Drugs and Therapeutics Scenarios

Scenario 1: Misusing drugs

Kevin Bradley is a 30 year-old man who has injected heroin since the age of 14. National Treatment Agency for Substance Misuse (the NTA) data from the National Drug Treatment Monitoring System (NDTMS) show drug misuse to have a major impact in the area that he lives, with *'capture-recapture'* techniques suggesting a high disease-specific mortality rate, despite Underlying Cause of Death data not necessarily coding to drug misuse.

Mr Bradley participates in a needle exchange scheme and does not usually share needles (although he admits to sharing *'works'*, drawing up heroin from a communal spoon). He is not registered with a drug dependency programme. His usual drug dealer was recently arrested, and Mr Bradley purchased drugs from a new dealer. After injecting heroin from this supplier, he experiences shivers and shakes, and feels generally unwell. He is admitted to hospital 48 hours later with swinging fevers (40^{o}C), drenching night sweats, and shortness of breath with a cough productive of purulent sputum. On examination, he looks flushed and has chronically discharging sinuses over injection sites in both groins. Chest auscultation finds coarse right basal crackles and a loud pansystolic murmur over his right sternal edge, with evidence of giant systolic waves in his neck veins. There is evidence of hepatosplenomegaly.

There is very limited peripheral venous access (the FY2 has four unsuccessful attempts at taking blood). Investigations reveal:

> *white cell count 21 x 10^{9}/l (neutrophilia); chest X-ray: multiple bilateral cavities with fluid levels; ECG: sinus tachycardia; blood cultures: Gram-positive cocci seen (culture results awaited); echocardiogram: vegetations seen on tricuspid valve with moderate to severe tricuspid regurgitation; hepatitis C antibody-positive, hepatitis B surface antigen-negative.*

Mr Bradley refuses to stay, and shows signs of aggressive behaviour and withdrawal from drugs. He takes his own discharge from hospital, barging a well dressed man out of the way, assuming him to be a consultant. (The man is a patient who is well-controlled on methadone, unbeknown to his accountant colleagues, and who is a patient representative on an advisory group for Public Health England and commissioners of *'drug and alcohol services'*.)

Kevin Bradley returns to A&E three days later with similar signs and symptoms, plus he now has a deep venous thrombosis in his left leg, haemoptysis and a pleural rub, and a haemoglobin of 7.5 g/dl. The staff are wary of him given his previous aggression.

'NDTMS' data would count Mr Bradley as a *'Problematic Drug User'* **(**PDU). Hospital episode data would code him to *'ICD-10: poisoning by drugs'* in primary or secondary diagnosis, but would miss most of *'the clinical iceberg'* from which he came.

Scenario 2: Blackouts

Sharon is 25 years old and has been suffering from *'blackouts'* for 6 months. She is referred to a neurologist who diagnoses complex partial seizures and starts her on carbamazepine. Ten days after starting treatment, she develops a widespread rash associated with mild elevation of 'ALT'. Her treatment is successfully changed to sodium valproate, which according to evidence familiar to the neurologist (from systematic review of 'RCTs' with modest sample sizes) has similar efficacy.

Unfortunately, Sharon develops a great deal of anxiety about the diagnosis of epilepsy, and worries constantly that she might have further fits. She gives up her job, and refuses to leave the house. Slowly over the next few weeks, she also becomes tearful and feels as if she wants to commit suicide. Sharon's mother calls out her GP who diagnoses depression and starts her on an 'SSRI'.

Ten days after starting citalopram, Sharon has two fits in rapid succession, and is taken to A & E. While waiting to see the A & E staff, she goes into status epilepticus, for which she is ventilated. Blood results show that she had a serum sodium of 115mmol/l at the time of the status, and plasma valproate levels on admission are undetectable. After control of her seizures, she admits to also taking a herbal remedy (St John's Wort) for her depression. Furthermore, it transpires that one major trigger for her depression is problems with her boyfriend who has been putting pressure on her to get pregnant. She has therefore stopped taking her oral contraceptives (...this is the first documentation in her notes of oral contraceptive use).

The 'HES' record of her 'FCE' includes reference to an adverse drug reaction.