ANNEX 1

HEPATITIS C

1. The hepatitis C virus (HCV) was discovered in 1989 by molecular biological techniques, though its existence was predicted in the mid seventies when it was shown that the recently discovered hepatitis B and hepatitis A viruses failed to account for all cases of post-transfusion hepatitis. It has now been shown that HCV is the agent responsible for the majority of cases of parenterally transmitted non-A, non-B hepatitis.

Transmission

2. HCV is a blood borne virus that generally circulates in low levels in infected people. Epidemiological studies show that the most efficient transmission of HCV is through the transfusion of blood or blood products or the transplantation of organs from infected donors and through the sharing of contaminated needles among injecting drug users. Transmission has also occurred in renal dialysis units, in certain groups of health care workers through occupational exposure to blood, and through tattooing and other forms of skin piercing via contaminated equipment.

3. Haemophiliacs will have been at particular risk before blood products were treated to destroy viruses (since 1985), because of the use of pooled plasma for the preparation of clotting factors. Anti-HCV screening of blood donations was introduced in September 1991; this is more to the benefit of recipients of blood than haemophiliacs. Studies for HCV among intravenous drug users conducted outside the UK show that rates of infection are generally high and in the order of 50-80%. Available evidence suggests the situation in England and Wales may be similar.

4. Studies of perinatal, sexual, and household transmission have produced conflicting results but in general these are thought to be less efficient modes of transmission. Different results may reflect the different levels of circulating virus in the patients being tested. No convenient serological marker of infectivity (comparable to the e-antigen of hepatitis B virus) has yet been discovered to predict the circulating level of HCV.

5. Studies have shown that HCV infection developed in 0-13% of infants born to anti-HCV positive mothers. Two recent small studies have suggested the risk of transmission is related to the quantity of virus circulating in the mother and did not demonstrate transmission at low levels. [It should be noted that transmission of HBV from e-antigen positive mothers to their babies would occur around 90-95% of the time in the absence of prophylactic therapy with hepatitis B specific immunoglobulin and vaccine; no such prophylaxis exists for HCV.] Perinatal transmission of HCV appears to be greater from mothers with co-existing HIV infection.

6. The rate of sexual transmission is also debated but is generally thought to be low. Epidemiological evidence supports both homosexual and heterosexual transmission. In some high risk groups undisclosed IVDU may be an important additional factor. Multiple sexual partners appear to be a risk factor.

7. Evidence of hepatitis C virus in body fluids such as semen, saliva, and breast milk have been reported inconsistently and may reflect differences in the concentrations of virus in the infected persons examined.

Natural History

8. The course of acute HCV infection is usually clinically mild although rarely fulminant hepatitis may develop. The exact proportion that develop jaundice is difficult to ascertain but may be in the region of 10-15% in adults. (This compares with 30-50% for hepatitis B). Many patients are completely asymptomatic and may first present with liver sequelae decades after acquisition of the infection. As many as 50% of patients with acute hepatitis C will go on to chronic disease as measured by persistent elevation of liver enzymes. There will also be patients with normal liver function tests who remain viraemic. Recent reports suggests that the virus may persist in perhaps 80% of those infected with hepatitis C. (This compares with about 5-10% of those infected with hepatitis B as adults).

9. The natural course of chronic hepatitis C and progression to chronic liver disease is still a matter of debate. Liver damage is usually mild at first with evidence of persisting infection for many years but may progress to severe disease in a proportion. The rate of progression is variable; in many patients the disease appears to be indolent and only slowly progressive with fluctuating levels of liver enzymes and with fairy stable liver histology for 20 years or more, but some will go on to a more aggressive form of hepatitis (chronic active hepatitis). Perhaps 20% of infected patients will develop cirrhosis, sometimes only after 20-30 years, of whom a small proportion will develop hepatocellular carcinoma (primary liver cancer) after a further time. Certain patient groups may have a worse prognosis and a more rapid disease progression, eg immunosuppressed patients, those co-infected with HIV and/or hepatitis B, and possibly haemophiliacs.

Treatment

10. Treatment with interferon alpha, usually given to patients at the stage of chronic active hepatitis, has been disappointing. A response is obtained in approximately 50% of patients treated, but relapse rates are high. Half of those who respond initially relapse in the first year after treatment; a small number relapse in the second and third years. Thus only 20-25% of patients with chronic hepatitis C infection have a sustained response to interferon. Long term results are not available. The effectiveness of higher doses of interferon or an extended period of treatment, and of interferon combined with oral antiviral agents are currently being assessed.

11. Interferon is usually given three times a week (by subcutaneous injection) for six months, The cost of a six month course of interferon depends upon the dose given but at the'usual' dose is about £1300. At higher doses, and where longer course are given the costs would be proportionately higher. With present results, the cost-benefit ratio is high as 4-5 patients have to be treated to obtain one sustained response.

Prevention

12. The principle way of controlling hepatitis C is to interrupt transmission, and as there is no likelihood of a vaccine against HCV in the immediate future this can only be achieved by preventing exposure to the virus. In general these measures will be similar to those for hepatitis B and HIV. As the prevalence of HCV is likely to be much higher than HIV in intravenous drug users, coverage and completeness of needle exchange strategies will be very important for adequate control.

Current problems

13. The UK Advisory Panel for Health Care Workers Infected with Blood Borne Viruses and the Advisory Group on Hepatitis will both be discussing the issue of health care workers infected with HCV at their next meetings and whether guidance about any restriction of working practices is necessary. [There have been no documented transmissions of HCV from health care workers to patients as yet in either the UK or the USA but a case has been

reported from Spain].

14. The Department is shortly to set up a working group to produce guidance about blood borne viruses (including hepatitis C) in renal dialysis units.

15. The Advisory Council on the Misuse of Drugs (ACMD) has asked the Department for a paper on hepatitis C for its next meeting (which happens to be tomorrow 17 November). They are concerned about the high prevalence of HCV among intravenous drug misusers and about what actions are necessary.

Hugh Nicholas HP(M)1
717 Wellington House
Ext GRO-C