A patient with acute heart failure and concomitant ACS

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Presentation

• 42yo man

• Admitted just before midnight, acutely short of breath with chest tightness

• Unwell for 2 months previously
  • Chest tightness on exertion
  • Worsening SOB on exercise
  • Intermittent palpitations
PMH

- Chronic obstructive pulmonary disease
- TB many years ago
- 2 previous pneumothorax (drained)
- No family history of heart disease
- 4-5 pints beer/day (70 units/week)
- Ex-smoker (40/day, stopped 5 years ago)
Medication

• **Phyllocontin forte 400mg bd**

• **Inhalers**
  • Salbutamol
  • Seretide 250
  • Spiriva
Examination

- SOB at rest
- Not cyanosed
- RR 26/min
- HR 170/min irregular (atrial fibrillation)
- BP 110/60
- JVP +6cm
- HS normal
- Basal fine inspiratory crackles bilaterally with widespread wheeze
ECG

Rate 196. Atrial fibrillation with rapid V-rate.
PR
QRS 93
QT 291
QTc 456

--AXIS--
P QRS
T 103

12 Lead; Standard Placement

Unconfirmed Diagnosis

Device: Speed: 25 mm/sec Limb: 10 mm/mV Chest: 10.0 mm/mV
Blood Results

- ABG on admission (room air)
  - pH 7.4, pO2 9.2, pCO2 3.8, Sats 92%

- Hb 13.8, WCC 7.1 (N4.6), Plts 432, MCV 81.6
- Na 138, K 5.1, Urea 4.2, Creat 94, eGFR>60
- Bili 14, ALP 58, ALT 28, Alb 40
- CRP 12
- hsTnT 52
- INR 1.2
- TSH 1.67
Initial Management

• Medical assessment unit made a diagnosis of “AF with rapid rate response causing LVF”

• IV Furosemide 40mg

• No Beta blocker in view of history of asthma

• Central line placed and IV Amiodarone commenced

• Anticoagulated with Enoxaparin 1.5mg/kg

• Transferred to CCU for further management
CCU Ward round (day 2)

- Minimal improvement in HR (160/min)
- Cold and clammy
- RR 36, BP 129/112
- U+E unchanged, ALT 3307, INR 1.6, CRP 18
- On 28% FiO2:
  - pH 7.29, pO2 14.9, pCO2 3.3, HCO3 12.0, BE -12.6
- Chest: Very wheezy, bilateral crackles
- Digoxin added (IV as unable to take orally)
- Urgent bedside echocardiogram
Echo (1)
Ongoing management (day 2)

- Globally poor LV function
  - ? Ischaemic (no RWMA)
  - ? Alcoholic,
  - ? Rate related,
  - (?? Coronary embolus)

- Further IV furosemide (80mg)

- First dose Ramipril 1.25 mg given

- BP fell 90/50, felt faint, but still passing urine
VF arrest 2248h
Ongoing management (day 2)

- VF arrest 2248hrs
- 1x 150J biphasic shock
- Reverted to sinus rhythm at 122/min
- BP low (85/55)
- Repeat hand held echo in Sinus Rhythm - still poor LV function
- Resident discussed with me at home as he wanted to contact Harefield for transplant assessment
  - Continue Amiodarone IV
  - Repeat K low 3.2 – replaced IV centrally
  - Ivabradine added 5mg bd (no BB as still v wheezy)
CCU day 3

- By mid afternoon HR 70, BP 108/75
- Passing urine – U&E stable
- Clinically much improved, less SOB
- Normal RR, less wheezy, fewer crackles
- Repeat ECG – widespread T wave inversion
- Ramipril 1.25mg od continued
- Ivabradine increased to 7.5mg bd
- Listed for coronary angiography
ECG day 4
Coronary angiography day 4
PCI LAD/Cx/RCA (day 6)
Ongoing management (day 6)

- HR 60, BP 110/70
- Chest clear!
- Abnormal LFTS normalised
- Ramipril 2.5mg od, Furosemide 40mg od, Eplerenone 12.5mg od, Ivabradine 7.5mg bd, Aspirin 75mg od, Clopidogrel 75mg od
- Repeat echocardiography
Repeat Echo day 6
Repeat Echo day 6

CONQUEST
SS-1
28Hz
16cm

2D
HGen
Gn 28
C 51
3/2/0
75 mm/s

Color
2.5 MHz
Gn 60
4/5/0
Ftr High

59 BPM
Repeat Echo day 6
Progress

- Discharged day 7
- CT chest as out patient
- Beta blocker commenced as OP (no wheeze)
- Furosemide stopped
- Very well at 3 and 6 month FU
- Reformed character – has given up alcohol!
ECG at Follow up

Rate 99
FR 132
QRS 92
QT 348
QTC 445

---AXIS---
P 76
QRS 65
T 69

Unconfirmed Diagnosis
Discussion points

- Early DC Cardioversion (before the cardiac arrest)?
- Use of Digoxin acutely
- Significance of modest Tn rise in AF with rapid HR
- Off-label use of Ivabradine in the acute heart failure patient with hypotension and sinus tachycardia
- Role for IABP at any stage??
- What was the cause of the LV dysfunction
  - Excessive HR combined with 3 vessel disease
  - Only very small hsTnT rise (52)
  - Any contribution from excess alcohol (cause of AF?)
  - Very rapid recovery suggests acute myocardial stunning
CT – lung apices