**BLOOD TEST QUESTIONS FOR STUDENTS**

**Question 1**

82 yo female presented with two episodes of malena. She had been commenced on clopidogrel by her cardiologist three days prior. She was afebrile, BP 70/50, HR 123, Sats 93% RA. Bloods were as follows:

| | 0700am | 0900am |
|---|---|---|
| Hb | 85 | 79 |
| WCC | 24.5 | 13.8 |
| Plat | 238 | 149 |
| K | 5.3 | 5.1 |
| Urea | 10.5 | 9.7 |

Interpret these blood tests. Is there any benefit in giving platelets, given the drop in number?

**Question 2**

38 yo male presented with acute confusion and drowsiness. Bloods were as follows:

| | | | |
|---|---|---|---|
| Hb 123 | Na 142 | Bili 145 | BAL 0.12 |
| WCC 4.2 | K 2.5 | ALP 64 | |
| Plat 71 | Urea 1.1 | GGT 163 | INR 2.2 |
| MCH 37.4 | Creat 50 | ALT 63 | |
| MCV 106 | Mg 0.52 | AST 139 | Ammonia 69 |
| | | Albumin 24 | |

What is the likely underlying cause of his confusion?

**Question 3**

38 female presents with fever, dysuria, and malaise. Temp 37.9 C. Chemotherapy 7 days ago for breast cancer. What are you concerned about in this woman? Blood results show:

Hb 97
WCC 1.9 (neutrophils 0.34)
Plat 170

What do the blood tests show?

How is this managed?

**Question 4**

81 female with type 1 diabetes presented with 18 hours of nausea, vomiting, and confusion. She was hypotensive with elevated BGLs and ketones in blood and urine. History of aortic stenosis and high cholesterol.

Blood gas:

| | | |
|---|---|---|
| pH 7.25 | HCO3 15 (formal HCO3 11) | Na 140 |
| PCO2 36 | BGL 34.4 | Cl 111 |
| PO2 61 (V) | K 4.3 | Lactate 3.1 |

Interpret this blood gas.

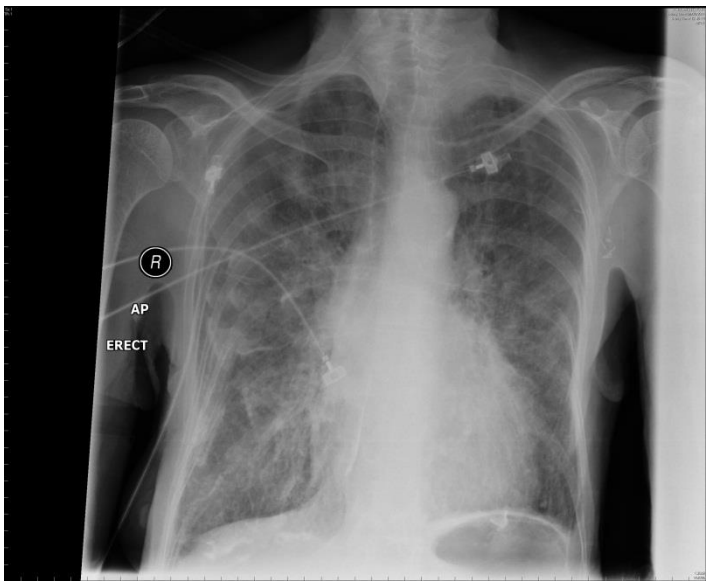
Other blood test results: Ketones: Acetoacetate 3.2 (<0.2), BOH butyrate 6.81 (<0.3).

What is the underlying problem, and how should this be managed?

Half an hour later, the patient complains of dyspnoea and chest pain. The following results are obtained:

Troponin 402
CK 266
CKMB 20.7

A CXR is also requested. What are the findings on the CXR and bloods above, and how does this relate to the presenting problem?




**Question 5**

72 yo male presented to ED in rapid AF. He had developed chest pain that woke him from sleep, associated with nausea and dyspnoea. He had seen his GP, who diagnosed AF and sent him to hospital. Hx of HTN, smoking, and FMHx heart disease.

Blood test results:

| | | |
|---|---|---|
| FT3 18 | Hb 133 | Troponin 35 |
| TSH 0.01 | WCC 11.6 | Lipids normal |
| FT4 60 | | |

Explain these results. What are the treatment options?

**Question 6**

13 day old baby referred in by GP with ongoing jaundice. Blood tests show:

Bili 323 (<225)
Conjugated bili 20 (<11)

What sort of jaundice is this?

How does neonatal jaundice occur?

How is it treated? What is the process behind this?

**Question 7**

22 female 34/40 with first pregnancy. Presents with pleuritic chest pain and dyspnoea for several hours. On arrival, BP 140/105, HR 118, Sats 88% RA, afebrile. What blood tests do you need?

Blood test results:

| | 0915am | 1150am |
|---|---|---|
| Bili | 19 | 19 |
| GGT | 61 | 69 |
| ALP | 303 | 329 |
| ALT | 84 | 118 |
| AST | 136 | 195 |

Hb 153
WCC 13.4
Plat 104
Trop neg

Coags normal
D dimer 3.6
Fibrinogen 6.6

ABG on air
pH 7.46
PCO2 34
PO2 84

Urine protein: 4059
Protein/creatinine ration: 572 (<18)

Based on these results, what are your diagnoses?

How is pre-eclampsia managed acutely in ED? Long term?

**Question 8**

54 ATSIC female presents with malaise and generally feeling unwell, with back pain. Found to have sacral pressure ulcer which has not been treated. ABGs taken on presentation:

| | 0435am | 0450am | 0511am |
|---|---|---|---|
| O2 | 100 | 61 | 137 |
| CO2 | 40 | 46 | 37 |
| pH | 6.61 | 6.58 | 6.79 |
| HCO3 | 4 | 4 | 5 |
| Na | 137 | 132 | 136 |
| K | 6.4 | 6.3 | 6.0 |
| Glu | 2.4 | 22.2 | 13.7 |
| Anion Gap | 23 | 23 | 23 |
| Cl | 116 | 111 | 114 |
| Lac | 9.3 | 9.2 | 9.5 |

What do these blood gases show?

What is the likely cause of this?

How should this patient be managed?

**Question 9**

51 yo female BIBA after collapse at gym. Under CPR on presentation. What blood test(s) do you order?

pH 6.97
CO2 83
O2 26
Na 139
K 3.7
Cl 104
Lac 9.3
HCO3 19.3

Interpret this result. What should you do next?

**Question 10**

51 yo female from MINDA choked, then went into PEA arrest. SAAS called, CPR commenced, ROSC. Detritus in throat. Possibly 20mins down time.

What are the causes of PEA arrest?

ABG shows:

pH 6.96
CO2 74
O2 419
Na 145
K 3.5
Cl 116
Lac 5.8

HCO3 17

Interpret this result.

What should you do next?

**Question 11**

94 yo female referred to ED by GP with "deranged electrolytes". History of ischaemic colon, for which she had total colectomy and stoma, HTN, slow growing breast cancer. Meds: trandalopril, omeprazole, amlodipine, tamoxifem. Bloods show:

Na 122
K 5.0
Cl 97
HCO3 14
AG 16
Glu 9.7

Urea 14.7
Creat 104
LFT normal
Mg 0.77
Hb 98 (chronic)
WCC/platelet/CRP/Troponin normal.

Describe and interpret these results. How is hyponatremia classified?

What are the risks of hyponatremia?

What other blood test do you want at this point? Why?

pH 7.28
CO2 37
O2 27
Na 125
K 5.0
Cl 104
Lac 0.6
HCO3 17

Describe and interpret this blood gas.

**Question 12**

92 yo male last seen 24 hours ago. Found on floor. Hypothermic 28 C. BP 80/P. HR 36. Sats 90%. GCS 4-1-3 EVM. History of CABG and ?seizures.

What is your initial management of hypothermia? What management options are there for re-warming?

What are the ECG changes of hypothermia?

What does this ECG show?

Blood tests show:

| | | |
|---|---|---|
| Na 141 | Bili 9 | Hb 133 |
| K 4.3 | GGT 282 | WCC 10/5 |
| HCO3 21 | ALP 244 | Plat 125 |
| Urea 13.8 | ALT 25 | CRP normal |
| Creat 109 | AST 44 | |
| Trop T 105 | | ABG normal |
| | CK 308 | INR normal |

What do these bloods show? Describe and explain.

**Question 13**

54 female. Recently admitted to FMC with atraumatic splenic laceration with haemorrhage and pseudoaneurysm formation. Received embolization and prophylactic antibiotics. Discharged one week ago. Returns today with constant LUQ pain. Blood tests:

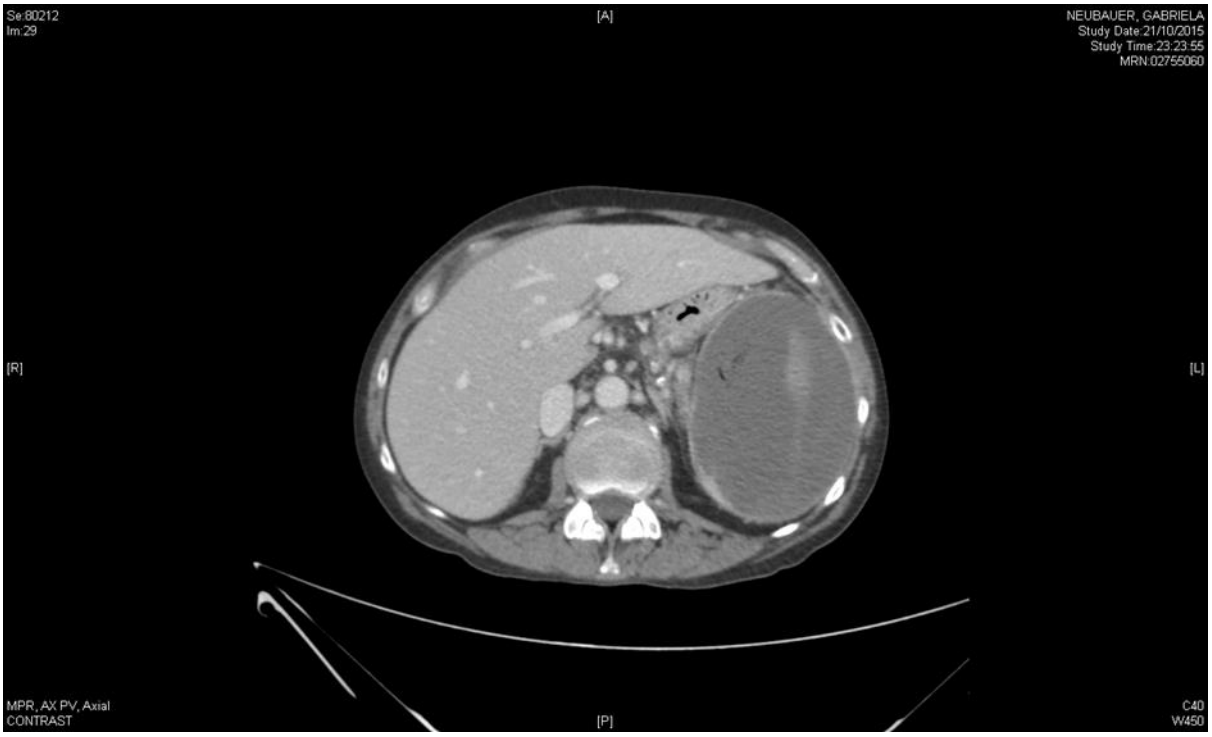
Hb 119
WCC 21.8
Plat 1033

CRP 120

Biochem unremarkable.

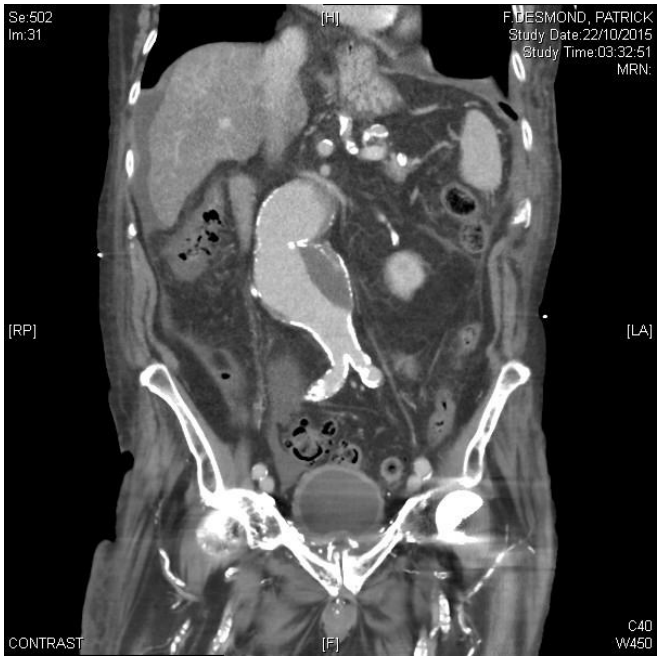
What are you concerned about given this history? What imaging would you like?

CT shown: what does this show?



**Question 14**

84 yo male presents with abdominal pain and tachycardia. No peritonism, no bowel symptoms. CT abdo showed:




What is the abnormality shown? Can you see any other abnormalities? How is this managed?