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University Hospitals Birmingham NHS Foundation Trust

Procedure for the management of patients with blood borne viruses

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CONTENTS

This procedural document has been approved by the Executive Chief Nurse and Director of Infection Prevention & Control (DIPC) in accordance with the Trust's policy in Infection Prevention & Control and is intended to assist in the implementation of that policy and other associated procedures.

1 Transmission

Transmission of blood borne viruses occurs when blood or body fluids from an infected person enters the body of a susceptible person (one who is not immune) for example via the following routes:

- unprotected sexual intercourse;
- sharing injecting equipment (when using street drugs);
- skin penetration by blood contaminated sharps objects such as used needles, instruments or glass
- blood transfusion
- through childbirth; the mother may infect her child before or during birth or through breast-feeding

2 Hepatitis Viruses

Hepatitis is inflammation of the liver; several viruses have been identified as causative agents of viral hepatitis, the most important of which are Hepatitis A, B, C, D and E. Hepatitis A and E are mainly spread via the faecal-oral route and do not induce a carrier state and do not present a significant risk of blood-borne infection.

Notification

Infectious hepatitis is a statutorily notifiable infectious disease. The doctor in charge of the patient has a duty to notify the proper officer of the local authority as soon as possible (see Procedure for the Notification of Infectious Diseases).

3 Hepatitis B

Hepatitis B (HBV) infection is endemic in the United Kingdom but is more common in developing countries. The clinical course of hepatitis B infection is variable and unpredictable, ranging from sub-clinical cases to fulminant hepatitis and death.

Acute infection

Follows a variable incubation period from six weeks to six months. Symptoms that may present include, malaise, nausea, loss of appetite, abdominal discomfort, joint pains, dark urine, clay coloured stools and jaundice. The recovery period may take up to six months and some people experience post viral depression and fatigue.

Sub-Clinical Infection

Most people experience no symptoms or at worst a feeling of fatigue, malaise or unaccountable depression. However, they are still infectious and may be more likely to become chronic carriers. The infection may go undetected.

Chronic Infection (Carriers)
This is said to occur when hepatitis B surface antigen (HBsAg) is still detectable in the blood after 6 months. All chronic carriers are potentially infectious to others. The risk of chronic carriage may increase when there is impaired immunity. There is also a likelihood of progression to permanent liver damage and other serious liver disorders e.g. cirrhosis or liver cancer.

Serological Markers of Hepatitis B Infection
Hepatitis B surface antigen (HbsAg) can be detected in the blood early in an acute attack and then remains present in the blood of carriers.

Hepatitis B 'e' antigen (HBeAg) is present when the virus is actively replicating and denotes high infectivity. Some carriers may be HbeAg positive. Hepatitis 'e' antibody (HBeab) maybe detectable when 'e' antigen is lost, and denotes much lower infectivity.

Hepatitis B core antibody (anti-HBc), antibody to HBcAg is one of the more sensitive markers of prior exposure to HBV. Ante-HBcIgm is a marker of acute infection.

Diagnosis is confirmed by detection of the antigens or their antibodies. The precise mix of antigen/antibody detected will vary according to the stage of infection.

4 Hepatitis C

Hepatitis C (HCV) is the main cause of hepatitis previously referred to as non-A, non-B, causing post-transfusion hepatitis. HCV is predominantly blood borne and routine screening of blood donors was introduced to prevent transmission. Up to 42% of injecting intravenous drug users are Hepatitis C antibody positive.

The incubation period ranges from 2 weeks to 6 months and the acute phase of hepatitis C is often asymptomatic or mild. If it proceeds to chronic disease, progress is usually slow and the most common complaint is fatigue. It is estimated that 80% of infected persons develop chronic infection, of which 70% develop chronic liver disease with a risk of progression to cirrhosis or cancer.

Diagnosis
Serological tests are available which mostly become positive within 6 months. PCR may need to be carried out to confirm diagnosis. Antibody positive shows current or previous infection, HCV RNA positive means actively replicating the virus.

Vaccination
There is no vaccine available against Hepatitis C.

5 Hepatitis D

Hepatitis D (HDV) was previously known as Delta agent and is a defective virus, which requires the presence of HBV to allow it to replicate. Therefore, HDV only occurs in people who already have HBV or in people who acquire both viruses simultaneously. Acute Hepatitis caused by HDV is usually severe and patients with the double infection HBV and HDV usually develop rapidly progressive disease.

6 HIV/AIDS

Human immunodeficiency virus (HIV) is a retrovirus, which interferes with the body's immune response to infection and malignancy. A person infected with HIV may experience an initial acute illness followed by a period in which there are no clinical features, although antibodies to the virus can be detected in the blood. People with HIV infection may remain well for several years. As the immune system becomes increasingly impaired so the chances of opportunistic infections and tumour are increased.

Acquired Immune Deficiency Syndrome (AIDS) is diagnosed when a person with HIV infection is found to be suffering from one or more of a number of specific diseases. These diseases include *Pneumocystis carinii* Pneumonia (PCP), certain cancers, e.g. Kaposi's sarcoma and conditions thought to be due to the direct effect of HIV, e.g. HIV encephalopathy.

HIV Test

The HIV test is not a test for AIDS. It is a blood test to detect antibodies that are made once the body has been infected with HIV. A negative test means that antibodies have not been found in the blood. However, this does not necessarily exclude exposure to HIV as antibodies can take up to 6 months to appear (window period). Therefore, a person can be recently infected by HIV, and have a negative result but still be capable of transmitting HIV to another person. A positive result means that antibodies to HIV were detected and therefore an infection has occurred at sometime, this means that they are infectious and could pass the virus to other people via blood or body fluids. (The virus cannot be passed on by normal everyday contact).

7 Standard Precautions

Standard precautions are necessary for dealing with patients that have a blood borne virus (BBV). See the following policies and procedures for detailed information:

- Hand Hygiene Procedure
- Procedure for Cleaning and Disinfecting Shared Patient Equipment
- Procedure for the Use of Protective Equipment
- Procedure for Sharps Safety
- Procedure for the management of spillages

- Death of a patient with an infectious condition

8 Isolation

Patients that have HIV and have a low CD4 count are immuno-compromised and will require protective isolation. Further details on isolation for patients with blood borne viruses (BBVs) can be found in the Procedure for Isolation.

9 Staff Immunisation

There is an effective vaccine against Hepatitis B and healthcare workers are required to follow the Immunisation Policy.

10 References

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