Drugs and Therapeutics

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°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.
Learning objectives

1. Structure & Function in Health & Disease
   - Describe complications of injecting drugs of abuse
   - Describe the pharmacology of opiates and their potential to cause drug dependency
   - List the most commonly encountered causes of endocarditis in drug users, and contrast these with endocarditis in other patient groups. What antibiotics are used to treat these infections?
   - Define the term ‘oral bioavailability’. Discuss circumstances in which intravenous administration is preferred over oral for the treatment of infections
   - List the indications for valvular heart replacement
   - Describe strategies for managing drug addiction
   - Discuss potential risks of anticoagulation in drug users and how this can be managed

2. Population Perspective
   - Revisit the ‘iceberg of disease’ concept
   - Evaluate the evidence, obtained by different study designs/techniques, about determinants of drug misuse and the effectiveness of interventions (referring to trends and patterns in the epidemiology)
   - Revisit the potential and the limitations of information obtained from death certificates and other routine data sources to describe health care needs for people with pneumonia and for people who misuse drugs (revisiting economic concepts such as cost, benefit, effectiveness, efficiency, utility; and need/demand for services)

3. Individual, Groups & Society
   - Explore the different psychological, social and environmental factors that contribute to heroin addiction
   - What is the current demographic profile of a heroin user? Has this changed since the 1980s?

4. Professional & Personal Development
   - What problems are encountered in seeking healthcare for drug users?
   - How should patients who are aggressive, abusive, or who continue to abuse drugs in hospital be managed?
   - Discuss whether those who engage in behaviours that contribute to their ill health should receive lower priority when making treatment allocation decisions