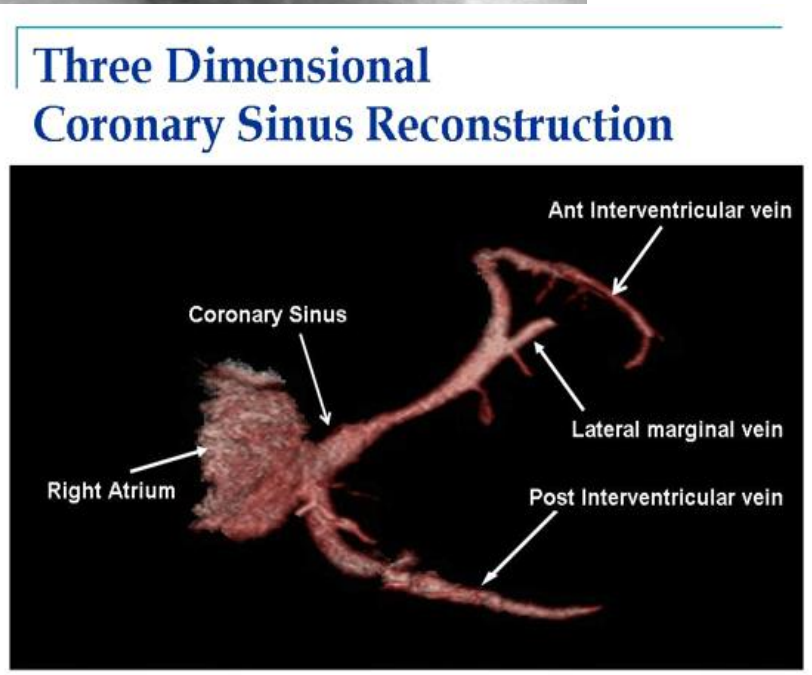
Recommendations	Class[a]	Level[b]
LBBB QRS morphology CRT, preferably CRT-D is recommended in patients in sinus rhythm with a QRS duration of ≥130 ms, LBBB QRS morphology, and an EF ≤30%, who are expected to survive for >1 year with good functional status, to reduce the risk of HF hospitalization and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

Recommendations	Class[a]	Level[b]
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.	I	A
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	I	A
(ii) Non-ischaemic aetiology	I	B

CRT-P/ CRT-D





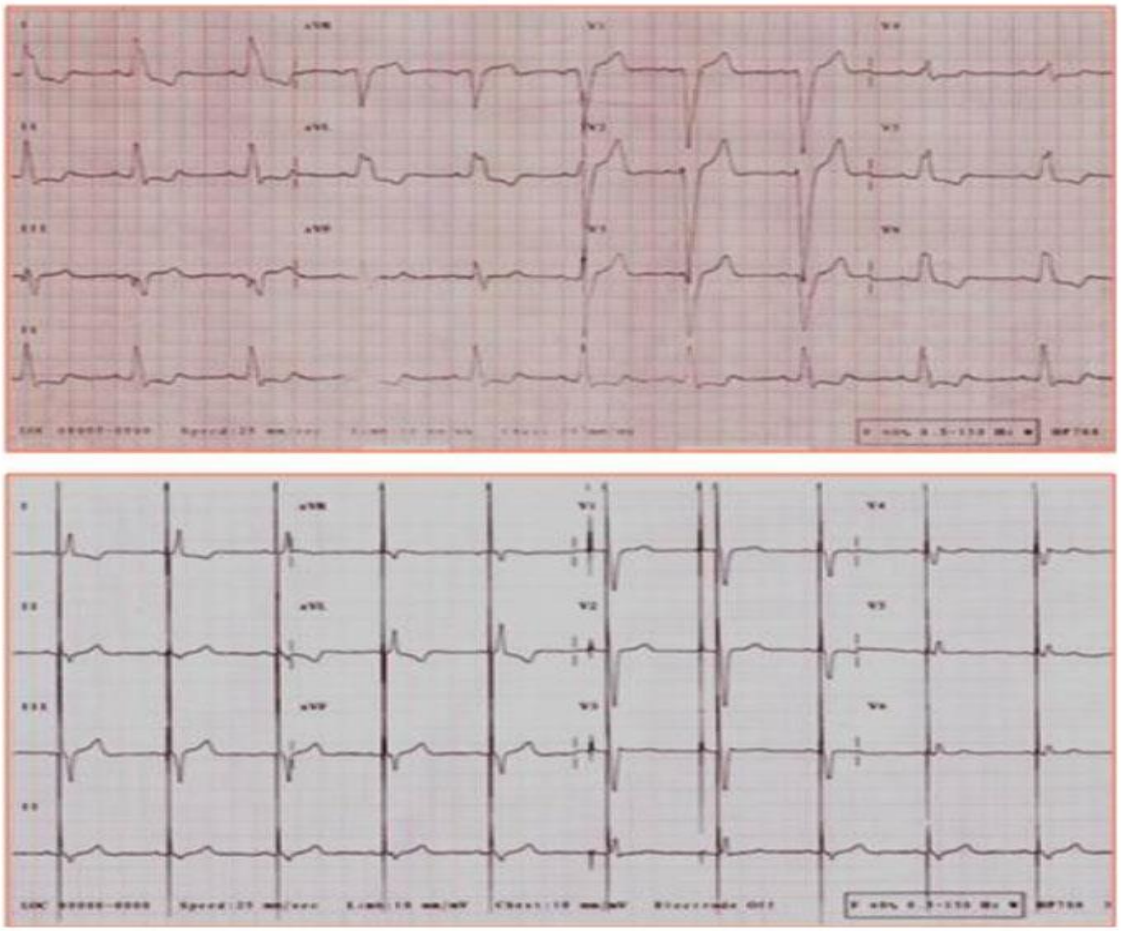


Heart Failure Society of South Africa (HFSSA)

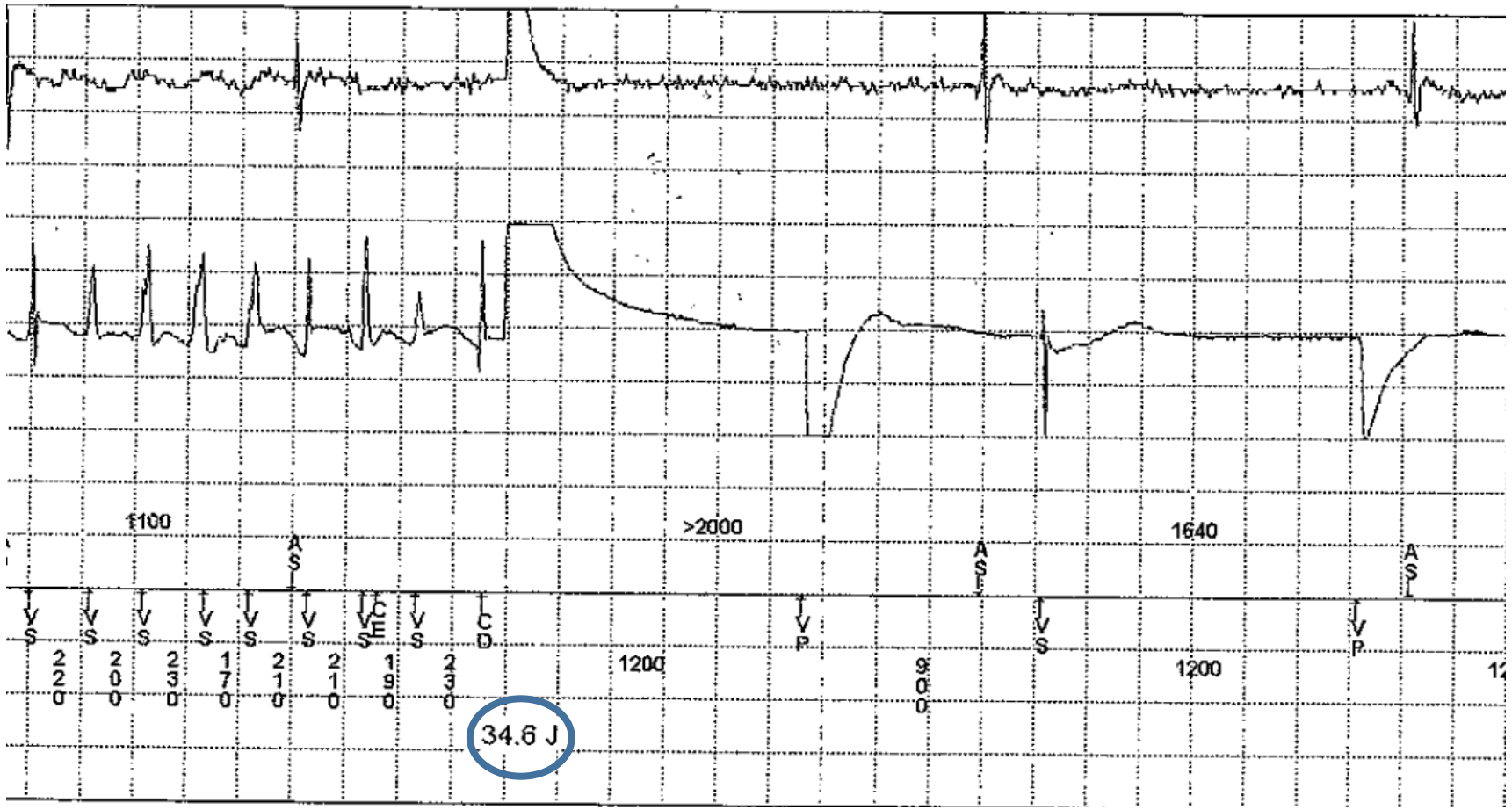
3 months later - September : CRT-D

- 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, cardvedilol 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

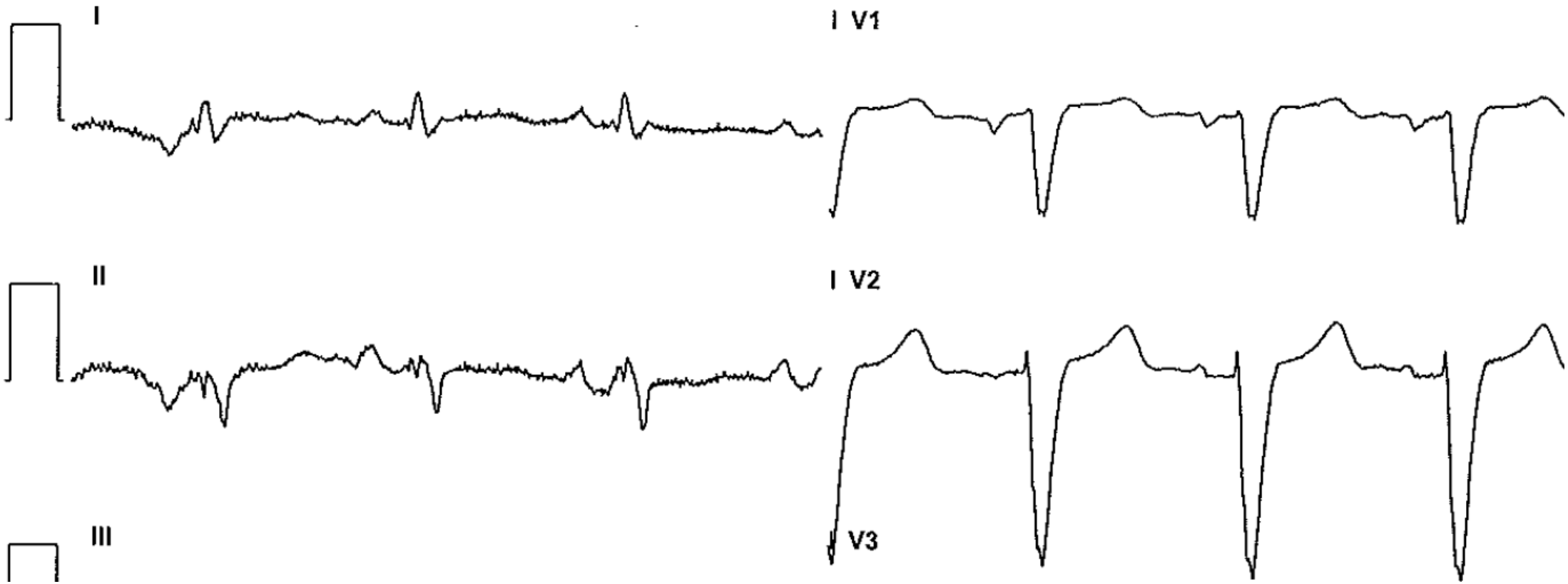
ECG pre and post CRT-P



18 SECONDS PRIOR TO CARDIOVERSION FROM VF in OCTOBER 2012



ECG November 2012 – heart rate 66 b/min



Important general facts on HF and device therapy

- 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)

Why LBBB?

- **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

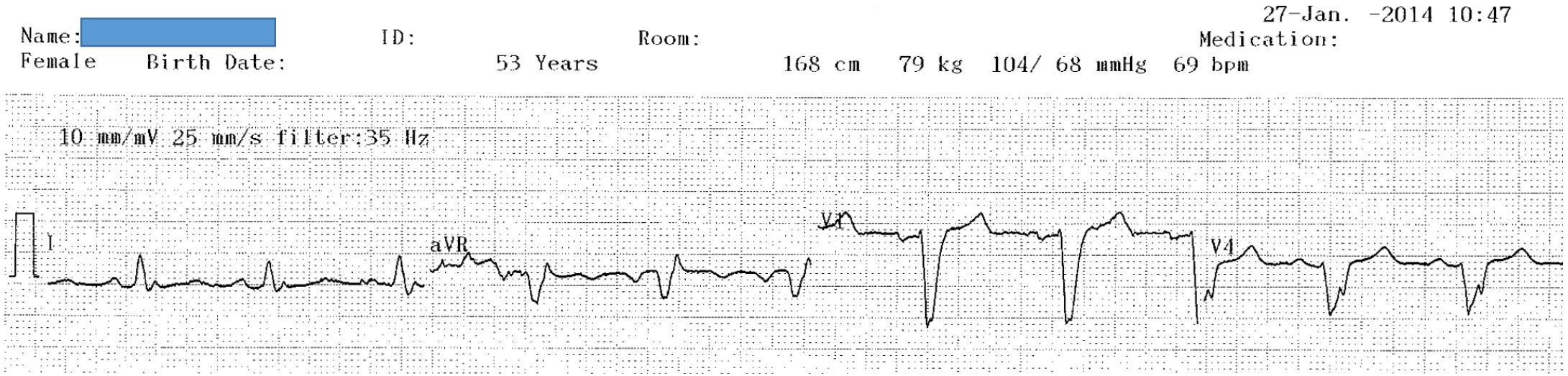
- **Inter-ventricular dyssynchrony**: With LBBB, the RV contracts before the LV

- With RBBB, although there is inter-ventricular dyssynchrony, there is no intra-LV-dyssynchrony

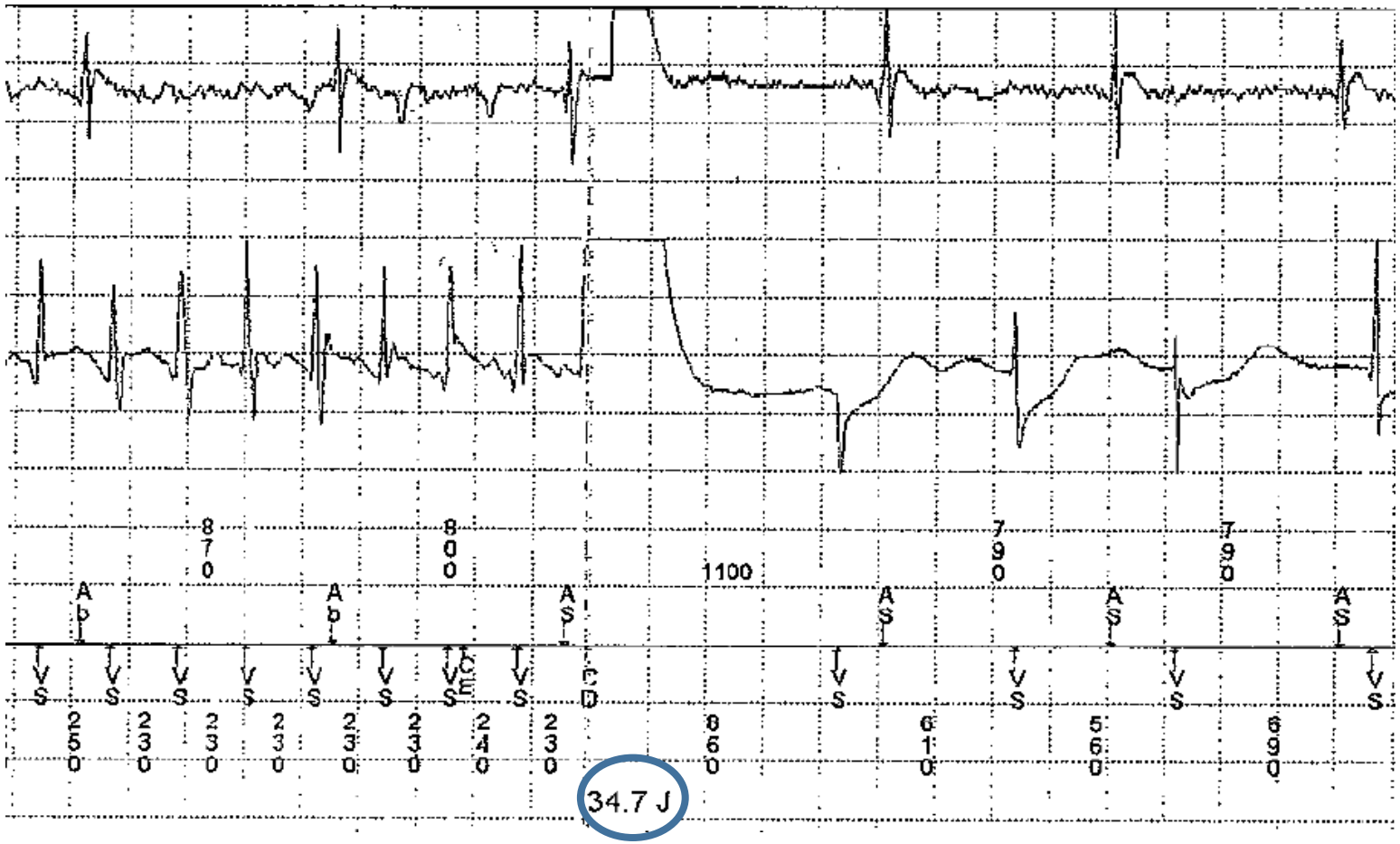
Sex differences in Heart Failure device therapies

- 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



Lessons from this case

- 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

Finally

- 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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