

VIRAL HEPATITIS CONTROL

Roman PRYMULA, Jiří BERAN
Purkyně Military Medical Academy, Hradec Králové

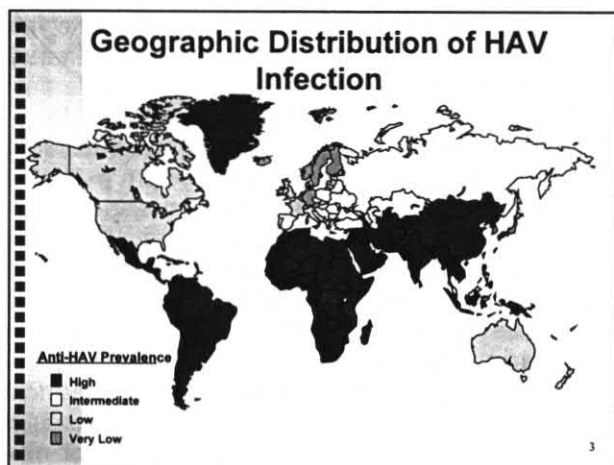
Viral hepatitis is still a serious medical and economic problem. Based on current diagnostic technologies six different types of hepatitis can be classified (A, B, C, D, E, G). Hepatitis F has been considered as separate type of hepatitis at the beginning, but now it is more and more clear Hepatitis F virus seems to be only subtype of already well known virus of Hepatitis B. Hepatitis are very important for health care administrators generally, but it depends on different type, subtype and occurrence in any particular part of the world. Of the clinical point of view Hepatitis B, C and D attract attention however the spread of Delta agent is very rare in the Czech Republic. Of epidemiological and preventive point of view Hepatitis A, B and C are in centre of our interest. To illustrate those facts we can mention number of reported cases in the Czech Republic in 1997, when 1187 cases of Hepatitis A, 599 cases of Hepatitis B and 272 cases of Hepatitis C were reported. As epidemiologists we are particularly in-

involved in process of hepatitis control and implementation of preventive measures. On the one side we have no commercial vaccine against Hepatitis C available up to now. On the other side Hepatitis C is not a real problem in our army currently, in spite of fact Hepatitis C is extremely alarming disease in civilian sector especially among drug abusers. This is the reason, why only Hepatitis A and B will be discussed further in more details.

Hepatitis A

Hepatitis A is an acute or subacute disease without documented chronic course or sequelae. The geographic distribution is clearly seen in the picture 1.

Susceptible population's immunity rate varies in different regions. High is in Africa and Asia, briefly in developing countries with warm climate and poor



Picture 1

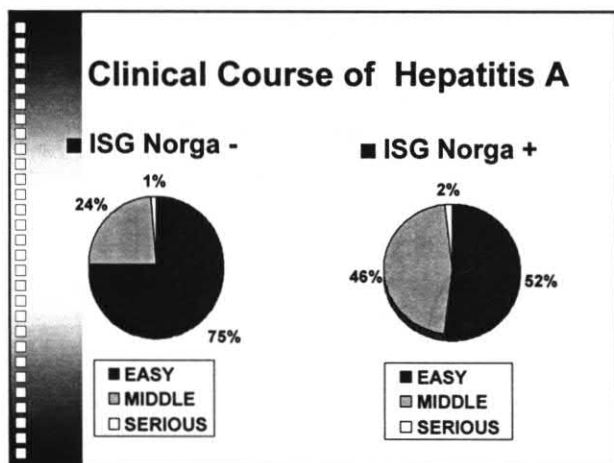


Chart 1

Table 1

Hepatitis A Course after ISG Norga Administration

Factor	Diseases after Norga	No disease after Norga
Number of epid.	57	43
Av. No. of patients	10.73	10.83
Anicteric forms	4.61	1.02

standard of hygiene. In these countries is viral hepatitis A endemic. Very low occurrence is in developed countries, particularly in northern Europe. It brings remarkable risk for those who are travelling from low and very low prevalence areas to endemic areas. The situation in the Czech Republic is stabilised since 1979 and Hepatitis A incidence is decreasing. The largest epidemic occurred in above mentioned year 1979, when the „strawberry“ epidemic was reported with more than 30 thousand

sick people. The epidemic is called „strawberry“ epidemic because of recognised vehiculum, which were deep frozen strawberries. Since 1979 there are only small epidemics. The situation is quite comparable in army and in civilian sector. Infection of Hepatitis A virus is followed by life long immunity. Seroprevalence of anti-HAV is increasing with age. Majority of those who are in the age of 50 and above is anti-HAV positive, but majority of our young population is virgin. Immunity rate in recruits varies between 5 to 10 %. It means it is very risky to deploy such troops in endemic area of Hepatitis A. It is very well known a strategy to cover risk groups is the most important issue. Currently there is one more risk factor in the Czech Republic. Two years ago we have met with massive floods in the Czech Republic. However consequences were not so bad because of low endemic area and high standard of hygiene. The situation in the Czech army seems to be similar to civilian sector. All the epidemics are very well documented and we have an opportunity to analyse data from almost 30-year period. For many years only post-exposure prophylaxis by ISG (Norga) has been used. The efficacy of post-exposure ISG administration in our army was about 70 %. In comparison to international data it is lower than reported efficacy 80 to 90 %, but it is mainly due to prolonged interval of administration after infection. Generally this provision was very successful and saved about 500 possible cases in total. Negative aspects of ISG (Norga) administration are clear from following table 1 and chart 1.

In those epidemics in which ISG had been administered and some patients became ill a clinical picture was more frequently anicteric than in those with diseases without any relations to ISG administration. Anicteric course was 4.5 times higher. Also clinical picture was a little bit shifted from mild towards moderate courses in those who became ill after ISG. Pre-exposure prophylaxis was not used in the Czech army as we have information about this approach in Israel.

Pre-exposure ISG administration was replaced by active immunization using vaccine Havrix. Mass immunization of our troops is very costly, however. We use a selective approach to immunize only troops in risk. In other words we vaccinate only troops prepared for deployment in endemic areas during special missions or humanitarian actions under the auspices of UN or NATO. The military epidemiologists were involved in clinical trials with post-exposure administration of Havrix. The results were very promising, but the numbers of cases and contacts were very limited and the results can not be considered significant. In spite of proved data of our Slovak civilian colleagues about successful use of Havrix in post-exposure prophylaxis we still recommend in above-mentioned indication ISG.

Hepatitis B

Hepatitis B is a serious global economic and health problem with about 2 billion sick people, over 350 million people chronically infected and 1 million deaths per year world-wide. There is increasing importance of sexual transmission in countries with low endemic occurrence. The most alarming issue is high frequency of chronic sequelae and high incidence of disease. There are ongoing discussions which strategy should be implemented to prevent Hepatitis B. We have special methodological provision in military based on which all the professionals at risk should be immunized against Hepatitis B virus. It means in reality health care workers. In civilian sector is the situation slightly different and the strategy of immunization of various risk groups has been implemented for many years. The strategy seems to be very successful because the general trends in HBsAg prevalence are descending. Our annual incidence rate is about 6.0 per 100 000 habitants and carrier rate is almost 0.65 % what means about 60 000 to 65 000 carriers in the Czech Republic (population 10,3 million). We have calculated both direct and indirect costs for treatment of Hepatitis B cases. The costs were compared with expenditure for preventive measures (immunization). Based on those data mass immunization strategy of small children using combined vaccines (HB, DTP or HB, Hib, DTP) seems to be the most beneficial strategy of economic and logistical point of view. Precise analysis of incidence and prevalence

data of Hepatitis B shows nevertheless different reasons. In spite of global descending trends in incidence rate the situation among adolescents is very different and figures are alarming. The decrease can be also recognised but it is not so remarkable as in adults. Adolescents are the most endangered risky group because of their starting sexual life and intravenous drug abuse. It was hopefully finally decided to immunize adolescents in the age of 12 by recent strategy immunizing risk groups still in process. The strategy of higher risk groups or better persons with risk behaviour includes newborns of HBsAg positive mothers, health staff, dialysed patients and newly diabetics and family contacts. To conclude rationale for implementation of a mass immunization strategy we can list many different reasons. Among others we can mention health reasons, experience of other countries (Germany, Italy, Poland, Spain, USA...), WHO recommendation, cost benefit of the long term point of view and generally failure of other strategies. We should conclude in spite of higher costs a strategy of mass immunization against Hepatitis B using combined vaccines should be implemented in the Czech Republic very soon.

Correspondence: Mjr. doc. MUDr. Roman Prymula, Ph.D.
Vojenská lékařská akademie J. E. Purkyně
Třebešská 1575
500 01 Hradec Králové
e-mail: prymula@pmfhk.cz

Presented at the International NATO Symposium „Army and Communicable Diseases Control“, September 21-25, 1998, Hradec Králové, Czech Republic