

Heart Failure  
Diagnosis and Management  
in Primary Care

Dr David Ebbs

GP, Didcot Health Centre  
GPwSI Heart Failure, OxonPCT

# What is heart failure?

“A clinical syndrome caused by a reduction in the heart’s ability to pump blood around the body”

NSF, Chapter 6



ANY QUESTIONS?

# Why is Heart Failure a priority?

- CHD NSF – Standard 11
- NICE Guidelines
- SIGN 96 (2007)
- BJGP 2006;56:48-56/ 2007;57:180-1
- JAMA 2008;299:2533-42
- nGMS
- Costs to NHS

# NSF - Standard 11

- Doctors should arrange for people with suspected heart failure to be offered appropriate investigations (e.g. electrocardiography, echocardiography) that will confirm or refute the **diagnosis**. For those in whom heart failure is confirmed the **cause should be identified** and the **treatments** most likely to both **relieve symptoms** and reduce **risk of death** should be offered.

# Heart failure Morbidity

- 5% all acute medical admissions (and 5% all deaths)
- 10 % all medical bed occupancy
- 2% total bed occupancy incl surgical beds
- 1 million inpatient bed days per year
- 50% HF in-patients readmitted within 3/12 of which 50% preventable
- Average HF admission £2500-NHS £716m/yr
- 1-2% total NHS spending, 60% of which on inpatient care
- Admissions expected to rise by 2% per year

# Heart Failure Incidence

- 0.1- 0.2% per year
- 2-3 new cases per list of 2000
- Approx 600-800 new HF diagnoses in Oxon per year

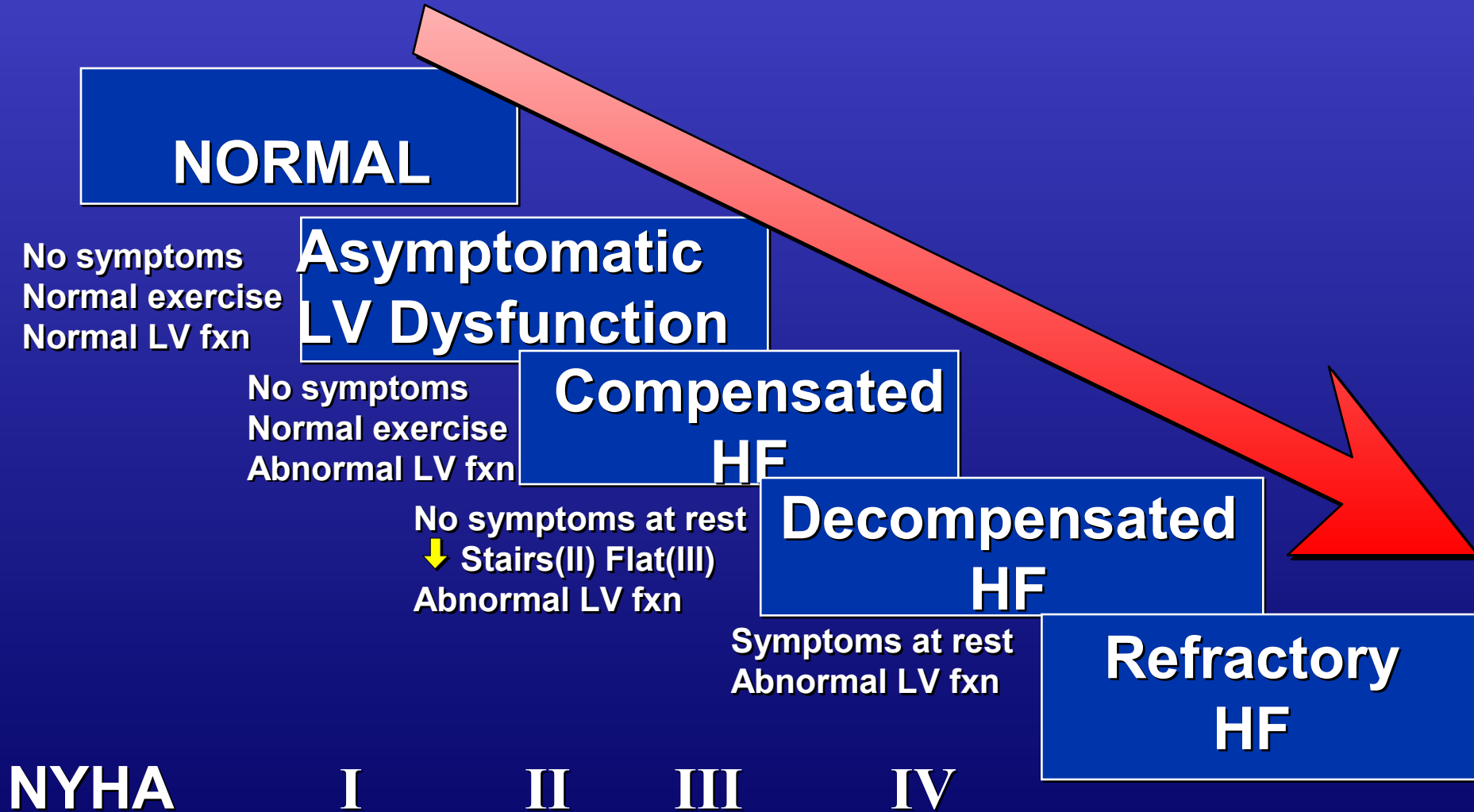
# Heart Failure Prevalence

- 0.4-3.2% of population
- Very age dependant
- 10% in age >85
- Approx 20-30 cases per 2000 list

# Heart Failure Presentation

- On GP population studies, only 35-40% of patients with clinical diagnosis of HF had LVSD on echo.
- So, 6-9 HF clinical presentations to get 2-3 patients with LVSD
- = Approx 2000 echocardiograms per year for new HF presentations in Oxfordshire

# Evolution of Clinical Stages

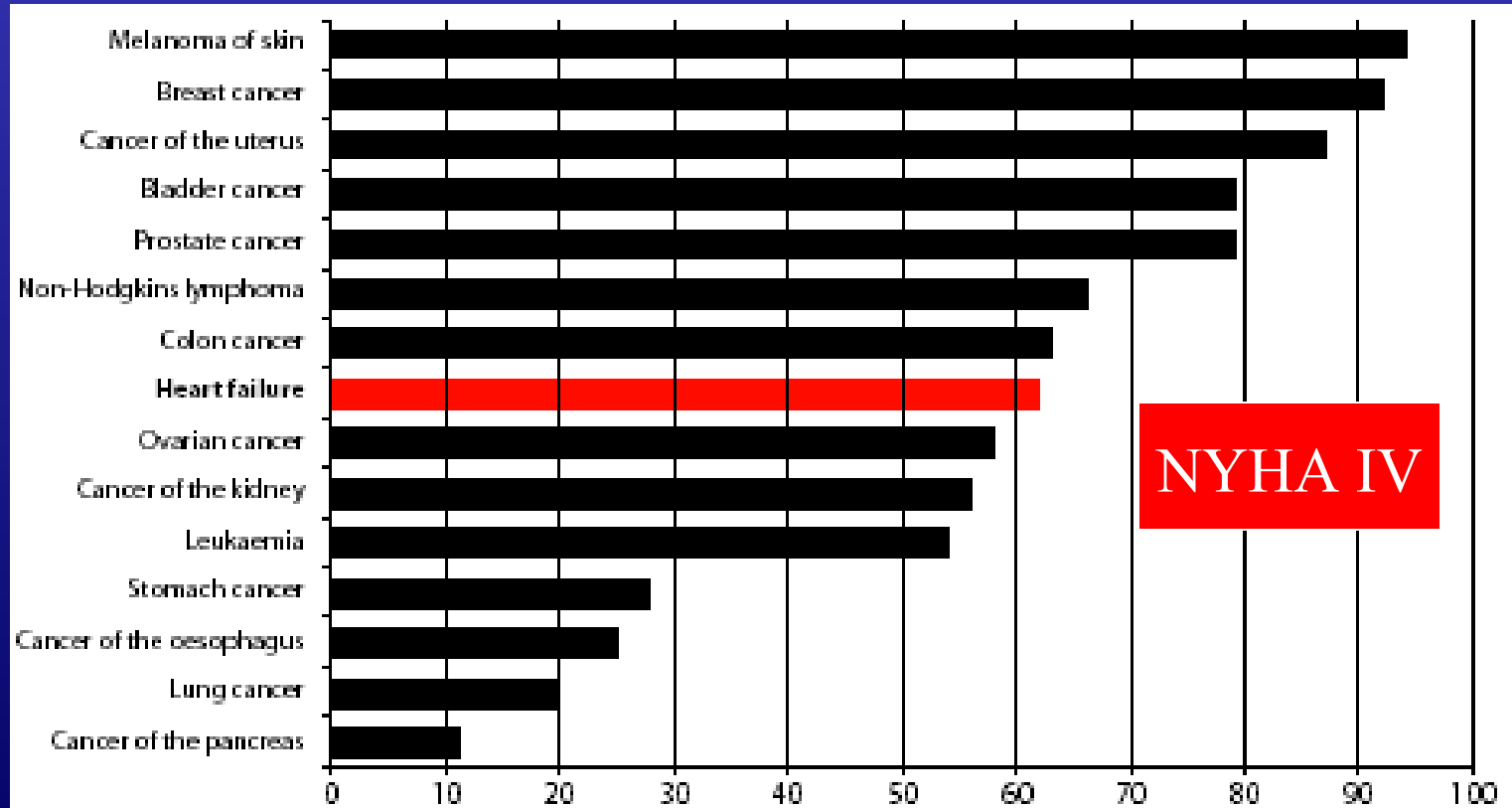


# Heart Failure Survival

- **50% of all patients with heart failure (all grades) die within 4 years**
- **Mean survival 3.2years for men and 5.4 years for women**
- **5 year survival 25% for men and 38% for women**
- **50% of those with grade IV die within 1 year**
- **Most common terminal illness**

# Heart Failure Survival

One year survival rates, heart failure and the major cancers compared, mid-1990's, England and Wales



# And yet.....

- 50% HF undiagnosed
- 50% of HF diagnosis incorrect
- 50% of correct diagnoses suboptimal Rx
  - <20% if consider Beta blockers optimal

# Clinical diagnosis of HF

259 breathless pts presenting to GP; echo assessment  
of LV systolic function

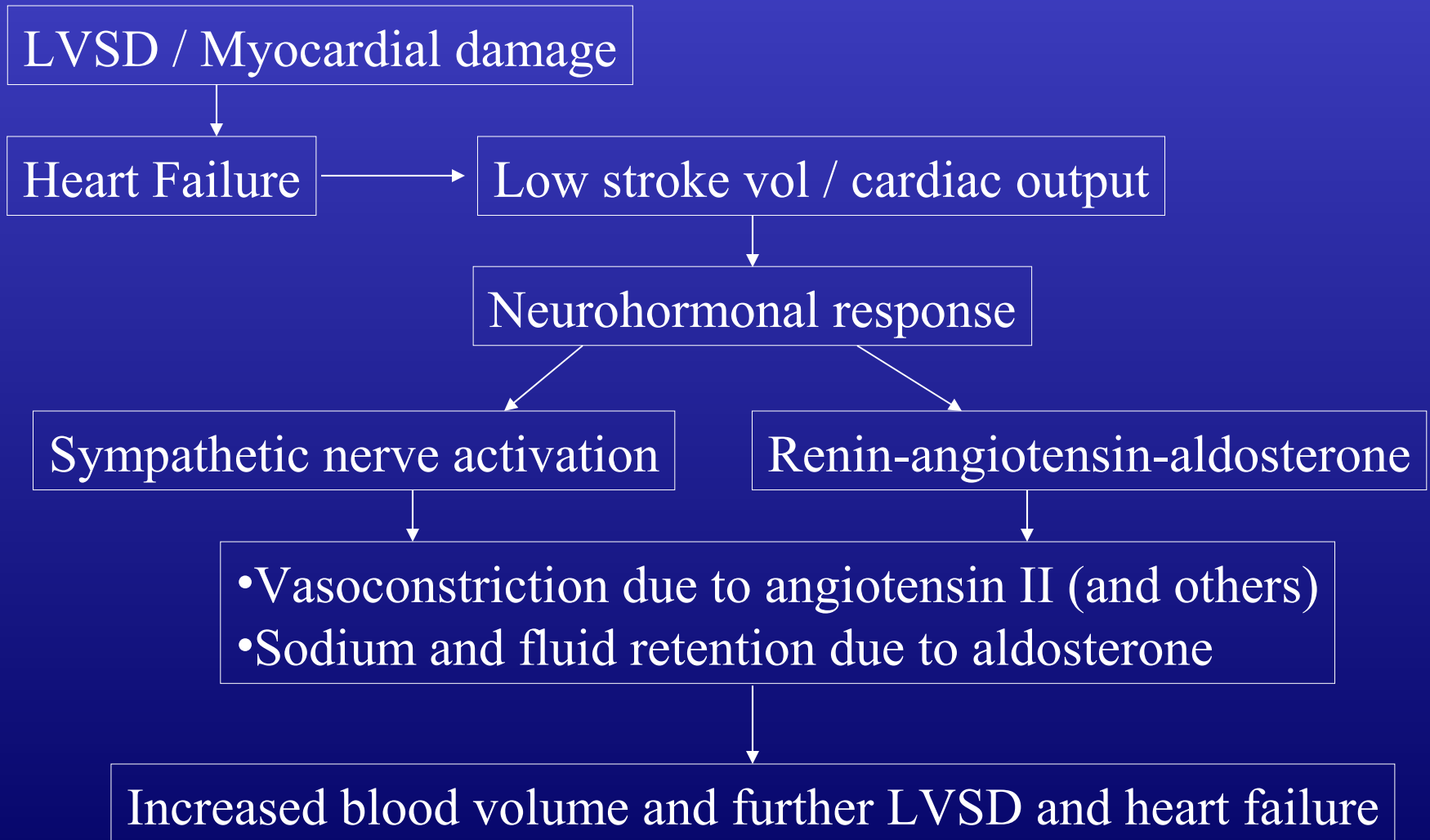
Davie et al. *QJMed* 1997;90;335-339

	<b>Sensitivity</b>	<b>Specificity</b>
Dyspnoea	100%	17%
Oedema	49%	47%
Orthopnoea	22%	74%
PND	39%	80%
<b>Oedema</b>	<b>20%</b>	<b>86%</b>
<b>Crackles + oedema</b>	<b>14%</b>	<b>94%</b>
<b>Displaced apex beat</b>	<b>66%</b>	<b>96%</b>
<b>Displaced ab+other</b>	<b>44%</b>	<b>99%</b>
<b>H/o MI</b>	<b>59%</b>	<b>86%</b>
<b>H/o MI+any sign</b>	<b>39%</b>	<b>96%</b>
<b>H/o MI +displaced apex beat</b>	<b>39%</b>	<b>99%</b>

# Reasons for Poor Management?

- Concern re accessing and interpreting echocardiography
- Phenomenon of “transient” condition ie better after treatment and just continue
- Worries re polypharmacy
- Worries over safety of ACEI and B blockers in HF and other heart conditions
- Poor understanding and lack of confidence in HF management
- Reluctance in treating “mild LVSD”

# Pathophysiology



# Causes of Heart Failure

- Critical to find cause as management depends on cause as much as to treat symptoms of HF
- Echo essential to find cause
- IHD 36%
- Hypertension 14%
- Arrhythmias / AF 30%
- Valvular 11%
- Cardiomyopathy 10%
- Others – Diastolic dysfunction, thyrotoxicosis, anaemia etc

# Diagnosis

- History, commonly SOB, orthopnoea, PND, SOA, tired, poor exercise tolerance, muscle pain
- Examination – look for murmurs, creps/wheezes, oedema
- FBC, renal function, glucose, TSH, Lipids (if IHD)
- ECG
- CXR??
- BNP??
- And...

# Echocardiography

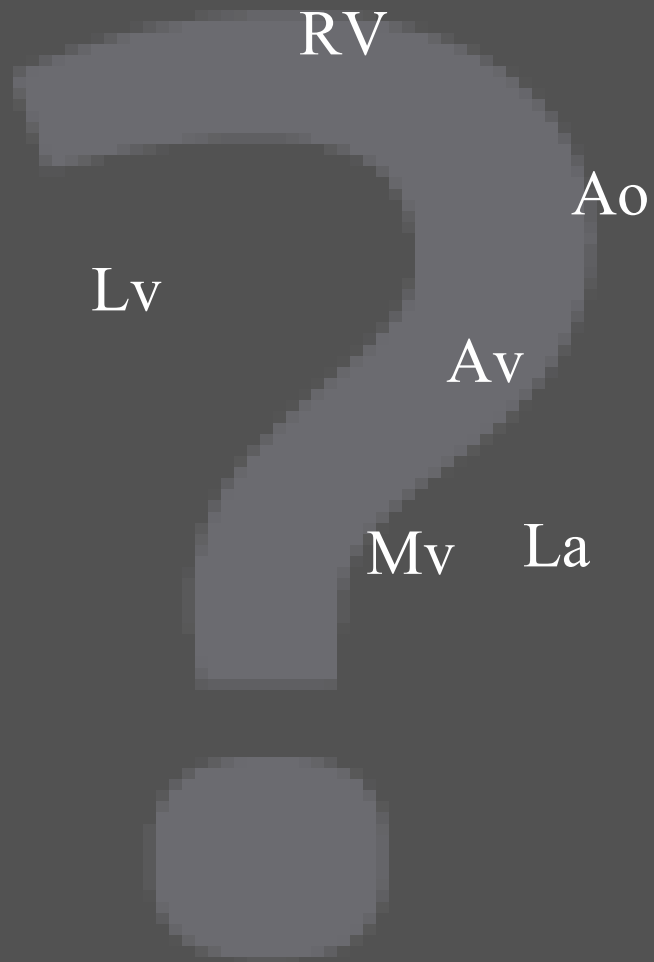
- The gold standard
- Assesses LV function (35% have LVSD)
- Valves (antibiotic prophylaxis)
- Diastolic function
- Pericardial effusion
- Establishes aetiology of LVSD
- LV aneurysm and thrombus

# Why is aetiology important?

- Guides most appropriate treatment
- IHD : treatment of HF plus IHD
- Valvular : medical and ? surgical Rx
- Diastolic dysfunction : different drugs
- No HF : ?stop drugs







RV

Ao

Lv

Av

Mv

La



TIS07\_M114  
● LUPWd = 0.60 cm  
+ LUIDs = 4.2 cm  
■ IUSd = 0.83 cm  
▲ LUIDd = 5.7 cm

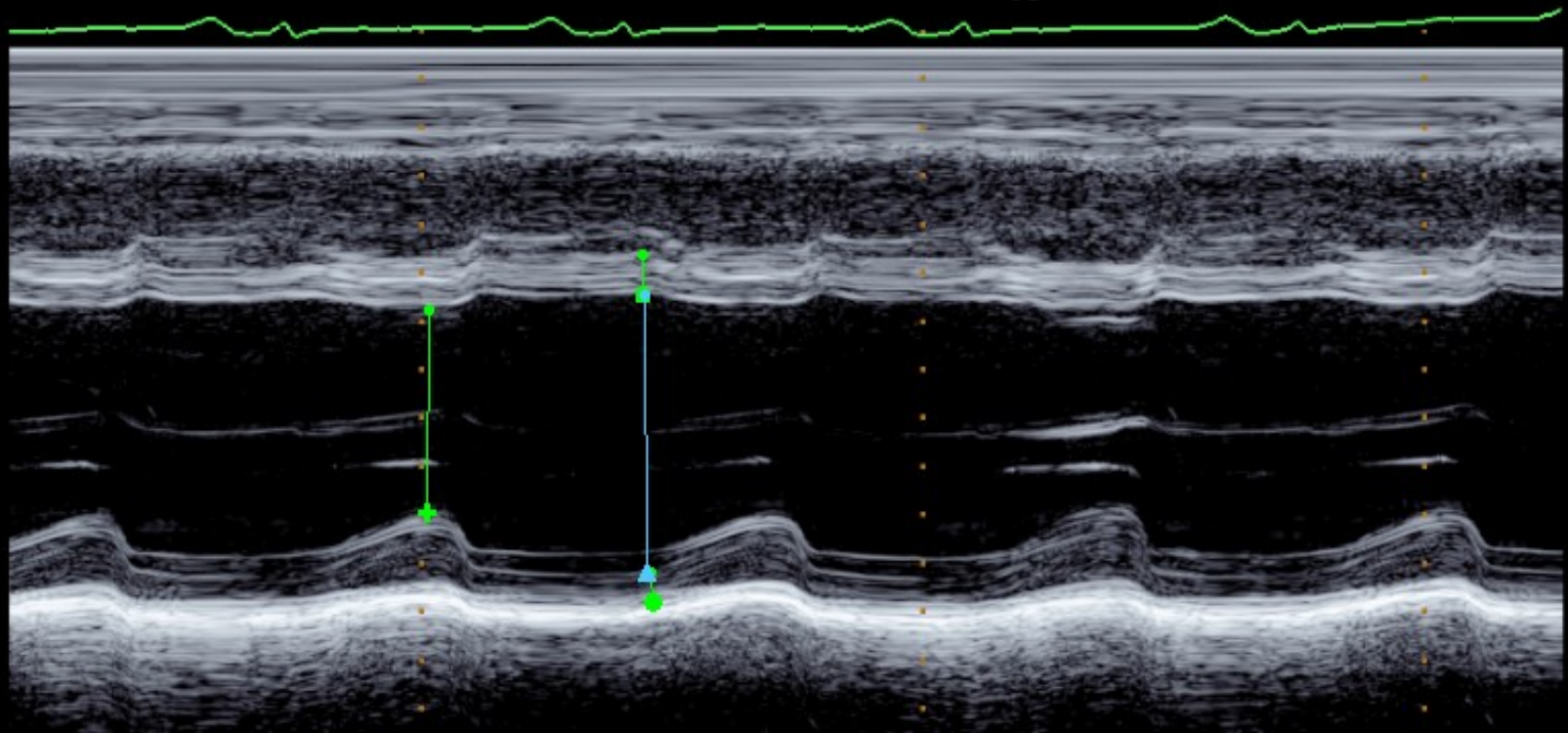
FR 25Hz  
15cm

-0:00:07

2D / MM  
50% 46%  
C 50  
P Low  
HGen



0  
5  
10  
15



0  
5  
10

75mm/s

TS4L\_1 of 1







Rv

Lv

Av

Mv

La





# Colour doppler





# Colour doppler



# Endocardial thickening



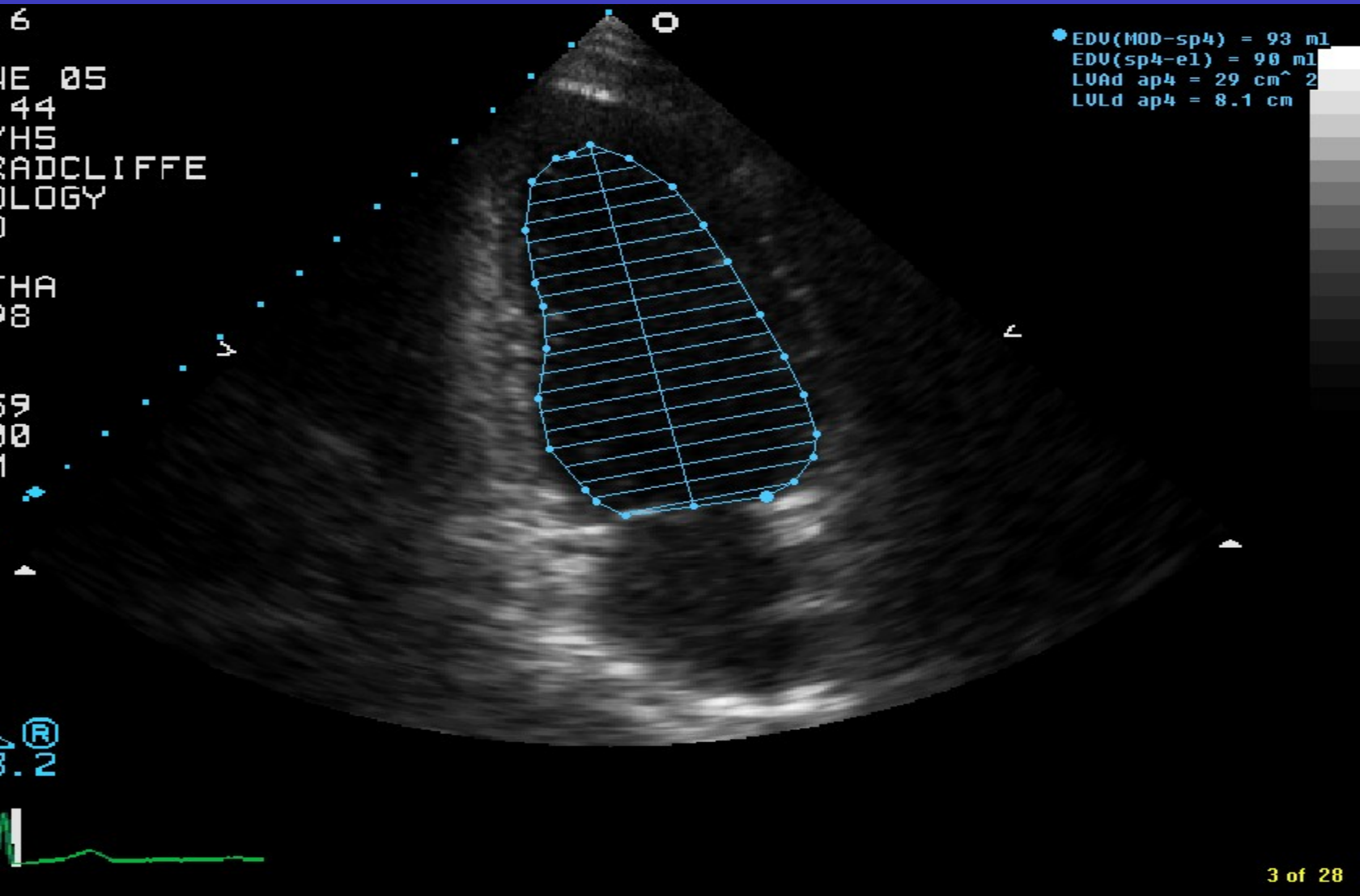
# Endocardial thickening



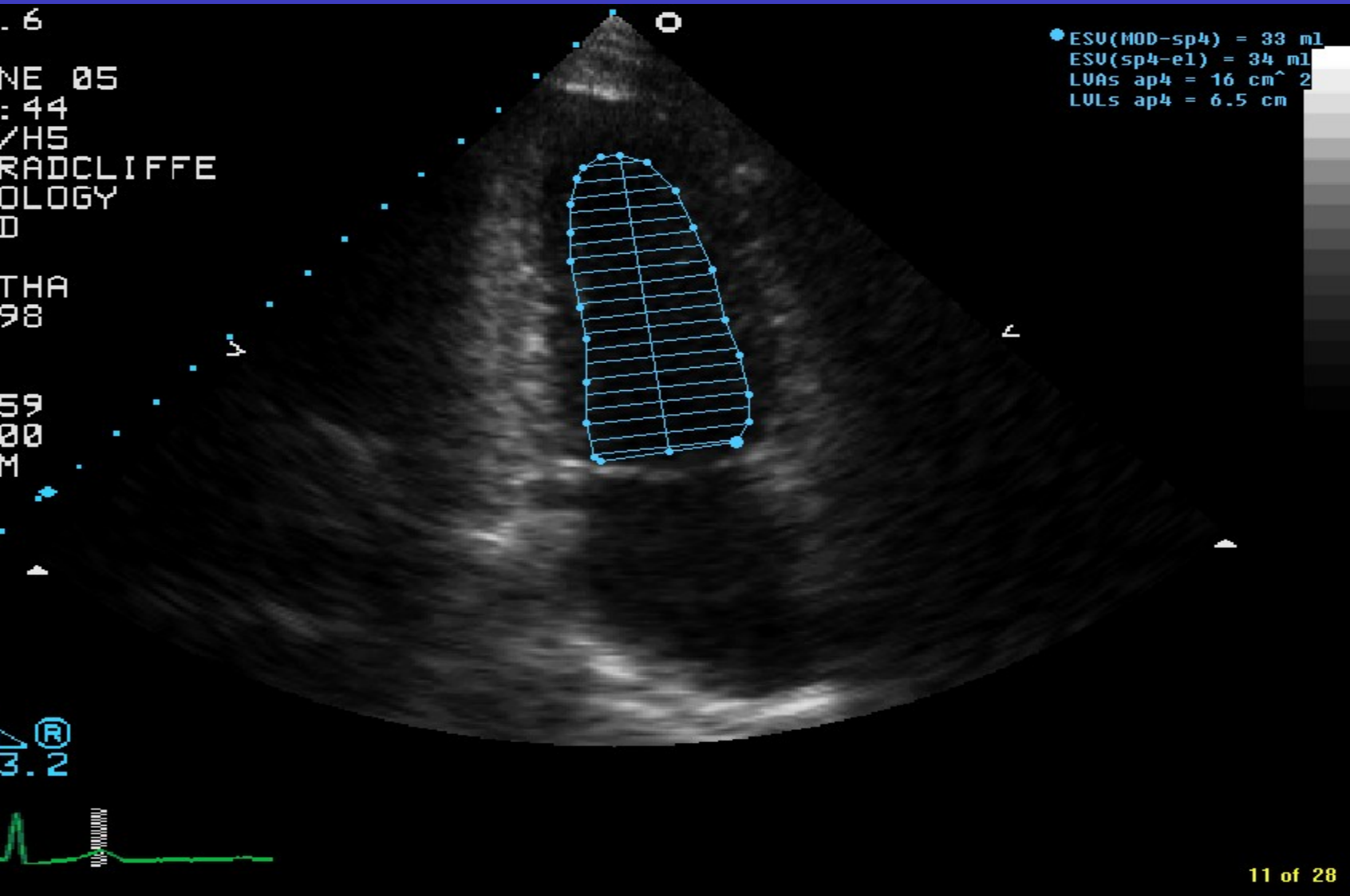


Endocardial thickening

# Ejection fraction



# Ejection fraction



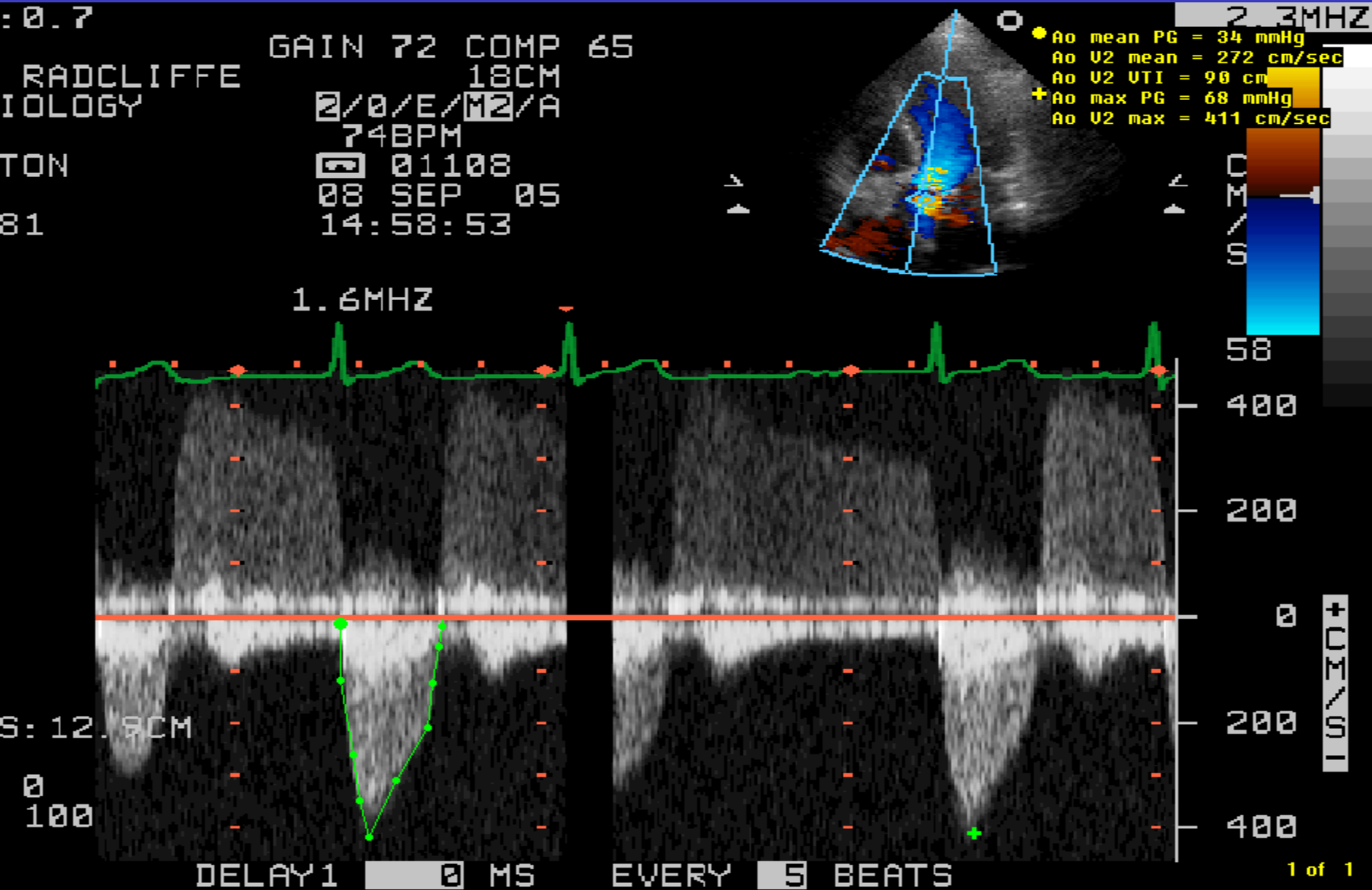
# Aortic stenosis



# Aortic stenosis



# Aortic stenosis



# MV prolapse



# MV prolapse



# Mitral stenosis



# Mitral stenosis

# LV thrombus



# LV thrombus

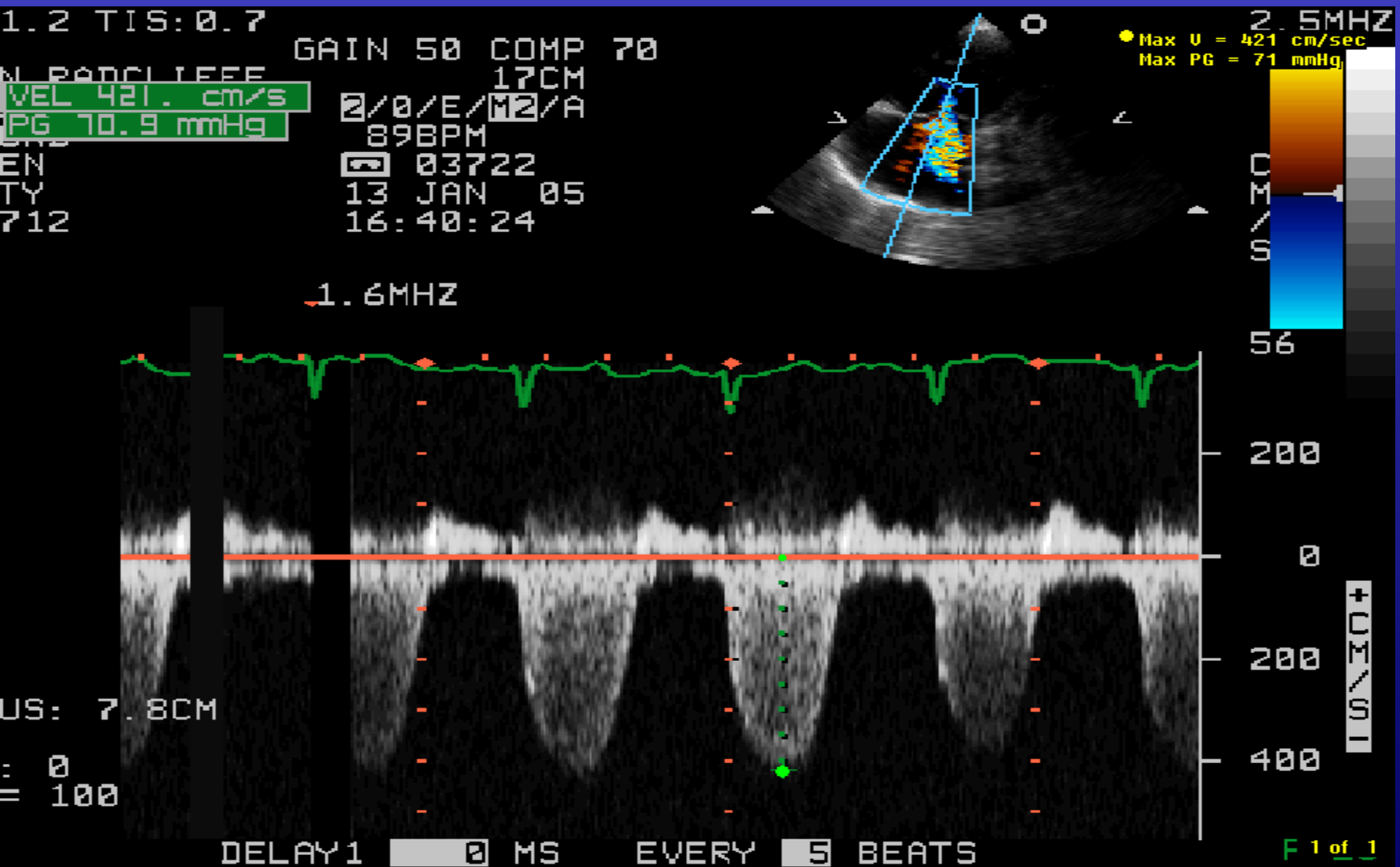




# Right heart



# Right heart



# Right heart



# Pericardial effusion



# Management of HF

Aims :

- Reduce symptoms
- Increase quality of life
- Reduce progression of HF
- Reduce admissions (and hence overall costs)

# Management of HF

- General Measures
  - Reduce weight
  - Increase fitness / exercise
  - Reduce salt and fluid intake
  - Smoking
  - Alcohol
  - vaccination

# Management of HF

- Atlas
- Val-Heft
- Valiant
- Consensus
- CHARM – preserved
- CHARM – alternative
- CHARM – added
- Elite II
- Rales
- Solvd
- Comet
- VALUE
- SCOPE
- LIFE
- MERIT-HF
- CIBIS-II
- COPERNICUS
- BEST

# NICE Management Algorithm

Generalist

Add diuretic – likely to be required to control congestive sx and fluid retention

Add digoxin – as first line if in AF – in addition if still symptomatic after diuretic, ACEI and beta blocker

Specialist

New diagnosis



Start ACEI (AIIA if ACEI intolerant) and titrate upwards



Add Beta blocker and titrate upwards



Add spironolactone if still symptomatic



Seek specialist advice

# Management of HF

- Loop diuretic first line in acute Pul oedema
- In confirmed LVSD, treat with ACEI (AIIA) to maximum dose (as tolerated by BP and renal function)
- In confirmed LVSD, **even if asymptomatic**, start and titrate cardioselective beta blocker
- If AF (any NYHA class) or still symptomatic, then add digoxin (consider anticoagulation also if AF)
- If still symptomatic, add spironolactone
- Stop negative inotropes (nifedipine, diltiazem)
- NSAIs , metformin etc

# Monitoring

- Renal function and BP at each drug dose increment
- Patient weight self monitoring
- Patient held action plan
- Specialist Heart Failure nurses

# Specialist management

- Investigation of ischaemia as cause for SOB
- Biventricular pacing
- Implantable defibs and assist devices
- Transplantation
- O2 and CPAP
- Specialist palliative care

# Other aspects to consider

- Depression
- Pain (opiates)
- Fatigue
- Employment
- Driving
- Travel
- Palliative care

# Diastolic LV Dysfunction

- Common in elderly and hypertensives.
- Also common in AF but no good echo markers.
- Management based around good BP control, with additional symptomatic relief using diuretics +/- oral nitrates as required.
- Due to poor relaxation of LV during diastole.
- Rate control also important.
- Controversial in HF circles.
- nGMS does not separate from LVSD

# GPwSI – Heart Failure

- 2002 – one of several projects part of CHD Collaborative (NHS Modernisation agency)
- To establish community based heart failure diagnostic service
- PCT funded salaries
- Hardware purchased with one off capital grant

# GPwSI – Heart Failure

- Myself and Peter Grimwade
- 2 sessions per week for 6+ years
- Training and service element
- Accreditation
- Ongoing supervision
- Clinics in Witney, Abingdon and Wallingford each week

# Which Patients?

- Breathlessness with possible cardiac cause
  - Co-morbidities!
- Murmur assessments
- Cardiomegaly
- LVH on ECG
- AF-palpitations
- Family history

# But NOT

- Acutely unwell
- Congenital heart disease
- Valve replacement
- Those under active cardiology follow up
- Rarities : amyloid, sarcoid, carcinoid, Marfans .....etc
- Children

# Referral

- Form
- Faxed to Abingdon
- Sue Shipman F-01235205766 T-208740
- Patient makes own appt ?
- Choice of locations
- DNA?



# Referral form

- One stop opinion with benefit of echo
  - Opinion may change in light of past history
    - IHD
    - DM
    - Hypertension
- Medication recommendations
  - Other drugs or conditions eg COPD
- Results
  - Renal function

# What happens at the clinic

- Confirm history/examination
- Interpret data
- Echocardiogram
- ‘Answer the question’
- Patient information
- Onward referral for further investigations
- Report faxed
- Advice for referrer

# What have we achieved?

- Local service – popular with patients
- Reduced cardiology OPD requests
- Good communications with referrers
- Improved treatment for some patients
- Accreditation
- A model that works

Thank you