

Syncope

38 year old woman

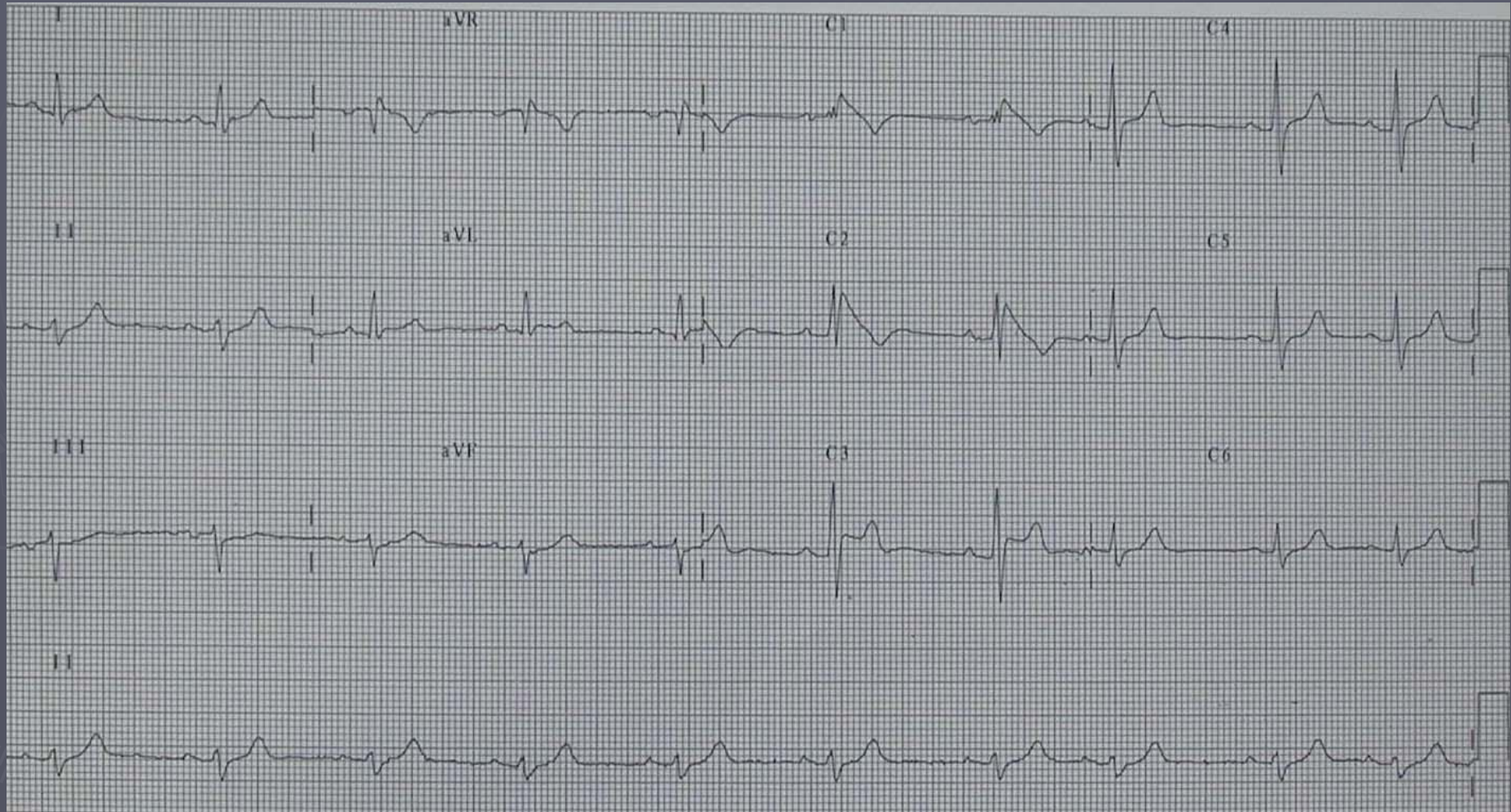
History

- ▶ An active equestrian
- ▶ No significant PMH
- ▶ x2 episodes of 'syncope' after routine venesection
- ▶ x2 episodes of 'palpitations' whilst anxious
- ▶ Family History
 - 'unexpected' death of mother at age 63
 - 'unexpected' death of maternal grandfather at age 43 during an episode of 'pneumonia'

History

- ▶ Patient was seen as a pre-operative assessment
- ▶ Requires essential spinal decompression surgery
- ▶ ECG is of 'concern'

'Brugada phenotype ECG'



Discussion and Outcome

► Reasons for concern

- Syncope episodes
- Palpitations x2 episodes
- Need for anaesthesia

► Action taken

- Surgery and GA performed
- ECG monitoring with defibrillator attached
- Contra-indicated drugs were avoided
- Ajmaline challenge performed - positive

Discussion

- ▶ Probable vasovagal syncope
- ▶ 'Possible' arrhythmogenic cause of syncope
- ▶ Potential cause of fatal rhythm disturbance
- ▶ AICD
- ▶ Family screening

Syncope – the definition

- ▶ A temporary LOC due to transient cerebral hypoperfusion characterised by RAPID onset, SHORT duration and spontaneous COMPLETE recovery
 - ▶ Can result from a cessation of cerebral blood flow of 6-8 seconds or a fall in blood pressure to ≤ 60 mmHg

Classification of syncope - I

- ▶ Reflex (neurally mediated) syncope
 - Vasovagal
 - ▶ Emotional stress, fear, pain, blood, instrumentation
 - ▶ Orthostatic stress
 - Situational
 - ▶ Micturition, post-prandial, post-exercise, visceral pain, defaecation, swallowing, cough, laugh, brass instrument playing, weight lifting
 - Carotid sinus syncope

Classification of syncope - II

- ▶ Syncope due to orthostatic hypotension
 - Primary autonomic failure
 - Parkinsons disease
 - Secondary autonomic failure
 - Diabetes, amyloidosis, spinal injuries
 - Drug induced
 - Alcohol, vasodilators, diuretics, antidepressants
 - Volume depletion
 - Haemorrhage, diarrhoea, vomiting, sweating

Classification of syncope - III

▶ Cardiovascular syncope

- Arrhythmia

- ▶ Bradycardia (hypothyroidism)

- ▶ Tachycardia

- Drug induced tachy - or bradycardia

- Structural heart disease

- ▶ MI, HCM, AS, MS, tamponade, prosthetic valve dysfunction, PE, Aortic dissection, pulmonary hypertension, tumours

General points on syncope

- ▶ Reflex syncope is the commonest cause in any setting
 - ▶ VVS can be diagnosed - if associated with emotional or orthostatic stress and typical prodrome (sweating pallor, nausea)
- ▶ Cardiovascular cause is second most common
 - ▶ – higher frequency in emergency settings and older patients
- ▶ Orthostatic hypotension is a rare cause of syncope in those <40 years of age

General points

- ▶ Patients with very frequent symptoms
 - ▶ Often have psychogenic pseudo-syncope
- ▶ Elderly patients
 - ▶ Often give a clear history of a mechanical fall
 - ▶ If male – often micturition related

Evaluation I

- ▶ Exact situation of syncope
 - Exercise, post-exercise, trauma, micturition, restaurant, standing or sitting, post- ictal features etc
- ▶ Immediate ECG if arrhythmia suspected
- ▶ Holter 24 hour – 7 day recording device
 - In patients >40 yrs of age with structurally normal hearts and ECG, an arrhythmic cause is found in up to 50%
- ▶ Can use implantable recording device
 - Battery life of up to 36 months
- ▶ CSM in patients >40 years of age
 - CSM hypersensitivity = pause of >3 secs or BP fall >50mmHg
- ▶ Any FH of cardiac disease
 - sudden or unexpected death or PPM

Evaluation II

- ▶ Orthostatic challenge
 - ▶ Lying & standing BP when standing up related to symptoms
- ▶ Echocardiogram
 - ▶ when CVS cause 'known' or suspected
- ▶ Exercise treadmill stress test
 - ▶ ECG throughout and 'recovery period' parameters
- ▶ Other specific test (neurology)
 - ▶ when suspect non-syncopal T-LOC
- ▶ 'Tilt table testing'
 - ▶ only in very specific situations

Evaluation III

- ▶ Coronary angiography
 - ▶ If suspect ischaemic aetiology
- ▶ Psychiatry referral
 - ▶ Pseudo-seizures, recurrent syncope, anorexia type scenario
- ▶ Autonomic nervous system function tests
- ▶ Electroencephalography (EEG)

Evaluation IV

Migraines

- ▶ More frequent to have syncope in patients with migraines
- ▶ TIA's
 - ▶ Age category
- ▶ Epilepsy
 - ▶ Aura, post-ictal, tongue biting, injury, headache after event, incontinence

ECG

- ▶ Sinus bradycardia of <40/min when awake
- ▶ Q-waves suggest MI
 - ▶ Persistent ST-segment elevation suggests ventricular aneurysm
- ▶ Mobitz II (not Wenkebach) or 3rd degree CHB
- ▶ Alternating Right and Left BBB
- ▶ VT or rapid SVT
- ▶ Non-sustained Polymorphic VT
- ▶ Long or short QT interval
- ▶ Brugada ECG
- ▶ T-waves down V1-V3 with epsilon waves
 - ▶ Suggests ARVC
- ▶ PPM or ICD malfunction
 - ▶ Call and book in to the Pacing clinic at Harefield

Specific forms

▶ Carotid sinus syncope

- ▶ Usually no mechanical trigger is obvious and CSS is diagnosed by CSM
- ▶ Do not perform CSM if TIA or CVA or carotid bruits

▶ Postural orthostatic tachycardia syndrome (POTS)

- ▶ a symptomatic marked HR increase (>30 beats/min or >120 /min) and unstable BP
- ▶ Usually young women
- ▶ Common association with Chronic fatigue syndrome
- ▶ Pathophysiology unclear
 - ▶ deconditioning, inadequate venous return, excessive peripheral blood pooling

Treatment

▶ Cardiac cause

- ▶ refer to cardiology (Holter, Echo, anti-arrhythmic drugs, PPM, ICD, PTCA, ablation, surgery, etc)

▶ Reflex (VVS and orthostatic syncope)

- ▶ Education & awareness of triggers
- ▶ Fluids (2-3L/day) and salt (10g/day)
- ▶ Physical counter-pressure manoeuvres (leg crossing)
- ▶ Rapid cool water ingestion
 - ▶ may ameliorate post-prandial hypotension and orthostatic intolerance
- ▶ Head of bed elevated by 10°
 - ▶ prevents nocturnal polyuria

Treatment II

- ▶ Compression stockings
 - ▶ for venous pooling
- ▶ Fludrocortisone
 - ▶ at 50-300 mcg od
 - ▶ Evidence not great but seems to reduce or ameliorate events in many cases
- ▶ Midodrine (an alpha agonist)
 - ▶ At 5-20 mg tds
 - ▶ Not a huge amount of evidence (unlicensed in UK)
 - ▶ Effective at elevating BP

Sources of information

- ▶ Guidelines for the diagnosis and management of syncope (version 2009)
 - Moya et al. Eur Heart J 2009;30:263-2671.
- ▶ Map of Medicine – Syncope
 - <<<http://directaccess.mapofmedicine.com/evidence/map/index.html>>>
 - Continually updated (March 2011) – valid through Feb 2012

Heart Failure

84 year old male

History

- ▶ Short of breath on minimal exertion
- ▶ PMH
 - Anterior myocardial infarction 10 yrs ago
 - Triple vessel CABG 9 years ago
 - PTCA to one graft 4 years ago
 - ▶ Current angiogram
 - Grafts all patent
 - Chronic occlusion of RCA
 - No amenable target in LAD or Cx vessels
 - LV ejection fraction very poor

Examination

- ▶ Mildly centrally cyanosed
- ▶ Oedema to knees bilaterally
- ▶ Small amount of apparent ascites
- ▶ Mobilizing slowly
- ▶ Blood pressure already low
 - 105/70 mmHg

Investigations

▶ Electrocardiogram

- Sinus rhythm at 60/min
- Q-waves inferiorly (old MI)

▶ Echocardiogram

- Ejection fraction 10-20%
- Moderate Mitral regurgitation
- Pulmonary artery pressure high (55mm Hg)

▶ Natriuretic Peptides

- BNP
- NTpro-BNP

▶ Renal function

- Creatinine already elevated (180 mmol/L)
- Sodium already too low (120 mmol/L)

Treatments

- ▶ Frusemide
 - ▶ 80mg mane + 40mg at midday
- ▶ Spironolactone
 - ▶ 12.5mg od mane
 - ▶ Use epleronone if side effects
- ▶ Lisinopril
 - ▶ 15mg od nocte
- ▶ Digoxin
 - ▶ 62.5mc od
- ▶ Ivrabadine
 - ▶ Used in place of Bisoprolol or Carvedilol because of BP
 - ▶ 2.5mg bd
- ▶ Metolozone
 - ▶ 2.5 mg od PRN (approx x2/week)

Other treatments

- ▶ BIPAP positive pressure ventilation for acute episodes
- ▶ Inotropic support - rarely used
- ▶ Intra-aortic balloon pump – tertiary centre use (rare)
- ▶ Hemofiltration – ITU situation

Other options available

- ▶ Re-synchronisation therapy
 - ▶ Bi-ventricular PPM +/- AICD
 - ▶ Needs assessment (Echo / broad complex QRS)
- ▶ No other treatment options available
 - ▶ Maximally treated
 - ▶ Renal function deteriorating and low sodium
 - ▶ Low BP
 - ▶ Bradycardic already
- ▶ Community HF services (to keep out of hospital)
- ▶ Palliative care management

Heart Failure

- ▶ Establish any reversible cause
 - ▶ Alcohol
 - ▶ Tachycardia (Anaemia, A.Fibrillation)
 - ▶ Hypertension
 - ▶ Ischaemia
 - ▶ Valve disease
 - ▶ Thyroid disease
 - ▶ Tamponade

Other less reversible causes

- ▶ Dilated cardiomyopathy
- ▶ Hypertrophic cardiomyopathy
- ▶ Chemotherapy induced heart failure
- ▶ Puerperal cardiomyopathy
- ▶ Pulmonary hypertension and Cor Pulmonale
- ▶ Pericardial effusion
- ▶ End stage (low BP/poor kidneys) situation

NICE guidance treatment of HF

1. ACE & Beta blockers
ARB if intolerant of ACE
2. Hydralazine and Nitrate if intolerant of ACE and ARB
(especially if Afro-Caribbean origins)
3. Aldosterone antagonists
spironolactone
4. ARB with the ACE and the Beta blocker
5. Bi-ventricular pacing (CRT)
with or without AICD
6. Digoxin
7. (Withdraw frusemide if able to)

Information Sources

Map of Medicine

<http://directaccess.mapofmedicine.com/evidence/map/index.html>

NICE Clinical Guideline 108

Issue date August 2010

Chronic Heart Failure

Management of chronic heart failure in adults in primary and secondary care