

Giving an additional early vaccination may reduce measles outbreaks

July 25 2008

Outbreaks of measles in developing countries may be reduced by vaccinating infants at 4.5 months of age as well as at the World Health Organization's recommended routine vaccination at 9 months, according to a study published on BMJ.com today.

These findings should lead to reconsideration of the policy for vaccination during measles outbreaks and in humanitarian emergencies, say the authors.

Maternal antibodies protect against measles during the first months of life and infants routinely receive their first vaccination between 9 and 15 months to coincide with when these maternal antibodies are lost. This vaccination policy was based on children born to naturally infected mothers, but measles vaccination campaigns over the past 20-25 years in low income countries have resulted in many mothers being immunised and transferring only half the maternal measles antibodies as naturally immune mothers.

Similarly, HIV positive mothers transfer a smaller number of antibodies than HIV negative mothers and HIV positive children also lose their protective maternal antibodies early. As a result, a new group of children now exist who may lose their protection by 3 to 5 months of age and there may well be a need to provide measles vaccination at an earlier age.

A measles outbreak in Guinea-Bissau in Africa offered Professor Peter

Aaby and colleagues a unique opportunity to assess the protective effect of earlier vaccination at 4.5 months. 1333 infants were randomised to receive either measles vaccination at 4.5 months of age (441) or nothing (892). At 9 months of age all children received a measles vaccination. Blood samples were collected to assess levels of maternal antibodies levels against measles at 4.5, 9, and 24 months of age in the early vaccination group and at 9, 18, and 24 months of age in the control group.

The researchers found that early vaccination at 4.5 months of age offered more than 90% protection against measles infection and 100% protection against measles hospitalisation.

Prior to the initial vaccination at 4.5 months of age only 28% of the children had protective levels of maternal antibodies against measles. After this early vaccination 92% had measles antibodies at 9 months of age.

The researchers found that children vaccinated at 4.5 months and 9 months were better protected than those vaccinated only at 9 months. The monthly incidence of measles was 0.7% in the children who received two doses and 3.1% in the children who received one dose at 9 months.

"If elimination of measles is planned it will be necessary in Africa to immunise as early as possible for many years", conclude the authors.

These findings offer policymakers potential alternative vaccination strategies, but research is required to determine the possible immunosuppressive effect from live virus measles vaccines on other vaccine responses when given in early infancy, say Dr H el ene Broutin and Dr Mark A Miller from the National Institutes of Health, in an accompanying editorial.

"The current goal to achieve high vaccine coverage should not be separated from the need for more timely vaccination, especially in developing countries...[but] earlier measles vaccination should not substitute for the dose given to infants at ages 9-15 months, which increases overall immunity in the population", they conclude.

Source: British Medical Journal

Citation: Giving an additional early vaccination may reduce measles outbreaks (2008, July 25)
retrieved 25 April 2024 from
<https://medicalxpress.com/news/2008-07-additional-early-vaccination-measles-outbreaks.html>

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