

Hepatitis B infections in Aboriginal people vaccinated against Hepatitis B in the Kimberley region

Why was this study done?

Before the introduction of vaccination against hepatitis B, rates of hepatitis B infections in some Aboriginal communities were very high, and the Kimberley was considered to be highly endemic by World Health Organisation criteria. Chronic hepatitis B infection is associated with liver disease and liver cancer. In highly endemic areas it is mainly children who become infected (from their mother during pregnancy/delivery or during childhood), while in less endemic areas IV drug use and sexual activity in adulthood are the major ways people become infected.

In 2011 the Kimberley Population Health Unit (KPHU) became aware of people in the Kimberley who had been reported to have hepatitis B infection even though they were born at a time which meant they should have been fully vaccinated at birth. Vaccination from birth should prevent most cases of hepatitis B and infections that occur after vaccination can be considered vaccine failures. The biggest risk factor for infection despite vaccination is chronic hepatitis B infection in the mother during pregnancy.

This prompted a review of cases of hepatitis B cases in the Kimberley region to see if there was any evidence of vaccine failure occurring in the Kimberley population.

How was this study done?

All cases of hepatitis B infection are notified to the Western Australian Notifiable Infectious Disease Database (WANIDD). These notifications were cross referenced against immunisation records held by KPHU in an electronic database and in paper form. In any cases identified, we looked at maternal serology to see if chronic hepatitis B infection in the mother was the likely reason for infection.

What were the results?

Seventeen cases of infection despite vaccination from birth were found in this review. In ten cases the infections were chronic (ongoing, and therefore likely to contribute to excess morbidity and mortality). In six cases there was evidence that the mother had chronic infection during pregnancy. In seven cases there was evidence that the mother did not, and that it was more likely that they became infected in early childhood or through sexual activity. In four cases there was insufficient information to comment on how they became infected.

What does this mean?

With the introduction of vaccination the rates of chronic infection are falling, however some children may acquire infection despite vaccination. In this population, infection is more likely to occur during pregnancy and delivery or in childhood, as opposed to other populations where IV drug use and unsafe sex in adulthood are the most common routes of infection.

Prevention and control strategies in the Kimberley therefore must include screening all antenates for hepatitis B infection, follow-up of high risk infants, high rates of vaccination coverage, appropriate opportunistic population screening, monitoring of vaccination status in notified cases and prevention of transmission from those with chronic infection to household contacts.

If you have any questions or comments please direct them to Dr Emma Griffiths by email (emma@kamsc.org.au).