National Maritime Occupational Health and Safety Committee

GUIDELINES TO SHIPPING COMPANIES ON HEPATITIS

The term **hepatitis** refers to inflammation of the liver, which can be caused by any one of a number of viruses, by overindulgence in alcohol or by other medical conditions. This document will concentrate upon those viruses most commonly associated with hepatitis.

The Chamber of Shipping first published Guidelines to Shipping Companies on hepatitis A in 1995 and on hepatitis B in 1993. Since this time incidence of and knowledge about hepatitis C has increased and other hepatitis viruses are believed to exist.

It is therefore important for seafarers and their employers to be aware of the situation, since the nature of their occupation may expose them to greater risk in some overseas countries than in the general case in the western world.

The National Maritime Occupational Health and Safety Committee (NMOHSC) considers it important that shipping companies and seafarers have knowledge of hepatitis and are aware of the risks of acquiring the condition and preventive and curative measures. It has therefore updated the Chamber of Shipping guidance and added new information and recommendations concerning hepatitis C. It should be noted that certain aspects of this guidance, such as advice on hygiene practices and on action in the convalescent period, have general relevance and have thus not been reiterated in each section.

It is considered important that each company should consider the adoption of a policy on hepatitis as part of its overall health and safety policy. The policy should promote the health, safety and welfare of seafarers, provide information for seafarers on the different types of hepatitis and how to avoid infection and provide that seafarers who, for occupational reasons, may be particularly at risk of acquiring hepatitis receive appropriate vaccinations.

HEPATITIS A

Introduction

1. Hepatitis A is also known as infectious hepatitis and is caused by an enterovirus of the genus picornaviridae commonly referred to as hepatitis A virus (HAV). It is a highly infectious condition caught from food or water that is contaminated with faeces, although the commonest route of transmission in the UK is from direct contact with an infected person. It is particularly prevalent in parts of the world with poor hygiene and/or primitive sanitation.

2. Severe illness is uncommon in children, but occurs in a small but significant proportion of adults when death may result. Liver failure due to hepatitis A remains the commonest reason for liver transplantation in the UK.

3. There is an immunisation against hepatitis A that is believed to protect for up to twelve years.

Occurrence

4. The disease occurs worldwide, and endemicity is directly related to standards of sanitation, as noted above. Large numbers of people in developed countries have had hepatitis A at some stage of their lives, usually reflecting poor sanitation during their childhood. In countries with the highest incidence, 80-90% of the population will have been affected.

Course of the Disease

5. The incubation period, which is the time between the first exposure to the virus and the appearance of symptoms, ranges between 15-50 days. People are infectious in the few days prior to onset of symptoms, and then whilst symptomatic.

6. Onset of illness in adults in non-endemic areas is usually abrupt with fever, malaise, anorexia, nausea and abdominal discomfort, followed within a few days by jaundice. The disease varies in clinical severity from mild illness lasting 1 – 2 weeks to a severely disabling disease lasting several months. In general, severity increases with age, but complete recovery, without sequelae or recurrence, is the rule. Reported case-fatality is normally low, but can approach 2% for adults over 50 years of age. During convalescence, it is important to avoid alcohol, heavy exertion and certain drugs such as tranquillisers and sedatives, which need to be broken down by the liver.

Treatment

7. There is no specific treatment for hepatitis A. Since a virus causes it, antibiotics will be ineffective against it.

Preventive Measures

8. Where there is concern about standards of sanitation in a particular area, the following precautions should be taken;

   - Use sterilised or bottled water for drinking and cleaning teeth. Try to avoid ice cubes, which may have been made from tap water;
   - Avoid eating raw fruits and vegetables, such as salads, which you cannot peel yourself. Avoid ice cream;
   - Avoid eating shellfish, which can easily be contaminated.

Special Precautions for Sewage Handlers

9. The routes of transmission of HAV imply increased risks of infection for workers who handle sewage. It is recommended that seafarers who routinely handle sewage should be vaccinated against HAV in addition to the usual anti-infection procedures. Where individuals who are not immunised come

into contact with sewage, each incident should be treated on its own merits, with consideration being given to post-incident immunization.

Immunization

10. Hepatitis A vaccine is not considered necessary for people travelling to Northern and Western Europe, North America, Australia and New Zealand. People travelling to other parts of the world may wish to consider being vaccinated.

11. The hepatitis A vaccine provides long-term protection – at least five to twelve years - and is commonly available from General Practitioners. A primary course consists of two injections, the second preferably no more than six months to a year after the first, and is particularly suitable for those who frequently travel to third-world countries. It does not give protection against any other strains of hepatitis.

HEPATITIS B

Introduction

12. Hepatitis B is an acute inflammation of the liver caused by a DNA virus of the genus hepadnaviradae, and is known as HBV. HBV is present in the body fluids of an infected person. It is passed on in the same ways as HIV, the virus which can lead to AIDS. These are; penetrative sexual intercourse with an infected person; transmission of infected blood (e.g. by transfusion of blood or blood products (a problem now effectively confined to developing countries), exposure to blood in First Aid procedures and the sharing of injecting equipment) and from an infected pregnant woman to her unborn child. However, it is important to note that HBV is a much more robust virus than HIV and is therefore acquired far more easily.

Occurrence

13. The disease is endemic worldwide, with substantial variability from country to country – endemicity is greater in some areas of the tropics. WHO estimates that more than 2 billion persons have been infected with HBV, including 350 million chronically infected. This group comprises individuals in whom the virus persists after the acute illness has passed, and who can subsequently transmit the disease to others - the significance of these cases will be outlined later. Each year, about 1 million persons die as a result of HBV infections, and over 4 million new acute clinical cases occur.

Course of the Disease

14. The incubation period for hepatitis B, which is the time between infection and development of the disease, is normally 30-180 days, with an average of 60 – 90 days. There is considerable variation in the extent to which those infected manifest symptoms, related, among other factors, to the age and immune status of the individual. Many cases of infection will go unrecognised, as the severity of the illness ranges from cases detectable only by laboratory testing

to those where death occurs rapidly. Where clinical illness is manifest (acute hepatitis B), the onset is usually insidious, with anorexia, vague abdominal discomfort, nausea and vomiting, sometimes with pain in the joints and a rash. Jaundice may develop, although this will not occur in some 30 and 50% of adults.

15. Up to 10% of those infected as adults will become chronic hepatitis B carriers, although this condition is less likely to affect those who have suffered symptomatic acute hepatitis B. 90% of infants infected at birth will progress similarly. Those with chronic HBV infection may manifest chronic active hepatitis, with or without cirrhosis, and 15 – 20% of die prematurely of either cirrhosis or hepatocellular carcinoma (a cancer of the liver).

16. While there is no curative treatment for acute hepatitis B, 90% of adults will eliminate the virus spontaneously within six months. Antiviral therapy may be offered where there is biopsy evidence of chronic hepatitis B, although a successful outcome is far from certain.

Preventive Measures

17. As HBV is transmitted in the same ways as HIV, the same precautions that are taken to prevent HIV infection, as clearly described in the National Maritime Occupational Health and Safety Committee Guidelines to Shipping Companies on HIV and AIDS, should be taken against hepatitis B.

18. The following precautions should be applied:-

- Any person engaging in a sexual relationship other than with a regular partner should always use a condom. Used properly, condoms are an extremely effective means of preventing infection from other sexually transmitted diseases and unwanted pregnancy. For anal intercourse it essential that a condom specially designed for the anus is used. In high risks areas of the world, sexual encounters of any kind should be avoided.
- When it is necessary to carry out injections, injecting equipment should never be re-used.
- Transfusions of blood or blood products in certain overseas locations should be avoided unless there is a compelling medical indication. If possible Red Cross or Red Crescent blood supplies should be used, but if these are not available reassurance should first be obtained from an authoritative source that the transfusion is not infected with either HIV or HBV, otherwise the substitution of safe sterile plasma expanders should be considered.
- Similarly medical and dental instruments or equipment might not be adequately sterilised between patients in such locations and might constitute a means of transmitting HIV or HBV.
- Dental treatment should be avoided in such locations unless it is strictly necessary. Ships' crews should be strongly advised to have all preventive and restorative dentistry performed whilst at home before embarking on overseas voyages.

- Ear-piercing, tattooing and acupuncture involve puncturing the skin with a sharp instrument and may constitute a further risk of infection. Such practices should be avoided abroad and, to be absolutely sure, barber shop shaving, manicure and pedicure should also be avoided for the same reason.
- Items such as toothbrushes and razors should not be shared as there is a chance that they could be contaminated with HIV or HBV and this could be passed on through a mouth sore or an abrasion.

19. Particular care should be taken with regard to procedures following accidents where blood is spilled. Whilst HIV is easily destroyed by chemical disinfectants, HBV and HCV are resistant to common antiseptics and it is essential to use the correct procedures to destroy them.

20. In addition to the above, the following precautions should be taken

- Wash hands before and after carrying out first aid treatment;
- Cover cuts and abrasions with waterproof dressing-
- Wear rubber gloves;
- Be very careful to avoid needlestick injury and wounds from broken glass or other sharps'. Should such an injury occur, encourage the wound to bleed (though not by sucking) and wash with soap and running water, or properly diluted antiseptic solution e.g. cetavlon
- Mop up spillages with paper towels, then wash the area with hot water and detergent, using disposable cloths. Finally, wipe the area with a mixture of 1 part bleach to 10 parts cold water;
- Dispose of all towels, cloths, dressings and rubber gloves in two plastic bags, one placed over the other, and incinerate.

Immunization

21. A preventive vaccine against hepatitis B is available, and it is recommended that people at risk from occupation because of potential exposure to blood or blood-containing products should be immunized. Such occupations are; Doctors, Dentists, Nurses and other ancillary staff involved in health care; also Laboratory staff, Police and Prison service staff. At the present time it is not thought necessary for all seafarers to be immunized, but it is most important that the precautions described above are taken. Companies should consider making immunization available to those of its personnel who are responsible for the provision of medical care on board. Primary immunization involves a course of three injections, and produces a positive response in some 80-90% of persons immunized, but may take up to six months to confer adequate protection. The duration of protection is not known precisely but it is probable that booster injections would be needed at 3-5 yearly intervals. The vaccine does not protect against hepatitis A, hepatitis C or some mutant varieties of hepatitis B.

HEPATITIS C

Introduction

22. Hepatitis C is caused by an enveloped RNA virus, classified as a separate genus (Hepacavirus) in the Flaviviridae family, referred to as HCV. The disease is often described as a "silent" epidemic because those infected can remain symptom-free for many years and feel quite healthy. Indeed it is estimated 90% of those who are infected are completely unaware they are living with the virus. However, up to 30% will develop liver disease or cirrhosis, and a small percentage will develop cancer. Liver failure because of infection with the virus is the leading cause of liver transplants in the world.

Occurrence

23. It is estimated that up to 500,000 people in the UK are infected with hepatitis C. Many of these are drug users who have contracted the condition through sharing injecting equipment with carriers.

24. Of every 100 persons infected with hepatitis C, approximately:-

- 75 to 85 persons may develop long-term infection
- 70 persons may develop chronic liver disease
- 15 persons may develop cirrhosis over a period of 20 to 30 years

Course of the Disease

25. Being blood-borne, the virus is spread primarily by direct contact with human blood, for example:-

- transmission of infected blood via contaminated needles.
- transfusion of blood, blood products, or solid organs from an infected donor.
- Mother-to-child during birth.
- sharing items such as razors or toothbrushes that might be contaminated with infected blood.
- unprotected sexual contact with a person infected with hepatitis C (the evidence is less clear cut than with HBV and HIV).

Spread within a household is most likely due to direct exposure to the blood of an infected household member.

26. Around 20% of patients eliminate HCV within six months without ever suffering the symptoms of the disease. Other patients may remain symptomless for decades even though the virus remains in their bodies. If, however, the liver inflammation deteriorates, this can lead to symptoms such as jaundice, weight loss, alcohol intolerance, vomiting and flu-like symptoms. If severe liver inflammation persists, serious damage may occur.

27. A blood test may confirm the presence of HCV although, as it is based upon evidence of an immune response, it may not become positive until some months after infection. Liver function tests or a biopsy may be undertaken to aid in determining the extent of damage.

Treatment

28. Hepatitis C is difficult to treat, although the current combination of two drugs, interferon alpha and ribavirin, has a significant success rate, with some 40% of patients responding, but the treatment is long drawn-out, exhausting for patients and final success is not assured. A new drug, peginterferon alfa, can also be added to the regime, and can prolong the effectiveness of the treatment, making it particularly suitable for drug users, who often find it difficult to take medication regularly.

29. In some cases, however, known cases of hepatitis C may simply be monitored to assess liver function over time. If liver damage is severe, then a transplant may be the only option. The shortage of organs for transplantation is a severe problem, and long delays for a suitable organ are common. Transplantation is not curative – HCV will infect the new liver and will eventually start to damage it in the same way – and the procedure simply buys some time and improves the general health of the patient.

Preventive Measures

30. As HCV is transmitted in similar ways to HBV and HIV, the precautions listed in Paragraphs 17 – 20 above should also be taken against hepatitis C.

Immunization

31. There are at present no preventative vaccines against Hepatitis C.

Further Information

www.doh.gov.uk

Information leaflets directed at health professionals may be found on the NATHNAC web site, as follows:

www.nathnac.org/pro/factsheets/hep_a.htm

www.nathnac.org/pro/factsheets/hep_b.htm

www.nathnac.org/pro/factsheets/hep_c.htm

There is also a leaflet dealing with hepatitis E, which is here included for completeness:

www.nathnac.org/pro/factsheets/hepatitisE.htm