International Agency for Research on Cancer

World Health Organization

The Gambia Hepatitis Intervention Study (GHIS)

Introduction:

World Hepatitis Day, 28 July 2015

Worldwide, 400 million people are living with hepatitis B virus (HBV) or hepatitis C virus (HCV) infection. These chronic infections are responsible for more than half of all cases of liver cirrhosis and nearly three quarters of cases of primary liver cancer. To mark World Hepatitis Day 2015, Dr Ramou Njie, a specialist in liver diseases and head of both the Gambia Hepatitis Intervention Study (GHIS) and the Prevention of Liver Fibrosis and Cancer in Africa (PROLIFICA) project, revisits the long-standing collaborative GHIS programme, which established that the vaccination of newborns against HBV could prevent HBV infection and liver cancer later in life.

Read the story

Each year, 1.4 million people die from viral hepatitis, yet all of these deaths could be prevented. With better awareness and understanding of how we can prevent hepatitis, we can eliminate this disease and save 4000 lives a day.

Between 1986 and 1990, the phased introduction of hepatitis B virus (HBV) vaccination of all Gambian children as part of the Expanded Programme on Immunization allowed the recruitment of two groups of 60 000 children, who either received or did not receive HBV vaccine at birth, under the auspices of the Gambia Hepatitis Intervention Study (GHIS). This is a long-standing collaborative study spanning nearly 30 years, funded by the International Agency for Research on Cancer (IARC) – the World Health Organization's (WHO's) specialized cancer agency – with the Medical Research Council (MRC) and the Gambian government as partners.

The main aim of this study was to determine whether vaccination of newborns against HBV (which is the main cause of liver cancer in The Gambia) can prevent HBV infection and the development of chronic liver disease and liver cancer later in life.

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The GHIS programme has shown that 24 years after vaccination, vaccine efficacy against chronic HBV infection was more than 95%, which did not vary significantly between age groups or villages. Follow-up of the children born between 1986 and 1990 (who are now in their mid- to late 20s) continues, to determine the effect of vaccination on the development of liver cancer and chronic liver disease.

Although HBV vaccination programmes have been established by many countries, as recommended by WHO, vaccination does not help those who are already infected with the virus. These individuals continue to be at risk of liver cirrhosis and cancer. It is projected that the number of liver cancer cases will increase over the next 5–6 decades in countries with high rates of HBV infection. In The Gambia, this prediction led to the design of a study aimed at preventing liver cirrhosis and cancer by treatment (as opposed to vaccination) of those who are already infected with HBV, called the Prevention of Liver Fibrosis and Cancer in Africa (PROLIFICA) project.

The multicentre PROLIFICA project involves The Gambia, Nigeria, and Senegal, with partners in Imperial College London and IARC/WHO. It is the first HBV treatment programme in Sub-Saharan Africa, and one of its main aims is to determine whether treatment of HBV with a drug called tenofovir can prevent the development of liver cancer in those who are infected. This 5-year study is funded by the European Union.

Both the GHIS and the PROLIFICA project are based at the MRC Unit in The Gambia. The GHIS also supports The Gambia National Cancer Registry, which was established in 1986.

It is hoped that the lessons learned from the PROLIFICA project and the GHIS can be scaled up to be applied in the entire population of The Gambia and beyond, with the aim of eventually eliminating HBV and preventing its deadly consequences of chronic liver disease and cancer. In the Gambia, preventing liver cancer will also entail tackling aflatoxin contamination of mouldy groundnut and maize crops, which is known to increase the risk of developing liver cancer.

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