EPI-NEWS **NATIONAL SURVEILLANCE OF COMMUNICABLE DISEASES**
Editor: Tove Rønne
Statens Serum Institut - 5 Artillerivej - 2300 Copenhagen S - Denmark
Tel.: +45 3268 3268 - Fax: +45 3268 3868
www.ssi.dk - serum@ssi.dk - ISSN: 1396-4798

ACUTE AND CHRONIC HEPATITIS B AND C INFECTION, PART I

No. 5, 2001

Since the early 1980's the annual number of notified cases of acute hepatitis B virus (HBV) infection has fallen from over 200 to around 100 in the period 1993-98, EPI-NEWS 23/99. Only few cases of acute hepatitis C virus (HCV) infection are notified, EPI-NEWS 35/00. Since 1 May 2000, chronic HBV and HCV infections have also been notifiable. The criteria for notification will be explained in a future issue of EPI-NEWS, which will also deal with diagnostic procedures.
About 0.1% of the Danish population is estimated to be chronically HBsAg-positive and thus has chronic HBV infection, mostly without clinical symptoms. Chronic HBV infection is much more frequent in e.g. i.v. drug users and immigrants from endemic areas, chiefly Southeast Asia and Africa. Chronic HCV infection is seen chiefly in i.v. drug users and persons who have had medical treatment in parts of the world with low hygienic standards. Anti-HCV is found in 0.05% of Danish blood donor candidates, EPI-NEWS 7/00.

Table 1. Hepatitis B and C overview

Virus	Classification	Routes of infection	Incubation period (wks)	Clinical infection	Chronic infection
HBV	DNA (Hepadnavirus)	Parenteral	6-20	50 %	1-2%/5-10%*
		Sexual	6-20	50 %	1-2%/5-10%*
		Perinatal			90%
HCV	RNA (Flavivirus)	Parenteral	6-10	< 10 %	60-80%

* Clinical/subclinical

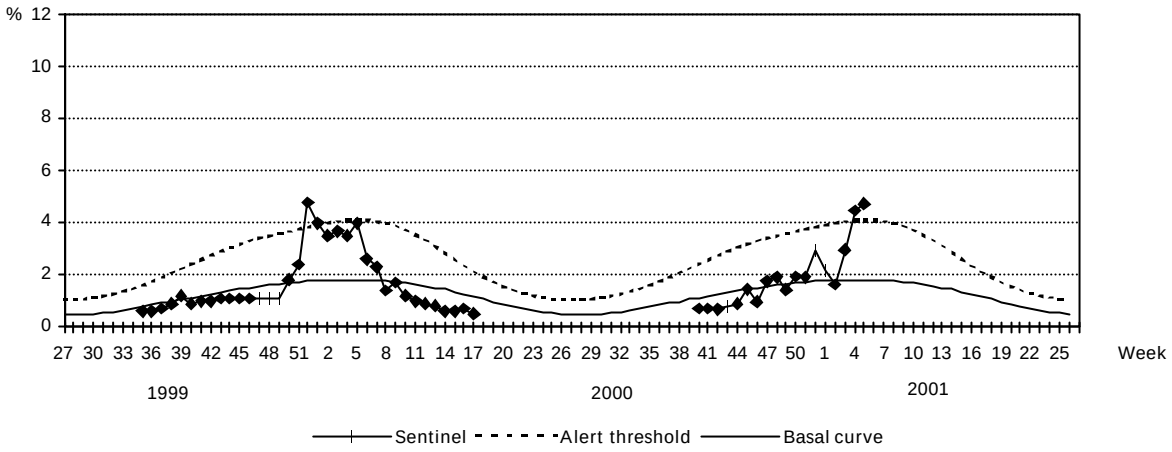
Clinical course and prognosis
The risk of chronic HBV infection following clinical acute HBV infection is 1-2%, but higher (5-10%) in subclinical cases, Table 1. Perinatal infection, however, carries a 90% risk of chronic infection. The risk in neonates can be reduced to <5% by prompt vaccination (see below).
Chronic HBV infection in immunocompetent patients may be marked by a sudden drop in the rate of viral replication, reflected by the so-called HBeAg to anti-HBe seroconversion. This spontaneous seroconversion is seen in about 10% per year and is followed by normalization of transaminase levels and a gradual improvement in histological findings, as well as a considerable reduction in the risk of developing cirrhosis and primary hepatocellular carcinoma.
Acute HCV infection is seldom diagnosed, but becomes chronic in 60-80% of cases. Chronic HBV and HCV infections carry a risk of chronic hepatitis, which may eventually (in 20-40 years) lead to cirrhosis and hepatocellular carcinoma. The risk of hepatic cirrhosis is 10-20% after 20 years. Chronic viral hepatitis seldom gives rise to marked symptoms. Polyarteritis nodosa and glomerulonephritis may be seen in chronic HBV infection, whereas chronic HCV infection may be complicated by e.g. cryoglobulinaemia and porphyria cutanea tarda.

Treatment
The inflammatory response to HBV is due to the immune attack on hepatocytes that are the site of active viral replication. Inflammation and necrosis are followed by fibrosis.
Chronic HBV infection can be treated either with lamivudin or with α-interferon. The indication for treating chronic HBV infection is the existence of HBeAg-positivity, biochemical activity and histological appearances of chronic active hepatitis with or without cirrhosis. Significant contraindications are uncompensated cirrhosis and symptomatic HIV infection.
Lamivudin treatment inhibits HBV replication directly. This produces a fall in viral number and normalizes transaminases. In most patients the treatment is only effective while given, viral replication resuming when it is stopped. During one year of treatment seroconversion from HBeAg to anti-HBe is seen in 30% of patients. Long-term lamivudin treatment may be considered for patients who show no seroconversion, but some patients will develop resistance. Interferon treatment of chronic HBV infection makes use of both its antiviral and immunostimulating actions to promote seroconversion, which is achieved in about 30% of cases after 6 months of treatment.
Chronic HCV infection can be treated with a combination of α-interferon and ribavirin. In 50% of patients chronic HCV infection is a slowly progressive disease with mild to moderate inflammation and increasing fibrosis. The indication for treating chronic HCV infection is the existence of elevated transaminases together with histological changes as described for chronic HBV infection. Combined treatment with α-interferon and ribavirin produces a suppression of HCV replication. This reduces inflammatory activity as reflected by a fall in transaminase levels. A lasting response to treatment, with elimination of the HCV, is seen in about 40% of patients, on average. The response rate varies with the viral load and hepatitis C genotype. All patients with chronic HBV or HCV infection should be referred to a specialist department.

Immunoprophylaxis
Vaccination against hepatitis B produces protective antibodies (anti-HBs) in >90%of cases. Primary vaccination comprises three doses; the 2nd and 3rd doses are usually given one and six months, respectively, after the 1st dose. Revaccination is after 10 years. Prophylaxis for risk groups before exposure is dealt with in the National Board of Health "Guidelines on prevention of hepatitis", 1996. Subsequently there has been an additional recommendation to vaccinate children and staff at day-care institutions where there is a child carrier (HBsAg-positive). Prophylaxis for foreign travel is described in EPI-NEWS 24a+b/00.
For prophylaxis after exposure, the rule is that newborn children of HBsAg-positive mothers should be vaccinated against hepatitis B and be given hepatitis B immunoglobulin within 48 hours after birth; the effectiveness of any later vaccination is doubtful. A further three vaccinations should be given, at one, two and 12 months after the first. Those exposed to infection, e.g. by stick injuries from infected needles, are recommended to have a similar vaccination with four doses.
(K. Krogsgaard, Clinical Research Unit, Hvidovre Hospital, C. B. Christiansen, Dept. of Clinical Microbiology, E. Smith, Dept. of Epidemiol.)

Sentinel surveillance of influenza activity

Weekly percentage of consultations, 1999/2000/2001



Sentinel: Influenza consultations as % of total consultations

Basal curve: Expected frequency of influenza consultations under non-epidemic conditions

Alert threshold: Possible incipient epidemic

Sentinel specimen taking 2000/2001

Week	40-51	52	1	2	3	4
Specimens received	33	1	3	2	10	30
Influenza A, H1N1		1	1		3	3
Influenza A, untyped						3

Influenza

Sentinel surveillance is indicating an increased incidence of influenza. The figures apply to the country as a whole and it is not possible to estimate any differences in incidence between individual counties.

During the present season a total of 79 specimens have been sent in by sentinel physicians up to week 4. Eleven of these have been positive for influenza A. Seven isolates have been typed as A (H1N1)/New Caledonia-like strains and one as an A (H1N1)/Johannesburg-like strain. The first strain is included in this year's vaccine while the other was included in previous year's vaccines.

It looks as if children and adolescents are especially susceptible to the current influenza, as in other parts of Europe. This may be because the last time that H1N1 strains were the predominant cause of influenza was towards the end of the 1980's.

(P. C. Grauballe, Dept. of Virology, S. Samuelsson, Dept. of Epidemiology)