

PERSPECTIVES OF PUBLIC HEALTH: PRESENT AND FORESEEN IMPACT OF VACCINATION ON THE EPIDEMIOLOGY OF HEPATITIS B

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INTRODUCTION

Hepatitis B (HB) is one of the major public health problems in the world. In addition to the deaths caused by acute infections (estimated at around 50,000 each year), hepatitis B virus (HBV) is the recognised cause of chronic infections affecting about 350 million people (Kane, 1995). Liver cirrhosis and hepatocellular carcinoma are the most important long term consequences, as they cause an estimated 470,000 deaths per year (W.H.O., 2000).

HBV infection is traditionally highly prevalent (HBsAg carriers > 8% in the general population) in regions of the world like South-East Asia, Sub-Saharan Africa and the equatorial area of South America. However, the prevalent patterns of viral transmission are different, as perinatal transmission from HBeAg positive mothers accounts for a substantial proportion of cases in Asian countries together with a continuing transmission during early childhood, while most cases in Africa are acquired in early childhood by horizontal transmission. In industrialised countries like Western Europe and USA, HBV infection is spread mainly through sexual activity and through parenteral exposure to blood or other body fluids (Alter M., 1990). In countries of Eastern Europe, a high incidence and prevalence of HBV infection in the last decades was often connected to re-use of medical equipment coupled with inadequate methods of sterilisation (Magdzik, 2000).

Hepatitis B vaccine has been available for general use since 1982 in the form of plasma-derived preparations. Given the limited quantities available and the high costs, vaccination policies were initially targeted to high risk groups like health care workers, newborns to HBsAg positive mothers, household contacts of HBV carriers, patients undergoing frequent invasive therapeutic or diagnostic procedures, haemodialysis patients, intravenous drug users, etc. At the mid of the Eighties, the development of preparations obtained by recombinant DNA techniques in yeast or mammalian cells changed the perspectives for public health use of hepatitis B vaccine. As a matter of fact, the virtually unlimited supply and lower costs made it possible to foresee the introduction of routine vaccination programmes in the general population of all countries.

In addition, although vaccination of newborns to HBsAg positive mothers and of cohabitants of virus carriers was undoubtedly important to reduce the number of infections, the drawbacks of immunisation strategies targeting only risk groups became apparent in the 10 years since they were enacted (Bonanni, 1998a). As a first point, in countries where surveillance on acute hepatitis B is in place, no risk factor is identifiable in more than a quarter of acute hepatitis B cases. Secondly, certain risk groups like intravenous drug users and those at risk because of their sexual behaviour are difficult to access and are often already infected by the time they are targeted. Therefore, it was estimated that overall 85% of vaccine doses used in high risk immunisation programmes were administered to healthcare workers, a population which accounted for 5 to 10% of all hepatitis B cases in Europe and North America (Grosheide, 1996; Alter, 1990).

MONITORING THE IMPACT OF HEPATITIS B VACCINATION

When the decision to introduce a universal programme of hepatitis B vaccination is taken, the first step is to implement it and to monitor coverage. This may be accomplished by comparing the vaccination register