

Countdown to Finals



EPIC FAILURE

Sometimes, you just have no excuse.

Dracula – The Full Blood Count - I

For each of the scenarios below list the likeliest diagnosis, the principal diagnostic investigation, and the definitive treatment.

NB – Hb = g/L from now on = x 10 ‘normal’ value

- (a) A 63 yo man with weight loss and FBC Hb 7.7g/dl, MCV65fl, WCC $11.2 \times 10^9/l$, Plts $498 \times 10^9/l$.
- (b) A 27 yo woman with a 6-month history of increasing lethargy. FBC Hb4.9g/dl, MCV 69fl, WCC $6.6 \times 10^9/l$, Plts $290 \times 10^9/l$
- (c) A 25 yo British born Asian woman presenting for routine surgery. FBC Hb 10.9g/dl, MCV 54fl, WCC $7.9 \times 10^9/l$, Plts $338 \times 10^9/l$
- (d) A 27 yo Eastern European painter and decorator with abdominal pains. His FBC Hb 7.8g/dl, MCV 67fl, WCC $11.2 \times 10^9/l$, Plts $303 \times 10^9/l$ – Blood film: Sideroblasts
- (e) A 67 yo man with rheumatoid arthritis. His FBC Hb 8.4g/dl, MCV 68fl, WCC $6.6 \times 10^9/l$, Plts $157 \times 10^9/l$

Dracula – The Full Blood Count - II

For each of the scenarios below list the likeliest diagnosis, the principal diagnostic investigation, and the definitive treatment.

NB – Hb = g/L from now on = x 10 ‘normal’ value

- (a) A 63 yo man recently started on Phenytoin after neurosurgery. FBC Hb 2.7g/dl, MCV94fl, WCC $1.2 \times 10^9/l$, Plats $18 \times 10^9/l$.
- (b) A 55 yo woman with known vitiligo presents with lethargy. FBC Hb 2.9g/dl, MCV 121fl, WCC $2.9 \times 10^9/l$, Plats $38 \times 10^9/l$
- (c) A 21 yo African man with fever and FBC Hb 12.8g/dl, MCV 87fl, WCC $12.2 \times 10^9/l$, Plats $23 \times 10^9/l$
- (d) A 69 yo man with back pain and FBC Hb 6.4g/dl, MCV 98fl, WCC $3.6 \times 10^9/l$, Plats $67 \times 10^9/l$
- (e) A 19 yo woman with weight loss and FBC Hb 7.9g/dl MCV 108fl, WCC $7.0 \times 10^9/l$, Plats $322 \times 10^9/l$
- (f) A 61 yo man with spider naevi and hepatosplenomegaly, FBC Hb 10.6g/dl, MCV 111fl, WCC $4.6 \times 10^9/l$, Plats $88 \times 10^9/l$
- (g) A 71 yo man with rheumatoid arthritis and FBC Hb 8.1g/dl, MCV 85fl, WCC $6.6 \times 10^9/l$, plats $309 \times 10^9/l$.

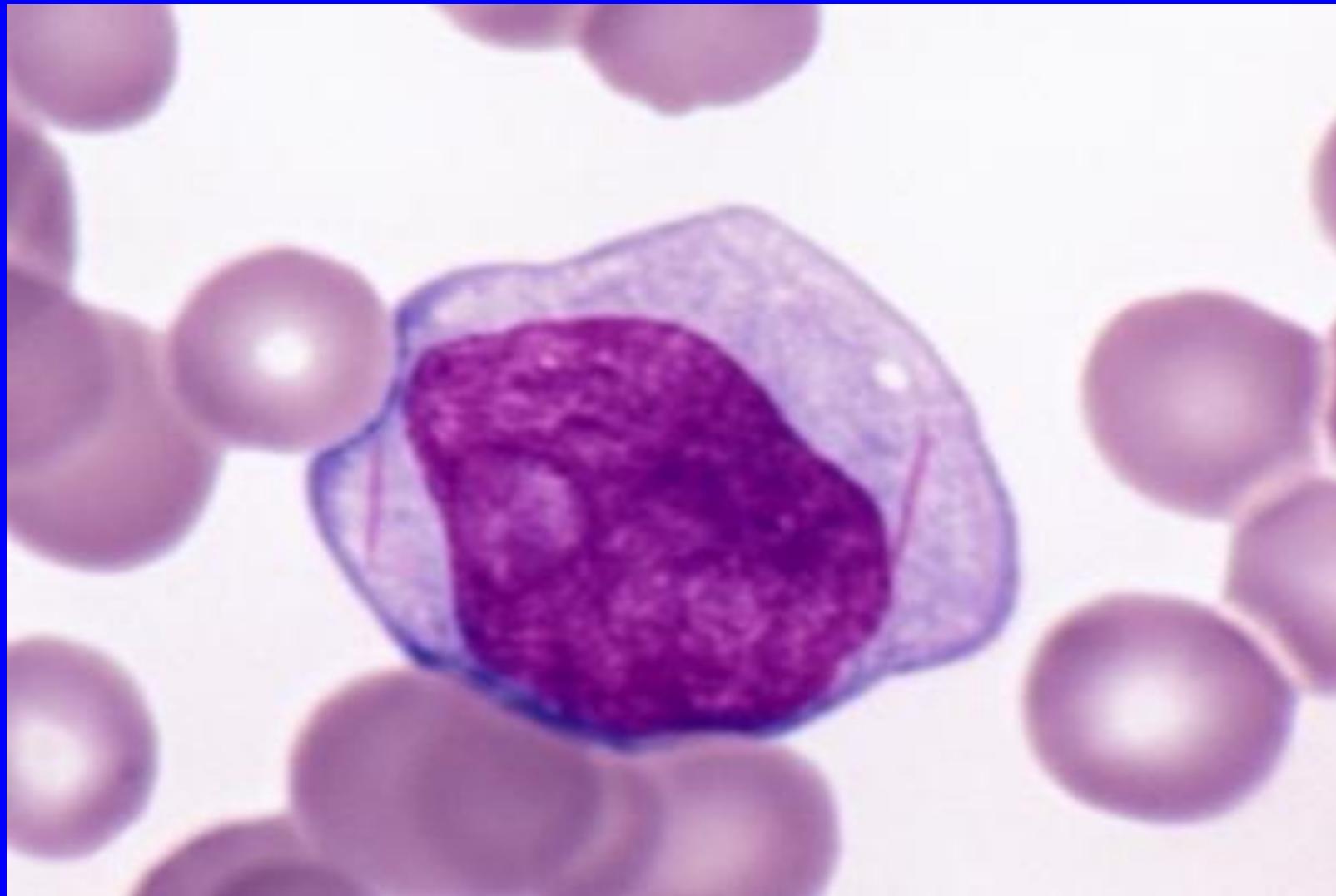
Dracula – The Full Blood Count - III

For each of the scenarios below list the likeliest diagnosis, the principal diagnostic investigation, and the definitive treatment.

Normal = WCC 4.0 – 11.0 x10⁹/l [Neutro 3 – 6, Lymph 1 – 3, Eos <0.5]

- (a) An 85yo woman with acute confusion and a temperature of 38.9°C
WCC 21.9 x10⁹/l, [Neutrophils 19.1, Lymphs 1.2, Eosinophils 0.2], Plts 32
- (b) A 21yo student presents with fever, sore throat, and aches and pains all over –
WCC 13.9 x10⁹/l, [Neutrophils 4.9, Lymphs 8.2, Eosinophils 0.1]
- (c) A 23yo man who has just returned from the ‘tropics’ with diarrhoea and weight loss – WCC 11.9 x10⁹/l, [Neutrophils 4.1, Lymphs 1.2, Eosinophils 5.6]
- (d) A 51yo woman with breast cancer presents to the ED, 7 days after her 3rd course of chemotherapy. She has fever rigors and is very unwell. FBC Hb 6.6g/dl, MCV 89fl, WCC 0.6 x10⁹/l, [Neutrophils 0.5, Lymphs 0.1, Eosinophils 0.0]
Plts 58 x10⁹/l

Haematological Malignancies 101



An 84 yo man with a presumed UTI - FBC Hb 10.1g/dl, MCV 85fl, WCC $106.6 \times 10^9/l$ (lymphs 102.4), plats $189 \times 10^9/l$.

Which of the following is the likeliest explanation for his WCC?

- A.Chronic Lymphocytic leukaemia
- B.Chronic Myeloid leukaemia
- C.Hodkin's Lymphoma
- D.Multiple myeloma
- E.Non-Hodgkin's lymphoma

A 7yo boy presents to his GP with increasing lethargy and listlessness. His FBC shows: Hb 3.4g/dl, MCV 98fl, WCC $17.6 \times 10^9/l$, Plts $67 \times 10^9/l$.

Which of the following are most likely to be seen in his peripheral blood film ?

- A. Auer rods
- B. Blast cells
- C. Howell-Jolly bodies
- D. Plasma cells
- E. Reed-Sternberg cells

A 51 yo man presents with malaise, night sweats, weight loss and ‘massive’ splenomegaly, FBC Hb 7.6g/dl, MCV 99fl, WCC $14.6 \times 10^9/l$, Plts $88 \times 10^9/l$ – Philadelphia chromosome noted (9:22 translocation)

Which of the following classes of the therapeutic agents target the 9:22 translocation?

- A. Alkylating agents
- B. Anti-metabolites
- C. Interferon
- D. Steroids
- E. Tyrosine Kinase inhibitors

A 69yo woman with malaise, heavy bruising over her arms and legs, and lymphadenopathy FBC Hb 5.9g/dl MCV 94fl, WCC 23.0 x10⁹/l, Plts 22 x10⁹/l

Which of the following are true of the underlying condition?

- A. There is a bimodal age distribution
- B. The incidence is the same in men and women
- C. It is characterised by the presence of Auer rods
- D. Patients commonly present with huge splenomegaly
- E. It is associated with the 9:22 chromosomal translocation

A 53yo man presents to his GP with increasing malaise, pain in all his limbs, and a ‘swollen face’. Routine investigations reveal: FBC Hb 4.7g/dl, MCV105fl, WCC $2.2 \times 10^9/l$, Plts $28 \times 10^9/l$. U&Es: Na^+ 129mmol/l, K^+ 8.7mmol/L, Urea 21.9mmol/L, Creatinine 489 $\mu\text{mol}/\text{L}$, CCa^{2+} 3.78mmol/L.

Which of the following would help confirm the most likely underlying cause of his presentation?

- A. Isotope bone scan
- B. Paired serum and urinary osmolalities
- C. Parathyroid hormone
- D. Protein: creatinine ratio (PCR)
- E. Serum Electrophoresis

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Which of the following are true of the underlying condition?

- A. There is a bimodal age distribution
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Acute Leukaemias

ALL

- Primarily a disease of kids (M=F)
- Characterised by large lymphoblasts
- Present with symptoms and signs of BM failure and organ infiltration (HSM, LN, Testes)

AML

- Primarily a disease of older adults (>60s)
- Characterised by Auer rods in the blasts
- Present with signs and symptoms of BM failure

Chronic Leukaemias

CML

- Disease of late middle age
- Characterised by the Chromosomal translocation (9:22) = Philadelphia Chromosome = BCR-ABL complex
- Relative slow progression but fatal within 3-4 years if untreated
- TKIs have improved prognosis immeasurably (>80% 5 year survival)
- Classically ‘3xphases’ – Chronic (slow) – accelerated – Blast transformation

CLL

- Disease of old(er) age; indolent course – median survival > 10 years
- Commonly picked up on routine blood testing in older people
- Characterised by very high white cell count with lymphocytosis
- Treated with antimetabolites (e.g. Hydroxyurea)

Hodgkin's Lymphoma

- Bimodal age presentation – 30s and 50-70s
- Characterised by Reed-Sternberg cells
- Present with LNs, HSM and ‘B symptoms’
 - Fevers, drenching night sweats, weight loss

U+Es – ‘Lights’

For each of the scenarios below listing (i) the likeliest cause of the derangement of the electrolytes and / or the urea and creatinine, (ii) the principal diagnostic investigation, and (iii) the definitive treatment.

- (a) A 51 yo alcoholic presenting with encephalopathy and U+Es: Na^+ 121 mmol/L, K^+ 3.8 mmol/L, Urea 34.7 mmol/L, Creatinine 86 $\mu\text{mol}/\text{L}$.
- (b) A 31 yo man presenting with confusion, sepsis and U+Es: Na^+ 141 mmol/L, K^+ 3.7 mmol/L, Urea 21.7 mmol/L, Creatinine 126 $\mu\text{mol}/\text{L}$.
- (c) A 65 yo man with back pain, anaemia and U+Es: Na^+ 127 mmol/L, K^+ 7.8 mmol/L, Urea 34.8 mmol/L, Creatinine 1009 $\mu\text{mol}/\text{L}$.
- (d) An 81 yo man presents with urinary retention and U+Es: Na^+ 148 mmol/L, K^+ 6.8 mmol/L, Urea 36.1 mmol/L, Creatinine 344 $\mu\text{mol}/\text{L}$.
- (e) A 43 yo man presenting with a asterixis and confusion; U+Es: Na^+ 123 mmol/L, K^+ 8.8 mmol/L, Urea 66.9 mmol/L, Creatinine 1334 $\mu\text{mol}/\text{L}$.
- (f) A 68 yo man who is on long term oxygen therapy and steroids for pulmonary fibrosis presents in the ED with D&V; U+Es: Na^+ 114 mmol/L, K^+ 3.6 mmol/L, Urea 14.7 mmol/L, Creatinine 129 $\mu\text{mol}/\text{L}$.

LOW- Sodium - HIGH

- (a) A 76 yo man with known type 2 diabetes mellitus presents in the ED with increasing confusion and 'high' blood sugars. His U+Es: Na^+ 183 mmol/L, K^+ 5.2 mmol/L, Urea 44.0 mmol/L, Creatinine 221 $\mu\text{mol}/\text{L}$, RBG 89.0mmol/L
- (i) What's the likely diagnosis?
 - (ii) Calculate the serum osmolality; what would you expect his urinary sodium and osmolality to be?
 - (iii) List 3 further investigations
 - (iv) List the definitive treatment
- (b) A 31 yo man presenting with confusion, a dry cough and generalised headache. His U+Es: Na^+ 116 mmol/L, K^+ 4.7 mmol/L, Urea 14.7 mmol/L, Creatinine 108 $\mu\text{mol}/\text{L}$, RBG 4.1mmol/L
- (i) List a differential diagnosis?
 - (ii) Calculate the serum osmolality; what would you expect his urinary sodium and osmolality to be?
 - (iii) List 3 further investigations
 - (iv) List the definitive treatment for one of your likely diagnoses

LOW- Sodium - HIGH

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- (i) HHS
 - (ii) Serum osmolality = $2[\text{Na}^+ + \text{K}^+] + \text{Urea} + \text{Glucose} = 509.4\text{mOsm/L}$
[Normal osmo = 285-295mOsm/L]; He is grossly dehydrated and hyperosmolar – thus principal need is to conserve water; However he is unlikely to be passing any / very much urine at all!
Urinary osmolality will be high because of the lack of water, but Na^+ may be high or low (one will conserve Na^+ and water regardless of plasma Na^+)
 - (iii) Look for the source!
 - (iv) FLUIDS, Treat the source, 'a pinch of insulin', LMWH and TEDS
- (b) A 31 yo man presenting with confusion, a dry cough and generalised headache. His U+Es: Na^+ 116 mmol/L, K^+ 4.7 mmol/L, Urea 14.7 mmol/L, Creatinine 108 $\mu\text{mol}/\text{L}$, RBG 4.1mmol/L
- (i) Causes of SIADH – 'in the chest, in the head' – on the chart
 - (ii) Serum osmolality = $2[\text{Na}^+ + \text{K}^+] + \text{Urea} + \text{Glucose} = 260.2\text{mOsm/L}$
 - (iii) Prove the SIADH, Prove the underlying diagnosis
 - (iv) Fluids (with sodium), IV antibiotics, Chase the underlying diagnosis (contact trace??)

LFTs – ‘They call me mellow yellow - I’

For each of the scenarios below list the likeliest diagnosis and the principal diagnostic investigation.

- (a) A 21 yo man presents with painless jaundice and LFTS: TBil 34mmol/l, Alb 38g/l, AST 135iu/l, ALT 109iu/l, Alk Phos 344iu/l.
- (b) A 78 yo man presents with painless jaundice and LFTS: TBil 39mmol/l, Alb 27g/l, AST 14iu/l, ALT 124iu/l, Alk Phos 944iu/l.
- (c) A 38yo woman presents in the ED with jaundice, vomiting and rigors. TBil 64mmol/l, Alb 38g/l, AST 63iu/l, ALT 89iu/l, Alk Phos 1407iu/l
- (d) A 31 yo woman is well 24 hours after a routine laparoscopy but her LFTS demonstrate: TBil 44mmol/l, Alb 40g/l, AST 13iu/l, ALT 19iu/l, Alk Phos 107iu/l
- (e) A 61 yo woman presents to the ED with a dry cough, fever and confusion. Her LFTS: TBil 49mmol/l, Alb 29g/l, AST 67iu/l, ALT 71iu/l, Alk Phos 390iu/l.
- (f) A 38 yo man presents in the ED with drowsiness and confusion. He is noted to have gynaecomastia, Dupuytren’s contracture and ascites. LFTS: TBil 94mmol/l, Alb 12g/l, AST 1077iu/l, ALT 879iu/l, Alk Phos 1300iu/l

LFTs – ‘They call me mellow yellow - II’

For each of the scenarios below list the likeliest diagnosis and the principal diagnostic investigation.

- (a) A 25yo man presents with malaise and increasing enlargement of his neck glands LFTS: TBil 39mmol/l, Alb 33g/l, AST 34iu/l, ALT 24iu/l, Alk Phos 344iu/l, LDH 655iu/l (normal 70 – 250iu/L)
- (b) A 78 yo man presents with aches and pains all over. LFTS: TBil 7mmol/l, Alb 37g/l, AST 1004iu/l, ALT 34iu/l, Alk Phos 256iu/l. ESR 88mm/Hr
- (c) A 76yo woman presents to her GP with malaise. Routine blood tests reveal LFTS: TBil 5mmol/l, Alb 38g/l, AST 14iu/l, ALT 18iu/l, Alk Phos 1256iu/l.

Antibiotics



It was on a short-cut through the hospital kitchens that Albert was first approached by a member of the Antibiotic Resistance.

For each of the following scenarios list the most appropriate antibiotic(s) therapy. You may assume there are no allergies unless stated.

- (a) A 63-year-old man presents in the ED with an infective exacerbation of COPD
- (b) A 24-yo man presents to his GP with severely crusted and reddened eyes
- (c) A 39-yo man with type 2 diabetes presents in the ED with a cellulitic and ‘anaerobic smelling’ foot ulcer. He is allergic to Penicillin.
- (d) A 36-yo obese woman presents in the ED with fever, rigors and right upper quadrant pain.
- (e) A 74-yo woman presents in the ED with fever, vomiting and dysuria. Her BP is 86/45mmHg and her HR is 123bpm.
- (f) A 54-yo man undergoing chemotherapy presents in the ED with fever, rigors and collapse. His last chemotherapy was 8-days ago
- (g) A 47-year old man with asthma presents in the ED with a worsening chest infection and wheeze, 6 days after he was discharged after a 5 day admission.
- (h) A 39-yo man is re-admitted with fevers and a MRSA bacteraemia.
- (i) A 22-yo woman is admitted with suspected bacterial meningitis

For each of the following patients:

List:

- the inferred diagnoses
- the unifying diagnosis
- one essential investigation
- one essential therapeutic intervention.

Patient 1 – Sweeet!

21 year old man is brought into the ED confused and unwell. His initial ABGs on room air show

pH 7.01

PaCO₂ 2.9 KPa

PaO₂ 14.6 KPa

Sats 98%

HCO₃⁻ 7 mmol/l

Base excess – minus 21.9mmol/l

What will you do now????

Patient 2 – Don't get in a flap!

A 63 year old man is brought into the ED confused and unwell. His initial ABGs on 60% oxygen received in the ambulance show:

pH 7.11

PaCO₂ 12.9 kPa

PaO₂ 6.6 kPa

Sats 68%

HCO₃⁻ 16 mmol/l

Base excess - 3.3mmol/l

Patient 3 – You make me sick!

A 73 year old man is brought into the ED confused and unwell. His initial ABGs on room air show

pH 7.61

PaCO₂ 5.1 KPa

PaO₂ 11.2 KPa

Sats 94%

HCO₃⁻ 58 mmol/l

Base excess +27.2mmol/l

Patient 4 – Are you mad?

A 23 year old woman is brought into the ED hyperventilating and unwell. Her initial ABGs on room air show

pH 7.34

PaCO₂ 1.6 KPa

PaO₂ 7.3 KPa

Sats 88%

HCO₃⁻ 19 mmol/l

Base excess – 3.9

Patient 5 – Incontinence pads to the fore!

A 23 year old asthmatic woman is brought into the ED acutely dyspnoeic and unwell. Her initial ABGs on 15litres /minute non-rebreathing mask

pH 7.21

PaCO₂ 7.6 KPa

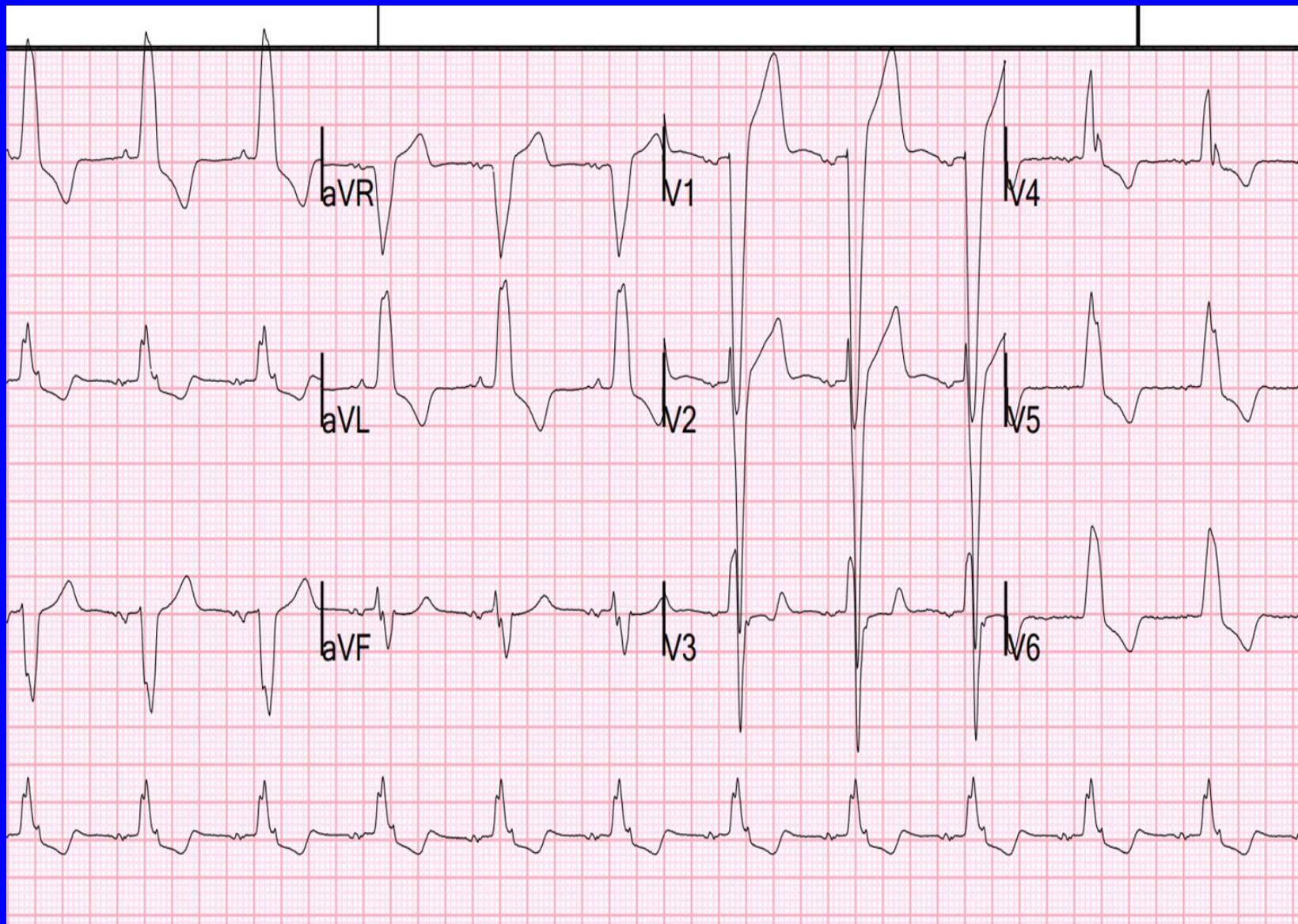
PaO₂ 9.3 KPa

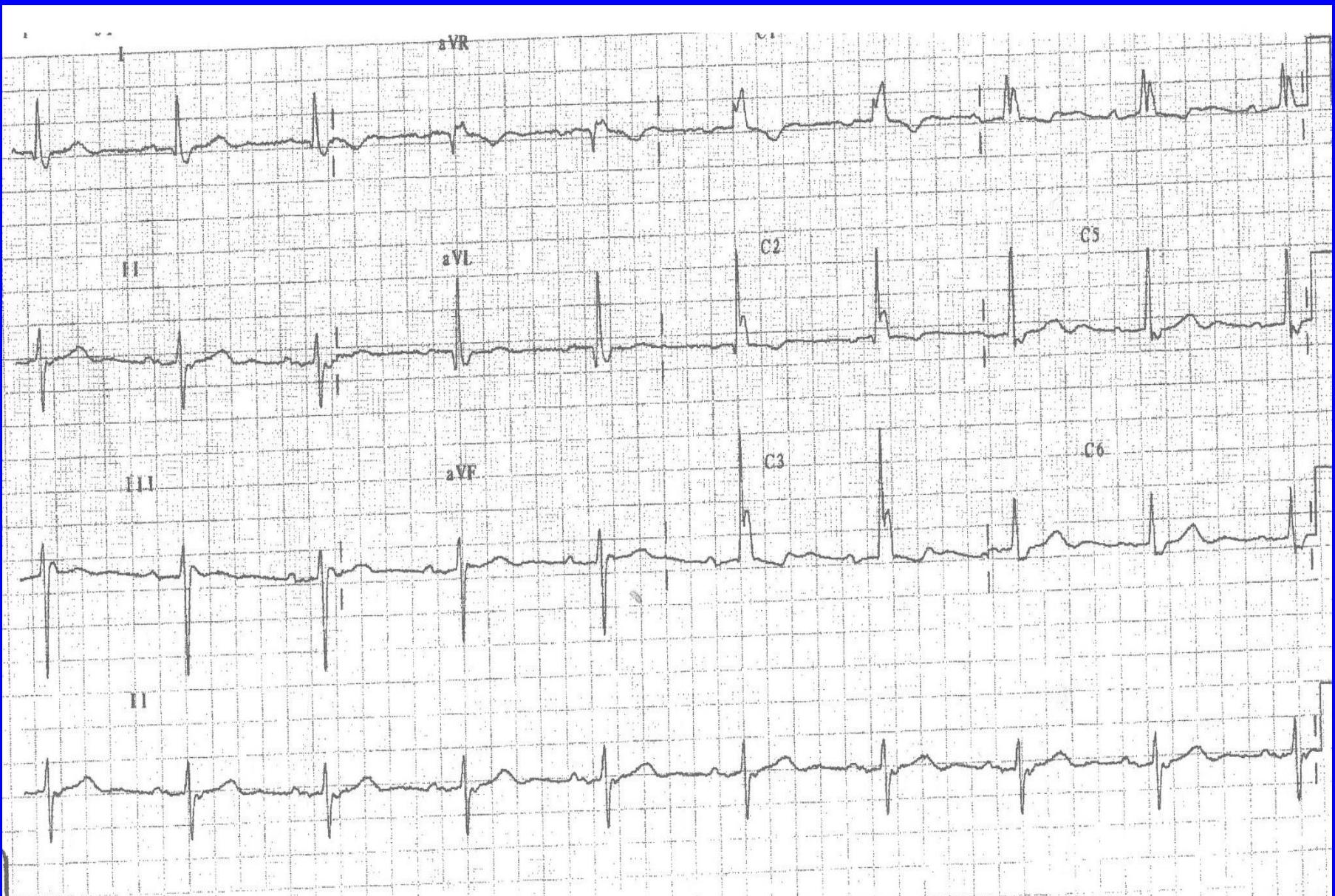
Sats 85%

HCO₃⁻ 17 mmol/l

Base excess – minus 20.9mmol/l

Random ECG time ..

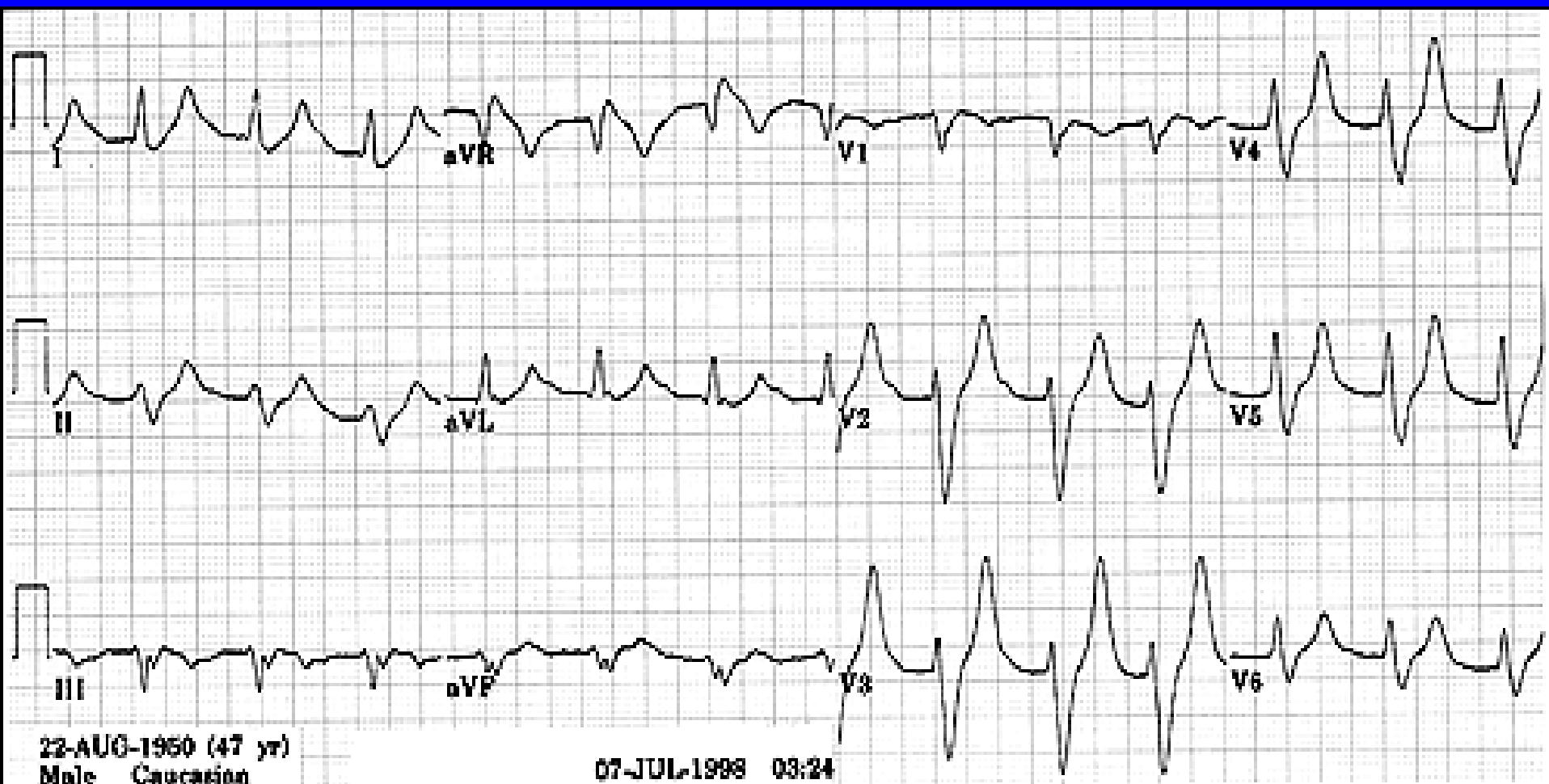




(i) List 5 x abnormalities of the ECG

02754

A 54-year-old man on several anti-hypertensive medications presents feeling very unwell and ‘faint’. What does the ECG show? What is your management?



A 59yo woman presents in the ED with severe central chest pain and dizziness. What is the ECG diagnosis?



1. Theme: Acute renal failure - Thanks very much

- A. Anti-GBM disease
- B. Benzylpenicillin
- C. E. Coli 0157
- D. Gentamicin
- E. IgA nephropathy
- F. Legionella pneumonia
- G. Multiple myeloma
- H. Ramipril
- I. Streptococcal pneumonia
- J. Wegner's granulomatosis

The patients below have all presented with acute renal failure. Please choose the most appropriate cause from the above list.

1. A 29-year-old man presents acutely unwell in the ED. He has a decreased level of consciousness, confusion and diarrhoea. Investigation revealed FBC. Hb 11.9 g/dl, MCV 91fl, WCC $13.6 \times 10^9/l$, platelets $24.9 \times 10^9/l$; U & Es: Na 124 mmol/l, K 2.9 mmol/l, Urea 11.1 mmol/l, Creatinine 207 $\mu\text{mol}/l$. The diagnosis is confirmed by urinary antigen titres.
2. A 78-year-old woman is admitted with a severe cellulitis of her left anterior shin. She is started on appropriate IV treatment but 5 days later investigations show U & Es: Na 131mmol/l, K 6.4mmol/l, Urea 19.3mmol/l, Creatinine 516 $\mu\text{mol}/l$. She also has marked proteinuria and peripheral oedema.
3. A 19-year-old man presents to his GP ten days after developing a sore throat with increasing ankle oedema and lethargy. He has marked proteinuria on his dipstick and U & Es: Na 130 mmol/l, K 6.6mmol/l, Urea 14.9mmol/l, Creatinine 488 $\mu\text{mol}/l$.
4. A 38-year-old woman is admitted to hospital with a 10 day history of 'flu-like' illness, shortness of breath with marked haemoptysis and ankle oedema. Her chest radiograph reveals "patchy shadowing in both lung fields, consistent with pulmonary haemorrhage". Urinalysis- protein +++: U & Es: Na 128mmol/l, K 6.9mmol/l, Urea 22.3mmol/l, Creatinine 516 $\mu\text{mol}/l$.
5. A 31-year-old man presents to his GP with 'nasal congestion', episodes of frank haemoptysis and one week history of increasing shortness of breath and peripheral oedema. U + Es: Na 128mmol/l, K 7.2mmol/l, Urea 21mmol/l, Creatinine 736 $\mu\text{mol}/l$; ESR 129 mm/hr, CCa²⁺ 2.34 mmol/l, Plasma electrophoresis- increased α_2 Globulin.

2. Theme: Jaundice -They call me mellow yellow

- | | | | |
|---|---------------------------------------|---|---------------------------|
| A | Autoimmune hepatitis | F | Hepatitis A Virus (HAV) |
| B | Carcinoma of the Head of the Pancreas | G | Hepatitis B Virus (HBV) |
| C | Epstein-Barr Virus (EBV) | H | Primary Biliary Cirrhosis |
| D | Gallstones | I | Sclerosing Cholangitis |
| E | Haemochromatosis | J | Wilson's disease |

The patients below have all presented with jaundice. Please choose the most appropriate cause from the above list.

1. A 43-year-old man presents to his GP with increasing polydyspia. On examination he appears to be slightly 'suntanned' despite not having been in the sun for six months. He has spider naevi and gynaecomastia and 3 cm hepatomegaly below the right costal margin. His CBG is 17.9mmol/l. Routine investigations reveal FBC: Hb 8.7 g/dl, MCV 101fl, WCC 3.9×10^9 , Plt 88×10^9 ; RBG 23.2 mmol/l; LFTs Tbil 27 $\mu\text{mol/l}$, AST65iu/l, ALT 51iu/l, Alk phos 555iu/l, Alb 31 g/l; Ferretin 12,770 $\mu\text{g/l}$.
2. A 38-year-old woman is seen in medical outpatients with a 2 month history of weight loss associated with recent onset of jaundice. On examination she has spider naevi, Dupuytren's contracture and 4 cm hepatomegaly below the right costal margin. The diagnosis is confirmed by the presence of anti-smooth muscle and anti-LKM-1 antibodies. She improves quite rapidly with corticosteroids
3. A 27-year-old woman with poorly controlled Sickle Cell disease is admitted to hospital with severe abdominal pain, pyrexia and vomiting. On examination she is jaundiced, has generalised abdominal pain with some, more localised tenderness in the right upper quadrant. Initial investigations reveal FBC: Hb 5.5 g/dl, MCV 87fl, WCC 23.9×10^9 , Plt 411×10^9 ; U&Es Na+ 141 mmol/l, K+ 4.7 mmol/l, Urea 12.9mmol/l, Cr 112 $\mu\text{mol/l}$. LFTs Tbil 47 $\mu\text{mol/l}$, AST72iu/l, ALT 66iu/l, Alk phos 871iu/l, Alb 34 g/l.
4. A previously fit and well 35-year-old man returns from India with a weeks history of worsening abdominal pains, diarrhoea, vomiting and a fever. Over the last 72 hours he has also become jaundiced. His investigations reveal LFTs Tbil 38 $\mu\text{mol/l}$, AST1332iu/l, ALT 1219iu/l, Alk phos 238iu/l, Alb 32 g/l and an acute phase IgM response confirming the presence of an RNA virus.
5. A 27 year-old man with known ulcerative colitis is seen in the gastroenterology clinic for his 6 month check up. He reports he has been well with no recent acute exacerbations of his colitis. However in the last few months he has had occasional upper abdominal pains with itching and more recently an episode of jaundice. Routine investigations reveal LFTs Tbil 18 $\mu\text{mol/l}$, AST22iu/l, ALT 19iu/l, Alk phos 438iu/l, Alb 39 g/l. The diagnosis is confirmed on ERCP which shows 'occasional beading of the biliary tree'.

3. Theme: Stroke - NOT CVA

| | | | |
|---|------------|---|-----------|
| A | Cerebellar | F | Occipital |
| B | Cervical | G | Parietal |
| C | Frontal | H | Pontine |
| D | Medullary | I | Temporal |
| E | Mid Brain | J | Thalamic |

The patients below have all presented with signs of a stroke. Please choose the most appropriate site of their lesion from the above list.

1. A 64-year-old left handed man with known hypertension presents in the ED with an episode of collapse. On examination he is well but his BP = 210/135mm Hg. He is noted by the ST2 to have marked nystagmus to the right, right sided dysdiadochokinesia and past pointing.
2. A 67-year-old right handed woman calls out her GP due to sudden difficulty with her speech. On arrival she finds the patient has no obvious limb weakness but has marked dysarthria. Her pupils and eye movements are normal but her palate deviates to the left when asked to say 'aaagh' and her tongue deviates to the right on protrusion.
3. An 84-year-old right handed woman with a previous history of stroke presents to the ED with a collapse. On examination she has signs of her old right hemiparesis but has a new right homonymous hemianopia.
4. A 59-year-old man is brought to the ED with a GCS=3. He has respiratory depression and bilateral pupillary constriction which do not improve with several doses of Naloxone. CT head scan fails to demonstrate any abnormalities; remarkably he makes some improvement. The diagnosis is confirmed on MRI scan.
5. A 78-year-old right handed woman is admitted to hospital with a right hemisphere stroke. On the stroke rehabilitation ward she complains of shooting pains down her left arm and leg which improve somewhat with Gabapentin.

4. Theme: Pupillary Defects - Eye, Eye!

- | | |
|------------------------------|------------------------|
| A. Afferent pupillary defect | F. Holmes – Adie pupil |
| B. Argyll-Robertson pupil | G. Horner's syndrome |
| C. Cataract | H. Iridectomy |
| D. Fixed, dilated pupil | I. Marcus-Gunn pupil |
| E. Fixed, dilated pupils | J. Pin point pupils |

The patients below have all presented with pupillary defects. Please choose the most appropriate cause from the above list.

1. A 79-year-old woman with metastatic carcinoma is brought in by ambulance to the ED with a decreased level of consciousness. She has recently been converted to MST from regular oramorph but her husband has continued to give her the oramorph. She recovers a little with an IV dose of naloxone.
2. A 19-year-old woman is seen for a routine medical on attending her new medical school. The doctor notices her left pupil is larger than the right and is very slow to react to light. She also finds it difficult to elicit tendon reflexes on the left.
3. A 69-year-old man is admitted to hospital with acute onset chronic confusion due to a chest infection. Neurological examination shows an irregular small pupil on the right. A CT head scan shows atrophy but no focal. He is found to be fTA, TPHA positive.
4. A 49-year-old man with hypertension and diabetes mellitus presents in the ED with a sudden severe headache associated with 'closure' of his right eye. A subsequent MRI and angiogram shows a ruptured posterior communicating artery aneurysm which is repaired neuro-surgically.
5. A 61-year-old 'heavy smoker' presents to his GP with a three month history of weight loss, haemoptysis and a hoarse voice. More recently he has noticed his left eye looks 'closed'.

5. Seizures – Fits, Absences and Funny turns

- | | |
|-----------------------|-----------------------|
| A. Alcohol withdrawal | F. Hypomagnesæmia |
| B. Iatrogenic | G. Hypoxia |
| C. Idiopathic | H. Meningitis |
| D. Hypocalcaemia | I. Stroke |
| E. Hypoglycaemia | J. Subdural haematoma |

The patients below have all presented with seizures. Please choose the most appropriate cause from the above list.

1. A 61-year-old man on bendroflumethiazide and furosemide presents in the ED with a seizure. Subsequent Blood tests, ECG, CXR and CT head scan is unremarkable. The clever FY1 doctor remembers the FdF lecture about diuretics(!) and saves the day.
2. A 61-year-old man with known hypertension presents in the ED with a seizure. On examination there is no neurological deficit but he is drowsy and confused. His BP is 210/105, Pulse 88 AF, O₂ sats 99% on 2l/min, CBG 5.9mmol/l. CT head scan performed 4 hours later shows some involutional changes but nil focal.
3. A 61-year-old man with known hypertension is recovering after a total parathyroidectomy. Twelve hours post-operatively he has a tonic-clonic seizure. His right hand starts to ‘spasm’ each time the BP cuff inflates.
4. A 61-year-old man with known hypertension presents to the ED with his first tonic-clonic seizure, which has spontaneously resolved in the ambulance. Of note he has marked gynaecomastia and multiple spider naevi. His FBC shows Hb 9.8g/dl, MCV 104fl, WCC 13.7x10⁹/l, platelets 63 x 10⁹/l.
5. A 61-year-old man with known hypertension and epilepsy presents to the ED with a tonic-clonic seizure. His FBC shows a pancytopenia with marked macrocytosis and he is noted on examination to have cerebellar signs. His CT head scan shows no new changes.

6. Theme: Delirium - Ooh! that makes me mad!

- | | | | |
|---|--------------------|---|----------------------|
| A | Atypical pneumonia | F | Hyponatraemia |
| B | Encephalopathy | G | Meningitis |
| C | Hypercalcaemia | H | Opiate narcosis |
| D | Hypercapnia | I | Subdural haemorrhage |
| E | Hypoglycaemia | J | Uraemia |

The patients below have all presented with delirium. Please choose the most appropriate cause from the above list.

1. An 83-year-old woman is found at home by her son, she is very confused and is dragging her left leg. He takes her to the local hospital and tells the admitting doctor that she has been deteriorating for the past ten days since falling down a flight of steps whilst out on a coach trip with her friends.
2. A 92-year-old previously fit and well woman is admitted to hospital with diarrhoea, faecal incontinence and increasing confusion. Routine investigations reveal FBC: Hb 12.2 g/dl, MCV 85fl, WCC 7.8×10^9 (with a relative lymphopaenia), Plt 377×10^9 ; U&Es Na $+ 127$ mmol/l, K $+$ 4.3 mmol/l, Urea 9.7mmol/l, Cr 107 μ mol/l. She improves with intravenous clarithromycin and augmentin.
3. A 78-year-old woman is seen by her GP with depression following the death of her son in a motorbike accident. He places her on Paroxetine but 3 weeks later he is called out by the patient's youngest son who is concerned that she has become increasingly confused. The GP can find no abnormalities on examination and urinalysis and BM stix are also normal. The son does not want her admitted to hospital and so the GP decides to stop the Paroxetine and sends some routine blood tests. She improves over the next few days as do her abnormal tests.
4. A 79-year-old woman with known hypertension and ischaemic heart disease is started on Ramipril by a SHO in outpatients. Her other medications include bendrofluazide and spironolactone. Six weeks later she is admitted to hospital with increasing confusion and is noted to have hiccups and 'twitches'.
5. A 79-year-old woman is started on Chlorpropamide in Pakistan after being admitted to hospital with chest pains and high blood glucose. Several months after her return to the UK she is found at home by her daughter very clammy and confused. She improves with some Glucagon administered by the paramedics at the scene.

7. Cerebellar Disease – Ataxia? Me? With my reputation?

- | | | | |
|----------|-----------------------------------|----------|----------------------------|
| A | Alcohol excess | F | Haemorrhagic stroke |
| B | Arnold-Chiari Malformation | G | Iatrogenic |
| C | Dandy-Walker Syndrome | H | Ischaemic stroke |
| D | Demyelination | I | OPCD |
| E | Friedrich's ataxia | J | Paraneoplastic |

The patients below have all presented with signs of cerebellar disease. Please choose the most appropriate cause from the above list.

1. A 24-year-old woman presents to the ED with increasing unsteadiness and falls. She admits to dyspareunia, intermenstrual bleeding for the past 3 months and has lost a significant amount of weight. On examination she is noted to have bilateral cerebellar signs.
2. A 24-year-old woman with known idiopathic epilepsy presents in the ED with increasing unsteadiness and falls. On examination she has bilateral nystagmus and cerebellar speech.
3. A 24-year-old woman presents to the ED with several episodes of pins and needles in her hands and numbness in her feet associated with an episode of loss of vision in her left eye. She is now noted to have cerebellar features. Of note ophthalmoscopy is unremarkable but her VA is markedly reduced in the left eye.
4. A 24-year-old woman presents semi-conscious in the ED with a severe occipital headache. She is noted to have bilateral cerebellar signs and a reducing level of consciousness. She is electively paralysed and ventilated and an emergency CT head scan confirms she requires urgent neurosurgical intervention.
5. A 24-year-old with a known ASD presents in the ED after returning from a 6 week trip to Australia. She is noted to have marked nystagmus to the right with ipsilateral dysdiadochokinesia and past pointing.

8. Theme: Peripheral Sensory Neuropathy - Where there's no sense

- | | |
|------------------|---------------------|
| A Alcohol excess | F Diabetes mellitus |
| B Amyloidosis | G Hypothyroidism |
| C Amiodarone | H Isoniazid |
| D B12 deficiency | I Paraneoplastic |
| E Demyelination | J Uraemia |

The patients below have all presented with symptoms of a peripheral sensory neuropathy. Please choose the most appropriate cause from the above list.

1. A 62-year-old man with known mitral valve disease is admitted to hospital with severe sunburn. On examination he is noted to have ‘little lesions across his cornea’ but is otherwise well. He tells the ST2 on the ward he has been experiencing pins and needles in his hands and feet for sometime and closer examination confirms a loss of joint position sense, vibration and light touch in his hands and feet.
2. A 24-year-old man is seen in medical outpatients with parasthesiae and numbness in his feet. He has been unable to drive in the last few weeks as he can not feel the pedals in the car and he has been having episodes of blurred vision. The diagnosis is confirmed by a MRI scan of his cervical cord and brain and delayed visual evoked responses.
3. A 79-year-old woman presents to her GP with worsening numbness in her hands and feet associated with swelling of her ankles. Subsequent investigations confirm a nephrotic syndrome and the underlying diagnosis is confirmed when the renal biopsy appears apple green under polarised light with congo red staining.
4. A 37-year-old woman with vitiligo presents to her GP with weight gain, increasing lethargy and malaise associated with tingling in her hands. Routine investigations reveal FBC: Hb 11.2 g/dl, MCV 99fl, WCC 7.8×10^9 , Plt 303×10^9 ; U&Es Na+ 127 mmol/l, K+ 4.4 mmol/l, Urea 4.7 mmol/l, Cr 87 μ mol/l.
5. A 35-year-old vegan woman presents to her GP with increasing lethargy, malaise and numbness in her feet. Routine investigation confirm FBC: Hb 4.1 g/dl, MCV 122fl, WCC 2.1×10^9 , Plt 59×10^9 ; U&Es Na+ 135 mmol/l, K+ 4.8 mmol/l, Urea 3.9 mmol/l, Cr 79 μ mol/l

9. Theme: Heart Sounds - LUB DUB WHOOSH

- | | | | |
|---|-------------------------|----|----------------------|
| A | Early diastolic murmur | F. | Mid diastolic murmur |
| B | Early systolic murmur | G. | Mid systolic click |
| C | Ejection systolic click | H. | Opening snap |
| D | Fourth heart sound | I. | Pansystolic murmur |
| E | Late systolic murmur | J. | Third heart sound |

The patients below have all presented with added heart sounds on auscultation. Please choose the most appropriate options from the above list. You may use one or more options per case and options may be used once, more than once or not at all.

1. A 64-year-old man presents to the ED with increasing angina and two episodes of collapse on exertion. Of note he has a BP = 160 / 140mm Hg and his ECG shows the voltage criteria of LVH.
2. A 71-year-old woman is admitted to the ED with acute shortness of breath. On examination she is cold and clammy with a BP= 80/40 and is tachycardic with a pulse rate of 120 bpm. No murmurs are heard. Her ECG confirms a large anterior STEMI.
3. A 32-year-old Somalian woman is admitted to hospital with heart failure. On examination she is noted to have a collapsing pulse, De Musset's sign and a grossly displaced hyperdynamic apex beat.
4. A 69-year-old man with a previous history of rheumatic fever is admitted for a valve replacement. He is noted to have a low volume radial pulse, atrial fibrillation (rate 70 – 80bpm) and BP = 120/70 and has a 'tapping', undisplaced apex beat.
5. A 19-year-old woman is reviewed by an anaesthetic SHO prior to her undergoing a wisdom tooth extraction. He notes her to have an 'innocent' murmur consistent with a floppy mitral valve. The ECG reveals anterolateral t-wave inversion.

10. Theme: Cardiac therapies - Buccal Suscard Anyone?

- | | | | |
|---|-------------|---|------------------------|
| A | Abciximab | F | Insulin |
| B | Aspirin | G | Isosorbide mononitrate |
| C | Atenolol | H | Nicorandil |
| D | Bisoprolol | I | Streptokinase |
| E | Clopidogrel | J | tPA |

The patients below have all presented with cardiac disease. Please choose the NEXT most appropriate therapeutic intervention from the above list.

1. A 61-year-old man with long standing ischaemic heart disease is re-referred to the cardiology outpatient clinic with a three month history of worsening shortness of breath on exertion and occasional episodes of angina lasting no longer than two to three minutes and always relieved with GTN spray. His echocardiogram shows mild to moderate LV dysfunction. He is on clopidogrel (he couldn't tolerate aspirin) and GTN spray prn.
2. A 79-year-old woman presents in the ED with angina like chest pain for the previous three hours which is now resolving. She is haemodynamically stable but her ECG shows ST depression in leads V₁ – V₄. She is admitted and placed on Aspirin and Metoprolol. Her subsequent Troponin I is positive and she has ongoing pain.
3. A 44-year-old man who is awaiting transfer for coronary stenting develops further angina pains with despite low molecular weight heparin, a nitrate infusion and maximal oral antianginal and antiplatelet therapy.
4. A 38 year-old-man with a strong family history of IHD presents in the ED with a 90 minute history of severe central chest pain. On examination in the resuscitation area he is tachycardic, hypotensive and looks distressed and unwell. His ECG confirms ST elevation in leads V₁ – V₄. He was given aspirin by the paramedics and has received some diamorphine and anti-emetic for the pain.
5. A 64-year-old man presents to his GP with a three month history of worsening angina. He is placed on a beta blocker and aspirin and is told to use a GTN spray if and when he gets any further pain. Six months later he returns complaining of worsening pains. He is referred to the cardiology clinic for further assessment.

11. Theme: Respiratory failure - It's enough to take your breath away

- | | | | |
|---|-------------------------------|---|----------------------|
| A | Asbestosis | F | Legionella pneumonia |
| B | Asthma | G | Mycoplasma pneumonia |
| C | COPD | H | Pickwickian syndrome |
| D | Guillain Barré syndrome | I | Pulmonary embolism |
| E | Idiopathic pulmonary fibrosis | J | Pulmonary oedema |

The patients below have all presented with respiratory failure. Please choose the most appropriate cause from the above list. (The ABGs have all been taken on room air).

1. A 71-year-old retired boiler lagger is referred to medical outpatients with a 6-month history of worsening shortness of breath on exertion. On examination he is short of breath at rest but does not have any finger clubbing or cyanosis. Chest examination reveals bibasal, fine inspiratory crepitations. His chest radiograph shows pleural and diaphragmatic plaques associated with diffuse lower zone changes. ABGs confirm pH 7.39, PaCO_2 4.1 KPa, PaO_2 7.9 KPa, Sats 91%, HCO_3^- 25 mmol/l, Base excess -1.9 mmol/l.
2. A 61-year-old obese gentleman presents to her GP with exertional dyspnoea, early morning headaches and daytime somnolence. Subsequent spirometry reveals an obstructive problem and ABGs confirm pH 7.37, PaCO_2 7.9 KPa, PaO_2 7.3 KPa, Sats 87%, HCO_3^- 34 mmol/l, Base excess 0.9 mmol/l. He improves with overnight nasal ventilation.
3. A 49-year-old woman presents in the A&E department with acute shortness of breath. On examination she is peripherally 'shutdown', clammy, tachycardic and hypotensive. ABGs confirms pH 7.13, PaCO_2 3.5 KPa, PaO_2 7.9 KPa, Sats 89%, HCO_3^- 15 mmol/l, Base excess -7.3 mmol/l. and her chest radiograph shows alveolar shadowing.
4. A previously fit and well 35-year-old woman who is just getting over the flu, presents to her GP with increasing weakness and numbness in her feet. She is referred to hospital but continues to deteriorate despite intravenous antibiotics. Her ABGS reveal pH 7.19, PaCO_2 8.7 KPa, PaO_2 7.9 KPa, Sats 81%, HCO_3^- 16 mmol/l, Base excess -11.9 mmol/l.
5. A 56-year-old man presents to his GP with a 4 month history of increasing exertional dyspnoea. On examination he has marked clubbing of the fingernails and is short of breath on relatively mild exertion. Auscultation of his chest reveals fine inspiratory crepitations. Subsequent investigations confirm a restrictive pattern on spirometry.

12. Theme: Dysphagia - One swallow a summer does not make!

- A. Achalasia
- B. External oesophageal compression
- C. Motor neurone disease
- D. Oesophageal candidiasis
- E. Oesophageal carcinoma
- F. Oesophageal diverticulum
- G. Oesophageal peptic stricture
- H. Presbyoesophagus
- I. Pharyngeal Pouch
- J. Systemic sclerosis

The patients below have all presented with difficulty in swallowing, dysphagia. Please choose the most appropriate cause from the above list.

1. A 62-year-old woman presents in medical outpatients with a 3 month history of worsening 'high level' dysphagia associated with nasal regurgitation. She has now developed speech problems and increasing limb weakness.
2. A 49-year-old man who has been in hospital for several weeks with a severe infective exacerbation of COPD requiring several courses of antibiotics and steroids complains to the FY2 of worsening retrosternal pain and dysphagia to solids. OGD shows circumferential erosions and ulceration with linear white plaques.
3. A 91-year-old woman presents in the geriatric outpatient department with a 6 month history of worsening dysphagia to solids and liquids. A Barium swallow reveals no intrinsic lesion but shows severe 'corkscrew' dysmotility.
4. A 54-year-old Hong Kong Chinese man presents with dysphagia to solids and liquids. A Barium swallow confirms a long, irregular stricture extending over several centimetres.
5. A 31-year-old man presents to his GP with an 8 month history of worsening dysphagia to solids, on occasion he regurgitates unaltered food. The dysphagia is not as bad if he eats small amounts and washes everything down with lots of fluids. The diagnosis is confirmed on barium swallow which shows a 'bird's beak deformity in the lower oesophagus.

13. Theme: GI Blood Loss - Frank Blood, PR

- | | |
|-------------------------------|--|
| A Barret's Oesophagus | F Gastric ulcer |
| B Colonic carcinoma | G Gastro-Oesophageal Reflux disease |
| C Crohn's disease | H Meckel's diverticulum |
| D Diverticular disease | I Oesophageal varices |
| E Duodenal ulcer | J Ulcerative Colitis |

The patients below have all presented with occult or frank gastrointestinal blood loss. Please choose the most appropriate cause from the above list.

1. A 41-year-old man presents to his GP with upper abdominal pain which is worse before meals and occasionally radiates through to his back. The pain comes and goes and is associated with 'burping' and dyspepsia. Routine investigations reveal FBC: Hb 8.2 g/dl, MCV 74fl, WCC 9.2×10^9 , Plt 412×10^9 . He declines an OGD but a C¹⁴ breath test is positive.
2. A 64-year-old woman presents to her GP with weight loss and constipation. Investigations reveal FBC: Hb 7.9 g/dl, MCV 69fl, WCC 5.9×10^9 , Plt 513×10^9 ; ESR 78; CCa²⁺ 2.27; LFTs Tbil 32 μmol/l, AST 44iu/l, ALT 51iu/l, Alk phos 549iu/l, Alb 32 g/l. His ultrasound scan of his abdomen confirms 'multiple hypoechoogenic lesions in the liver'.
3. A 39-year-old man presents to his GP with lethargy and jaundice. Routine investigations reveal FBC: Hb 9.2 g/dl, MCV 104fl, WCC 4.4×10^9 , Plt 61×10^9 ; LFTs Tbil 42 μmol/l, AST 314iu/l, ALT 211iu/l, Alk phos 565iu/l, Alb 26 g/l, γGT 207 iu/l, INR 1.8. He is referred to gastroenterology outpatients but prior to his appointment he is admitted with a large fresh haematemesis.
4. A 67-year-old woman presents in the ED with severe left iliac fossa pain. On examination she is obviously distressed, is vomiting and is pyrexial T 39.5°C. She is very tender in the left iliac fossa with guarding but no signs of peritonism. Investigations confirm FBC: Hb 7.4 g/dl, MCV 71fl, WCC 29.2×10^9 , Plt 445×10^9 ; U&Es Na⁺ 156 mmol/l, K⁺ 4.9 mmol/l, Urea 29.7 mmol/l, Cr 288 μmol/l. Blood cultures confirm an E.Coli bacteraemia.
5. A 54-year-old man is referred to gastroenterology outpatients with a microcytic anaemia. He denies any upper or lower gastroenterological symptoms. Subsequent upper and lower GI endoscopy are unremarkable but a 'special scan' confirms the diagnosis, showing an ileal lesion at approximately 50 to 60 centimetres from the ileocaecal valve.

14. Theme: Chest pathologies - woodworm and hinge rust

| | | | |
|----------|------------------|----------|-------------------------|
| A | Empyema | F | Pulmonary consolidation |
| B | Lobar collapse | G | Pulmonary embolism |
| C | Haemothorax | H | Pulmonary fibrosis |
| D | Pleural effusion | I | Pulmonary oedema |
| E | Pneumothorax | J | Tension pneumothorax |

The patients below have all presented with chest 'problems'. Please choose the most appropriate cause from the above list.

1. A 23-year-old man represents two weeks after being admitted for a spontaneous pneumothorax. On examination he is unwell, tachypnoeic and pyrexial. On examination of his chest he has decreased expansion on the left (the side of his previous pneumothorax), there is dullness to percussion and reduced breath sounds and tactile vocal fremitus on the left.
2. A 47-year-old man being investigated for weight loss and haemoptysis is admitted with increasing exertional dyspnoea. On examination he has a right sided Horner's syndrome and on examination of his chest he has dullness to percussion extending to the midzone on the right associated with quiet breath sounds and reduced tactile vocal fremitus. Whispering pectoriloquy is also grossly reduced.
3. A 57-year-old previous pipe lagger and boiler fitter presents to his GP with a six month history of increasing exertional dyspnoea. On examination he has clubbing of the fingernails and marked fine inspiratory basal crepitations which are unchanged with coughing. His chest radiograph shows multiple pleural and diaphragmatic shadows.
4. A 29-year-old woman presents in the ED with acute shortness of breath. On examination she is obviously distressed and tachypnoeic. She is apyrexial and her oxygen saturation is 98% on air. Examination of her chest reveals her trachea to be in the midline, an increased percussion note on the right with markedly reduced breath sounds and vocal fremitus.
5. A previous fit and well 21-year-old man presents in the ED with a four day history of increasing shortness of breath, pleuritic chest pain and a productive cough. On examination he looks unwell, tachypnoeic and is pyrexial. Examination of his chest reveals reduced expansion on the right secondary to pain and dullness to percussion associated with bronchial breathing and increased vocal fremitus in the right axilla.

15. Theme: Antibiotics - Uncle Bulgaria

- | | |
|---------------------|-------------------|
| A. Benzylpenicillin | F. Flucloxacillin |
| B. Cefotaxime | G. Clarithromycin |
| C. Cefuroxime | H. Metronidazole |
| D. Ciprofloxacin | I. Trimethoprim |
| E. Doxycycline | J. Vancomycin |

The patients below have all presented with sepsis. Please choose the most appropriate antibiotic therapy from the above list. You may use the antibiotics once, more than once, in combination or not at all. (**The patients have no known drug allergies**).

1. A 29-year-old man with poorly controlled type I diabetes mellitus is admitted to the ED with a hot painful red left calf. On examination he is well but has a temperature of 39.5°C and is tachycardic 120 bpm. He has a marked right lower limb cellulitis spreading over the anterolateral aspect of his shin.
2. A 59-year-old man and his wife return from St Petersburg after celebrating their 30th wedding anniversary with diarrhoea and vomiting. The man has noted "sulphur" on his breath and both admit to offensive watery stools with urgency and frequency.
3. A 19-year-old man present to the G.U.M. clinic with a urethral discharge and dysuria. Gonococcal cultures and micro are negative but the diagnosis is confirmed as Chlamydia Trachomatis after antibody tests are positive.
4. A 78-year-old woman is re-admitted to hospital a week after discharge with profuse, offensive watery diarrhoea. Her other admission was for poorly resolving pneumonia which required several courses of antibiotics.
5. A 17-year-old woman is admitted to hospital with a severe headache worsening over two days. She has marked photophobia, neck stiffness and temperature 39.2°C but no associated rash. Lumbar puncture confirms Gram positive diplococci in the CSF.

16. Theme: Heart Failure - Sex, lies and a 24 hour tape

- | | |
|-----------------------------|-----------------------------|
| A. Alcoholic cardiomyopathy | F. COPD |
| B. Aortic regurgitation | G. Ischaemic cardiomyopathy |
| C. Aortic stenosis | H. Mitral regurgitation |
| D. Beri-beri | I. Mitral stenosis |
| E. Cardiac tamponade | J. Pulmonary fibrosis |

The patients below have all presented with heart failure. Please choose the most appropriate cause from the above list.

1. A 59-year-old diabetic man presents in the ED with a four day increasing shortness of breath and ankle oedema. On examination he is unwell with signs of biventricular failure. Cardiac enzymes are within normal limits, ECG: Sinus tachycardia, 120bpm; left axis deviation and poor anterior 'R wave' progression with a partial left bundle branch block.
2. A 29-year-old man is recovering in hospital after a severe pneumonia and has been on IV antibiotics for one week. He becomes acutely unwell with pyrexia and shortness of breath. On examination he has signs of left ventricular failure. There is a loud early diastolic murmur heard primarily at the left sternal edge. An old IV cannula is noted in the left antecubital fossa.
3. A 71-year-old woman is seen in the medical out patient department for her six monthly check-up. She has been increasingly unwell with shortness of breath on exercise, PND, orthopnoea and leg oedema. On examination she has signs of biventricular failure and a low volume pulse in atrial fibrillation. Auscultation reveals a soft mid diastolic murmur at the apex with a loud pansystolic murmur at the left sternal edge.
4. A 19-year-old Somalian man is admitted to hospital with suspected pulmonary tuberculosis. The SpR notes he has positive Kussmaul's sign and his heart sounds are difficult to hear. His ECG confirms low voltage complexes.
5. A 72-year-old man is admitted to hospital with worsening oedema and shortness of breath. On examination he is short of breath at rest and oxygen saturation 84% on air. He has marked clubbing of the finger nails and fixed inspiratory bibasal crepitations, as well as signs of biventricular failure.

17. Theme: Cardiac chest pain - Dr, Dr, I've got acute angina.....

- | | | | |
|---|-------------------------------------|---|---------------------|
| A | Acute anterior STEMI | F | Non STEMI MI |
| B | Acute inferior STEMI | G | Pericarditis |
| C | Dissecting thoracic aortic aneurysm | H | Prinzmetal's angina |
| D | Decubitus angina | I | Syndrome X |
| E | Myocarditis | J | True posterior MI |

The patients below have all presented with cardiac chest pains. Please choose the most appropriate cause from the above list.

1. A 39-year-old woman with a strong family history of ischaemic heart disease presents to the ED with a four hour history of severe central chest pain radiating to the left shoulder and the neck associated with nausea, sweating and shortness of breath. Examination is unremarkable as are her initial blood tests, including CK. Her subsequent Troponin I is normal. Her ECG shows sinus tachycardia with normal axis and flattening of the T-waves in leads II, III, AVF, V₅ and V₆. Her exercise stress test shows 'pseudonormalisation' of the T-waves but her coronary angiography is totally unremarkable.

2. A 48-year-old man who has smoked since the age of 8 years-old presents to the ED with a two hour history of severe angina like chest pain associated with sweating and feeling faint and dizzy. His pain is poorly relieved with GTN and oxygen. His ECG shows deep ST depression in leads V₁ – V₃ associated with dominant R-waves in leads V₁ and V₂. His CK is 567 iu/l.

3. A 27-year-old male smoker presents in the ED with central chest pain which he tells the medical ST2 is worse when he moves around on the trolley but seems to be eased a little if he leans forward over the trolley bars. His ECG shows saddle shaped ST elevation in leads V₁, V₅, V₆, aVL, I and II.

4. A 61-year-old diabetic woman is admitted to hospital with an 8 –10 hour history of dull central chest pain and shortness of breath. Her ECG shows T-wave inversion in leads V₄ – V₆, I and aVL and subsequent troponin I is 7.6 µg/l.

5. A 76-year-old woman with known hypertension and diabetes mellitus presents in the ED with severe epigastric and low chest pains radiating to her shoulders. Her ECG shows ST elevation in leads II, III and aVF. Her troponin I is 17.6 µg/l .

Theme: Definitive Urological Investigations

| | | | |
|---|---------------------|---|------------------------------------|
| A | Anti-dsDNA antibody | F | Renal angiogram |
| B | Anti-GBM antibody | G | Renal biopsy |
| C | Blood Glucose | H | Serum Electrophoresis |
| D | cANCA | I | Urine cytology |
| E | PSA | J | Ultrasound scan of the renal tract |

The patients below have all presented with urological problems. Please choose the most definitive investigation to confirm the diagnosis in each case from the above list.

1. A 61-year-old man presents to his GP with increasing problems passing urine. He has hesitancy, poor stream and terminal dribbling. Examination is unremarkable other than PR which reveals a smoothly enlarged prostate gland. Subsequent investigations including FBC, U+Es, CCa²⁺ and chest radiograph are all within normal limits.
2. A 27-year-old woman presents in the ED with increasing peripheral and facial oedema. On examination she is noted to have a malar rash as well as marked ascites and facial and ankle oedema. Urinalysis confirms Protein+++ and microscopy shows the presence of renal casts. FBC: Hb 9.2 g/dl, MCV 88fl, WCC 4.2 x 10⁹, Plt 191 x 10⁹; U&Es Na⁺ 132 mmol/l, K⁺ 6.9 mmol/l, Urea 34.7mmol/l, Cr 553 µmol/l.
3. A 59-year-old man presents in the ED with a 10 day history of a flu like illness associated with myalgia, arthralgia and shortness of breath, episodic haemoptysis and two day history of oliguria and ankle oedema. Investigations reveal U&Es Na⁺ 133 mmol/l, K⁺ 5.8 mmol/l, Urea 17.1mmol/l, Cr 303 µmol/l and his chest radiograph shows hazy shadowing throughout both lung fields.
4. A 24-year-old woman presents in the ED with vague abdominal pains and haematuria. Of note she has a strong family history of 'kidney problems' and her grandmother and aunt both died suddenly of 'brain haemorrhages'. Urinalysis confirms blood +++, protein++, nitrites -. Microscopy – No organisms or renal casts seen. FBC: Hb 16.7 g/dl, Hct 54.8, WCC 14.2 x 10⁹, Plt 553 x 10⁹; U&Es Na⁺ 129 mmol/l, K⁺ 5.7 mmol/l, Urea 25.8mmol/l, Cr 401 µmol/l.
5. An 87-year-old woman presents with severe back pain and general malaise. Routine investigations reveal FBC: Hb 5.9 g/dl, MCV 93fl, WCC 2.8 x 10⁹, Plt33 x 10⁹; U&Es Na⁺ 131 mmol/l, K⁺ 6.2 mmol/l, Urea 18.0mmol/l, Cr 322 µmol/l; CCa²⁺ 3.43 mmol/l, ESR 110 mm / hour.

19. Theme: Shortness of breath - Now that's a wheeze

- | | |
|-------------------------|-----------------------------|
| A. Asbestosis | F. Histiocytosis X |
| B. Asthma | G. Pulmonary embolism |
| C. Atypical Pneumonia | H. Sarcoidosis |
| D. COPD | I. Streptococcal pneumonia |
| E. Fibrosing alveolitis | J. Wegener's granulomatosis |

The patients below have all presented with shortness of breath. Please choose the most appropriate cause from the above list.

1. A 49-year-old woman with known rheumatoid arthritis presents to her GP with a three month history of increasing exertional dyspnoea. On examination she has several signs of chronic rheumatoid arthritis and on respiratory examination has fine bibasal inspiratory crepitations.
2. A 61-year-old man who has previously been fit and well is admitted to hospital with a 36 hour history of worsening shortness of breath. On examination he appears confused and unwell. Examination of his chest reveals a mild expiratory wheeze but he is unable to co-operate with a peak flow rate. His chest radiograph is relatively unremarkable but his ABGs showed marked Type I respiratory failure.
3. A 68-year-old man who is still very active and running marathons has noticed increased wheeze and shortness of breath on training runs. On examination he is relatively well but his peak flow rate is only 300 L/min. (predicted 480). He is given some inhalers and steroids and returns 10 days later. He feels a lot better and peak flow rate = 500 l/min.
4. A 71-year-old woman who was recently diagnosed as having carcinoma of the breast is admitted to hospital with acute onset of shortness of breath. On examination she is tachypnoeic, tachycardic and has oxygen saturation = 86% (on air). Her chest radiograph is unremarkable.
5. A 29-year-old Black-Caribbean woman is seen by her GP with increasing shortness of breath on exercise. The GP notes a painful lesion over her anterior shin. Her chest radiograph reveals bilateral hilar lymphadenopathy and pulmonary infiltrates.

20. Eponymous Signs - There's a name for that isn't there?

- | | |
|-----------------------|---------------------|
| A. Chvostek's sign | F. Nikolsky's sign |
| B. De Musset's sign | G. Quincke's sign |
| C. Duroziez's sign | H. Romberg's sign |
| D. Gower's sign | I. Troissier's sign |
| E. Grey-Turner's sign | J. Trousseau's sign |

Each of the presentations below are associated with an eponymous sign or signs. Please choose the most appropriate from the above list.

1. A 48-year-old Bengali woman presents in the ED with lethargy and several tonic-clonic seizures. Routine investigations show CCa²⁺ 1.83mmol/l, PO₄²⁻ 2.10 mmol/l, Alk phos. 498 iu/l.
2. A 38-year-old Somalian woman presents in the ED with severe shortness of breath on exercise. On examination she has 'titubation of her head' and a loud early diastolic murmur heard best with patient leaning forward in expiration. There are no features of infective endocarditis.
3. A 61-year-old man presents to his GP with a 3 month history of weight loss, lethargy and abdominal fullness on eating. On examination he has a large epigastric mass and is clinically anaemic.
4. A 37-year-old alcoholic abuser is admitted to hospital with severe upper abdominal pains. He has marked abdominal tenderness and investigations show Amylase 1080 iu/l and a marked metabolic acidosis.
5. A 63-year-old woman is seen by her GP with a severe blistering rash involving the upper and lower limbs, truncal areas and the mucous membranes of her mouth. Whilst examining apparent normal areas of skin, firm pressure leads to shearing off of the skin.

21. Theme: Abdominal Pain - Gutted!

- A. Acute intermittent porphyria
- B. Acute pancreatitis
- C. Chronic mesenteric ischaemia
- D. Diabetes mellitus
- E. Diverticulitis
- F. Gall stones
- G. Incarcerated femoral hernia
- H. Peptic ulcer
- I. Splenic infarct
- J. Spontaneous bacterial peritonitis

The patients below have all presented with abdominal pain. Please choose the most appropriate cause from the above list.

1. A 29-year-old man presents to the ED with severe generalised abdominal pain and vomiting after a night of celebrating his birthday. On examination he is tachycardic, hypertension and is obviously ethanolic. FBC: Hb 13.9 g/dl , MCV 86fl, WCC $11.9 \times 10^9/l$, Plt $299 \times 10^9/l$, U & Es: Na 134 mmol/l, K 3.9 mmol/l, Urea 6.6mmol/l, Creatinine 84 μ mol/l, Amylase 67iu/l, LFTs: Tbil 29 μ mol/l, AST 54iu/l, Alk phos. 127iu/l, ALB 39g/l.
2. A 34-year-old overweight woman presents to her GP with severe upper abdominal pain and vomiting. On examination she is unwell, jaundiced and pyrexial. She has a positive Murphy's sign. She is admitted to hospital and improves with IV Cefuroxime and Metronidazole. FBC:Hb13.9 g/dl, WCC $23.5 \times 10^9/l$, plts 322 $\times 10^9/l$; LFTs: Tbil 41 μ mol/l, AST 39iu/l, Alk phos. 347iu/l, ALB 37g/l, γ GT 184iu/l, Amylase 210iu/l.
3. A 91-year-old woman is admitted to hospital with severe left lower quadrant pain. On examination she is unwell, distressed and has obvious left lower quadrant rebound and tenderness. The ST3 documents there is NO hernia but the abdominal radiograph reveals dilated loops of small bowel consistent with obstruction.
4. A 42-year-old man with a long history of alcohol excess presents with severe general abdominal pain. He is encephalopathic, jaundiced and has clinical ascites. He has severe, general abdominal tenderness. An ascitic tap reveals >250 wcc/mm³
5. A 47-year-old smoker presents to his GP with recurrent upper abdominal pain associated with meals. He is now so scared to eat that he has lost three stone in weight over the past two months and has developed diarrhoea. Of note he has had two previous myocardial infarctions and experiences intermittent claudication in his calves, right more than the left. Routine blood tests including FBC, U&Es, LFTs and Amylase are normal and OGD shows mild gastritis with a negative CLO test.

22. Theme: Hyponatraemia - Only 20 causes of SIADH but 50 ways to leave your lover!

- A. Addison's disease
- B. Bendrofluazide
- C. Bronchogenic carcinoma
- D. Herpes encephalitis
- E. Hypothyroidism
- F. Legionella pneumonia
- G. Meningococcal meningitis
- H. Paroxetine
- I. Pseudohyponatraemia
- J. Subarachnoid haemorrhage

The patients below have all presented with hyponatraemia. Please choose the most appropriate cause from the above list.

1. A 31-year-old woman is seen in medical out patient department following an admission with severe acute pancreatitis. She is a tea-totaler: examination whilst an in-patient revealed multiple eruptive xanthomata and despite her well being on discharge her $\text{Na}^+ = 127\text{mmol/l}$.
2. A 26-year-old man is admitted to hospital with a severe headache and photophobia. On examination he is unwell looking and pyrexial 37.4°C . There are no rashes. A CT head scan is unremarkable other than showing raised intracranial pressure but the diagnosis is confirmed on EEG and polymerase chain reaction of his CSF.
3. A 32-year-old woman is admitted to hospital with confusion, diarrhoea and headache. On examination she has GCS of $13/15$ and is very agitated. There is no obvious meningism or photophobia. Respiratory examination reveals a mild expiratory wheeze and oxygen saturation of 87% on air. Her routine bloods show FBC Hb 12.9g/dl, MCV 87fl, WCC $7.9 \times 10^9/\text{l}$ (relative lymphopaenia), Plts $322 \times 10^9/\text{l}$, U+Es Na 117mmol/l, K 3.9mmol/l, Urea 3.9mmol/l, Cr 88 $\mu\text{mol/l}$, LFTs Tbil 37 $\mu\text{mol/l}$, AST 122iu/l, ALT 87iu/l, Alk Phos 223iu/l, Alb 33g/l.
4. A 71-year-old woman who has previously been treated for Polymyalgia rheumatica presents in the ED with BP 78/43mm Hg, CBG 2.9mmol/l, pulse 122bpm. Routine investigations reveal Hb 13.7g/dl, MCV 83fl, WCC $23.9 \times 10^9/\text{l}$, Plts $39 \times 10^9/\text{l}$, U+Es Na 117mmol/l, K 5.7mmol/l, Urea 12.9mmol/l, Cr 133 $\mu\text{mol/l}$. Her MSU is positive for Nitrites and Leukocytes.
5. A 82-year-old woman with vitiligo is admitted to the ED with confusion having been found on floor by neighbours. On examination she is described as "pudgy and overweight" and has a temperature of 34.3°C . She is bradycardic and her ECG confirms sinus bradycardia with prominent J waves. Routine investigations reveal Hb 11.7g/dl, MCV 103fl, WCC $13.9 \times 10^9/\text{l}$, Plts $199 \times 10^9/\text{l}$, U+Es Na 125mmol/l, K 3.7mmol/l, Urea 12.9mmol/l, Cr 133 $\mu\text{mol/l}$.

Answers

| Question | 1 | 2 | 3 | 4 | 5 |
|----------|-----|-----|----|----|---|
| 1 | F | B | E | A | J |
| 2 | E | A | D | F | I |
| 3 | A | D | F | H | J |
| 4 | J | F | B | D | G |
| 5 | F | I | D | A | B |
| 6 | I | A | F | J | E |
| 7 | J | G | D | F | H |
| 8 | C | E | B | G | D |
| 9 | BCD | JD | AF | FH | E |
| 10 | D | AE | A | EJ | H |
| 11 | A | H | J | D | E |
| 12 | C | D | H | E | A |
| 13 | E | B | I | D | H |
| 14 | A | D | H | E | F |
| 15 | AF | H | E | HJ | A |
| 16 | G | B | I | E | J |
| 17 | I | J | G | F | B |
| 18 | E | A | B | J | H |
| 19 | E | C | B | G | H |
| 20 | AJ | BCG | I | E | F |
| 21 | A | F | G | J | C |
| 22 | I | D | F | A | E |

A photograph of a young child laughing heartily while wearing a tiger costume. The costume includes a tiger-striped onesie with white paws at the cuffs and ankles, and a matching tiger hood with white ears and a black and orange striped pattern. The child is standing on a brown carpet in a room with white walls and a dark door in the background.

Go get 'em

Tigers!