

CATEGORY I – CLINICAL PRESENTATIONS: SUBSTANCE MISUSE AND INFECTIOUS DISEASES

1.0 Introduction

Drug and alcohol misuse is associated with infectious diseases. This arises from the mode of substance use (e.g., injecting), or from lifestyle associated with substance use (e.g., tuberculosis from poor housing conditions or disinhibition from stimulants). Substances can predispose to infection by lowering immunity, or specific local effects, but in general it is sensible to consider infectious disease risk by the mode of substance use rather than the individual substance itself. It is therefore important to assess drug users who come into contact with services for their risk behaviours associated with infectious diseases, and also for those who present to services regarding possible infectious diseases.

This factsheet covers

- **Viral infections**
- **Acute bacterial infections**
- **Respiratory infections**
- **Sexually transmitted infections**

LEARNING OUTCOMES

Medical students will gain knowledge in:

1. Screening and assessment to identify signs and symptoms of infectious diseases.
2. Understanding the rationale for regular screening for infectious diseases.
3. Describing an appropriate care plan encompassing prevention and treatment for both substance misuse and infection.

Vignette

Jenny is a 25 year old drug user who has a history of chaotic heroin use, sharing of injecting equipment and unprotected sex with many drug using partners. As a result of her behaviours, she did contract HIV and hepatitis B. She presented to services as her usual supplier of heroin was arrested and was now in prison. She had no other contacts as she had recently moved to the area. She was funding her habit through prostitution, but was finding this more difficult due to her physical health problems of flu-type symptoms, weight loss, tiredness and abdominal pain.

On assessment it was clear that she was not only putting herself at risk as she was walking the streets, but she was risking passing HIV onto others. She knew she was HIV positive, but when using drugs chaotically she didn't care.

What tests and investigations would you undertake?

What would you consider to be the most appropriate treatment approach for Jenny?

What advice would you give her?

2.0 Context

Hepatitis B and C infections are major causes of chronic liver disease and liver cancer across much of the world. Over 90% of people diagnosed with hepatitis C have a history of injecting drugs (Health Protection Agency 2009). It is estimated that 15-20% of people with hepatitis C will

develop cirrhosis after 20 years (30% after 30 years) and each year, up to 5% of those will develop primary liver cancer. Hepatitis C is the commonest indication for liver transplantation. Around 20 to 25% of individuals with chronic Hepatitis B infection worldwide have progressive liver disease, leading to cirrhosis in some patients. In 2011, 1,636 people with HIV were seen for care for whom injecting drug use was reported as the route of transmission. This equates to just 2.2% of all people with HIV being seen for care in the UK (Health Protection Agency, 2013). It is estimated that 214,000 individuals are chronically infected with (Hepatitis C virus) in the UK. Injecting drug use continues to be the most important risk factor for HCV infection in the UK. Data from the Unlinked Anonymous Monitoring survey of people who inject drugs suggest that levels of infection in this group remain high in 2013 (50% in England, 32% in Northern Ireland and 47% in Wales); in 2013 to 2014, 57% of people who inject drugs surveyed in Scotland tested positive for antibodies to hepatitis C (PHE 2014).

3.0 Common presentations

3.1 Special/distinctive features

- Drug users who are having sex without protection and sharing any injecting equipment or injecting paraphernalia, e.g. spoons, filters, sterile water are at risk of contracting blood borne viruses (BBV) i.e. hepatitis B, C and HIV
- Patients who misuse drugs or alcohol and more likely to be susceptible to Tuberculosis (TB) – a bacterial airborne infectious disease.
- Drinking alcohol, particularly binge drinking, and using “club drugs” like ecstasy, ketamine, GHB (gamma-hydroxy butyric acid), and poppers can alter your judgment and impair your decisions about sex or other drug use leading to unprotected sex or sharing of injecting equipment.

3.2 Distinctive features

- Individuals put themselves at risk of infectious

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diseases often due to their chaotic lifestyle and the effect of those substances.

3.3 Barriers to detection, recognition and access

- Substance misusers may view BBV as an ‘occupational’ hazard of drug use, and may not recognise the symptoms which are similar to those of intoxication, withdrawal or poor self-care.
- Patients think it is ‘flu or a bad cold or link it to the drugs they have taken, especially if they have taken “street drugs” which may have unknown impurities.
- Patients may present late to services and may be less compliant with medication for the treatment of these infections.

4.0 Assessment

The range of infections included is viral, respiratory, acute bacterial, and sexually transmitted. History taking should elicit information about behaviours that may have put the patient at risk of exposure (such as injecting behaviour, unprotected sex, receiving a blood transfusion in other countries), and also about others with whom they have had intimate contact or prolonged contact. Contact tracing that may need to take place.

4.1 Hepatitis A

Hepatitis A is common in places where water supplies and sewage disposal are of a poor standard, and where personal and food hygiene standards are poor. Patients living in poor living conditions, in crowded accommodation such as a hostel or where there is no running water or adequate sewage, like in a squat, may be at risk. Blood to blood spread through needle sharing during viraemia is also possible. It is usually transmitted via faecal or oral routes.

Symptoms may last for a week or more and may include;

- Flu-type symptoms – tiredness, aches and pains and a fever and /or loss of appetite
- Nausea
- Stomach ache / diarrhoea
- Jaundice

4.2 Hepatitis B

The hepatitis B virus infects the cells in the liver, causing inflammation and fibrosis. If untreated, it can lead to cirrhosis, which can lead to liver failure or hepatocellular cancer. Around 2% cause chronic hepatitis. It is important to establish information about when the patient first started injecting, whether they have ever shared any injecting equipment (e.g. needles, syringes, spoons, mixing vessels, filters, sterile water), how often they share, with whom and with how many, and if any of those people may have any infections associated with injecting. Acute hepatitis B is a notifiable infection to Public Health England. It is usually transmitted via injecting behaviour or sexual contact and from mother to baby at birth. The hepatitis B virus can survive outside the body for at least seven days. During this time, the virus can still cause infection if it enters the body of a person who is not protected by the vaccine.

Symptoms of hepatitis B include:

- A mild fever – “flu-like”
- Tiredness
- Aching limbs and/or joint pains
- Loss of appetite
- Feeling sick and vomiting
- A reluctance to drink alcohol or smoke
- Jaundice, causing yellowing of the skin and the whites of eyes yellow, itchy skin and dark urine.

4.3 Hepatitis C

Many individuals with hepatitis C are misusing alcohol and this can lead to worsening of hepatic fibrosis. Around 50% lead to cirrhosis and chronic hepatitis and can lead to hepatocellular carcinoma. Currently no vaccine is available. It is usually transmitted via injecting behaviour or sexual contact and in 2% of cases from mother to child at birth. In more than 40% of all cases, the infected individuals cannot identify a source for their infection, although reports of cocaine users have also been shown to transmit the virus by sharing snorting straws. Cocaine can damage the inside of the nose, leading to bleeding. It is possible to then inhale contaminated blood and become infected. There is a potential risk that hepatitis C may be passed on through sharing items such as toothbrushes, razors and scissors and when receiving blood products in other countries.

Signs and symptoms of hepatitis C:

- “Flu-type” symptoms – chills, night sweats, headaches
- Mild to severe fatigue
- Anxiety
- Weight loss
- Loss of appetite
- Inability to tolerate alcohol
- Discomfort over liver area
- Problems concentrating
- Nausea
- Jaundice (usually in acute infection or in advanced stage of the disease)

Tests for hepatitis C

- Antibody test: tests for the proteins made by the body to respond to the virus.
- Polymerase chain reaction (PCR) or viral RNA (Ribonucleic acid) tests: to identify the presence of the virus. These tests establish if the patient still has the virus and whether the patient is still infected. Most people who test positive for antibodies will also test positive for the virus. A negative test may indicate that the body has cleared the infection and so a repeat test is recommended after 3-6 months.
- Liver function test: to assess the impact on the liver.
- Liver biopsy: to assess the severity of liver damage from chronic hepatitis C.

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4.4 HIV (Human Immunodeficiency Virus)

The flu-like illness that often occurs a few weeks after HIV infection is also known as sero-conversion illness. It is estimated that up to 80% of people who are infected with HIV experience this illness. The symptoms, which can last up to four weeks, are a sign that your immune system is responding to the virus. These symptoms can all be caused by conditions other than HIV, and do not mean the patient has HIV. In taking a history, it is important to establish risks associated with unprotected sex, sex with men who are bisexual and may have put themselves at risk of the virus through unprotected sex, sharing injecting equipment or injecting paraphernalia.

It is usually transmitted via injecting behaviour or sexual contact (semen and vaginal secretions), blood (including menstrual blood), and mother to baby (before or during birth, or through breast milk). HIV cannot be transmitted via saliva, tears, sweat, faeces and urine.

Most HIV tests in the UK involve taking a small sample of blood and sending this to a laboratory for analysis. These tests can provide a reliable result from four weeks after possible infection.

Antiretroviral treatment very successful treatment; there is no vaccine available.

Symptoms may include:

- Fever (raised temperature)
- Sore throat
- Body rash
- Tiredness
- Joint pain
- Muscle pain
- Swollen glands (nodes)

4.5 Acute bacterial infections

Symptoms may include:

- Staphylococcus, or streptococcus.
- Necrotising fasciitis – pain out of proportion with clinical findings.
- Botulism – scratchy throat, cranial nerve palsies and paralysis.
- Endocarditis – fever, heart murmur, peripheral stigmata.

Transmission for these infections are via injection.

4.6 Respiratory infections

For patients misusing substances there is an increased risk of respiratory infections such as bacterial pneumonia, aspiration pneumonia and tuberculosis (TB) and it is often associated with their lifestyle and transmission is airborne e.g. by coughing, sneezing, speaking, singing, or spitting.

Pneumonia

Risk factors that increase the chance of pneumonia include:

- Smoking cigarettes
- Other serious illnesses, such as heart disease, liver cirrhosis which may be as a result of substance misuse or diabetes mellitus

- Immune system problem (during cancer treatment, or due to HIV/AIDS, organ transplant or other diseases)

Symptoms may include:

- Cough with yellow, green or blood tinged mucous
- Chest pain that worsens when coughing or breathing
- Sudden onset of chills
- Headache
- Muscle pain
- Fever

Aspiration pneumonia

Aspiration pneumonia occurs when food, saliva, liquids, or vomit is breathed into the lungs or airways leading to the lungs, such as after excessive alcohol intake and overdosing on drugs.

Symptoms may include:

- Bluish discoloration of the skin caused by lack of oxygen
- Chest pain
- Coughing up foul-smelling, greenish or dark phlegm (sputum) or phlegm that has pus or blood
- Fatigue
- Fever
- Shortness of breath
- Wheezing
- Breath odour
- Excessive sweating
- Problems swallowing

Tests to determine diagnosis:

- Listen for abnormal chest sounds that indicate heavy mucus secretion.
- Take a blood sample to get a white blood cell count. A high count usually indicates infection.
- Take blood and/or mucus samples to identify the infection-causing pathogen.
- Order chest X-rays to confirm the presence and extent of infection.

Tuberculosis

Early detection of tuberculosis (TB) makes it easier to treat and reduces onward transmission. Signs and symptoms include:

- Persistent fever
- Heavy sweating at night
- Loss of appetite
- Unexplained weight loss
- General and unusual sense of tiredness and being unwell
- Haemoptysis
- Recent contact with someone who has TB

Treatment usually consists of a combination antibiotic therapy regime for 6 months. Some patients with substance misuse problems may find compliance in taking medication a challenge and supervision of medication may need to be considered.

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4.7 Sexually transmitted infections

These are frequently asymptomatic and need regular screening for detection. All are associated with long term morbidity if left untreated and may include:

- Syphilis
- Chlamydia
- Gonorrhoea
- HPV (Human papillomavirus)

Jenny had a number of blood tests, her haemoglobin was low, her albumin was low, her white cell count was low and she was positive for hepatitis B. She was not aware of the hepatitis. The management plan was to assist Jenny to stop taking "street heroin" and so she was titrated onto an appropriate amount of methadone, collecting daily from the community pharmacy to facilitate compliance with taking her medication. She had the Hepatitis B vaccination and was advised about her sexual and injecting behaviour. Her regular boyfriend received counselling and he opted for an HIV test. He was found to be negative and both were counselled about risky sexual behaviours and were provided with condoms. She also received advice about her harmful drinking levels and as part of her care plan was asked to keep a drink diary.

5.0 Treatments

Most infectious diseases require referral to specialist or inpatient centres. The important thing is to make the diagnosis by having a high index of suspicion and perform regular screening tests.

5.1 Hepatitis A

A vaccine is available for hepatitis A. When considering whether to give a single dose vaccine or combined vaccine, consider the likelihood of a drug user returning for a subsequent dose. One dose of hepatitis A vaccine confers greater protection against hepatitis A than one dose of the combined vaccine because the combined vaccine only has half the amount of hepatitis A antigen than the single component vaccine.

- Vaccinate all injecting drug users against hepatitis A.
- Single component hepatitis A vaccine preferable to combined hepatitis A and B vaccine.
- Hepatitis A vaccine is available as a single component vaccine or combined with hepatitis B vaccine. For a single vaccine, give 2 doses with second dose after 6–12 months, second dose may be delayed for up to 3 years.

5.2 Hepatitis B

Most people with acute hepatitis B recover without treatment, within about four to 12 weeks. However, around 2% cause chronic hepatitis, which can be treated with antiretroviral medication and can lead to cirrhosis and hepatocellular carcinoma. A vaccine is available.

- Vaccinate all drug users against hepatitis B (non-injectors may become injectors).
- No need to carry out pre-vaccination testing.

- Use accelerated 0, 7 and 21 day schedule to aim to complete the course as quickly as possible, although incomplete vaccination schedules offer some protection, completing the course is recommended.
- Offer hepatitis B vaccination to partners and children.

5.3 Hepatitis C

Treatment for hepatitis C (NICE, 2004), which can eradicate the virus in 40–80% of infected individuals for a fraction of the cost of a liver transplant, is readily available. Antiviral treatment for hepatitis C consists of self-administered weekly subcutaneous injections of pegylated interferon and twice daily oral ribavirin for 24–48 weeks. No vaccine is available. Patients who have substance misuse problems will require perseverance with treatment which is intensive and will be required to have either detoxified from all substances or be on a stable dose of substitute medication and not using other substances. As treatment involves the patient injecting themselves, this may be more problematic for some patients and may trigger relapse.

5.4 HIV

Antiretroviral treatment is very successful. No vaccine is available.

5.5 Tuberculosis

If patients continue to drink alcohol while receiving medication to treat the TB, there will be a high risk of liver damage. Regular blood tests will need to be done to ensure that the liver is functioning properly. Patients who also have hepatitis or HIV, will require regular blood tests to monitor the liver due to the fact that liver damage is a side effect of the medication given to treat TB. Antiretroviral therapy (HIV medication) taken together with TB treatment may have side-effects and interactions requiring careful monitoring. Treatment can last for 6–12 months and a vaccine is available. Protracted treatment may be an obstacle; some patients may drop out of treatment and may require assertive outreach approaches to bring them back into treatment.

5.6 Acute bacterial infections

These are mainly Staphylococcus or Streptococcus which can be treated by identifying source of infection, and antibiotics.

5.7 Sexually transmitted infections

Syphilis, chlamydia, gonorrhoea and HPV are all associated with long term morbidity if left untreated.

Chlamydia and gonorrhoea: can be treated with antibiotics, some strains of gonorrhoea have become resistant.

Syphilis: Penicillin is the preferred treatment for syphilis. Early treatment is crucial to prevent the bacteria from spreading to and damaging other organs.

Genital herpes: no cure, the virus remains in the body and can flare up, and can be treated with anti-viral medication.

Jenny was seen by the sexual health services and the substance misuse services. Her key worker at the drug service usually visited her when she attended the sexual health services at the genito-urinary medicine clinic. Once stabilised on methadone and engaged with services, her alcohol intake reduced. She was assessed for treatment for HIV once her drug use was under control and she was no longer taking illicit drugs.

6.0 Referral/networks/services

Specialist advice should be sought from a sexually transmitted disease clinic, and the specialist chest clinic. The GP and these services should liaise regularly to ensure that the patient is being screened and treated effectively. Specialists working in primary care, chest clinics, and sexually transmitted diseases services should make contact with specialist drug services regarding facilitation of access to drug or alcohol treatment and management of substance misuse problem.

7.0 Hints and Tips

- If patients are reluctant to change their substance misuse behaviour, it is recommended that health professionals or others discuss with patients the consequences of continued use as part of prevention of further harms related to infectious diseases in particular.
- Advice on safer injecting, use of sterile equipment, and the risks of diseases such as hepatitis B, hepatitis C and HIV need to be given.
- It is recommended that patients who continue to inject, obtain their clean needles and syringes from a community pharmacy or other services providing supplies. Clean supplies of injecting equipment are free.
- Prevention of blood borne viruses (BBV) has many benefits including reducing health harms of those who use substances and transmission can be prevented by:
 - Needle and syringe programmes: pharmacy, specialist, outreach/mobile, in hostels and gyms.
 - Comprehensive protocols to raise awareness of risks from BBVs which promote and deliver testing and appropriate pathways into treatment for hepatitis B, hepatitis C and HIV, and vaccination against hepatitis B.
 - Provision of advice and materials to reduce harm from injecting drug use.
 - Offers of testing and/or vaccination to all those at risk of contracting BBVs.
 - Programmes that prevent the uptake of injecting drug use and promote switching from injecting drug use to other means of administration.
 - Workforce and occupational health interventions for people working with those at risk of contracting BBVs.

8.0 References and useful resources

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