

## DECAY OF PASSIVELY ACQUIRED MEASLES ANTIBODY AND ITS IMPLICATIONS FOR VACCINATION

Rahman ASMM<sup>1</sup>

Measles is a highly infectious disease that can result in severe, sometimes permanent, complications. A rare late complication of measles is subacute sclerosing panencephalitis (SSPE). This fatal disease develops years after the initial measles infection and is caused by the virus that remains in the body after acute measles infection<sup>1</sup>.

In developing countries, measles morbidity-mortality represents an important public health problem, with average age at infection earlier than 12 months<sup>2</sup>. WHO's Expanded Programme on Immunization has significantly helped to reduce global morbidity and mortality from measles<sup>3</sup>.

The immunogenicity of measles vaccine in infancy is dependent on the rate of decay in maternal antibody since this antibody interferes with vaccine induced seroconversion. Maternal antibody levels decreased rapidly in infants with increasing age. By the age of 5 months, 67% infants had practically no protective antibody left. Only 12% infants at 5 months of age, and 5% at 8 months, had levels greater than 120 mIU ml<sup>-1</sup> stated to 'protect' children. Infant's antibody concentration decreased with age by an average 2 mIU ml<sup>-1</sup> for every month of life ( $p < 0.0001$ )<sup>4</sup>.

Vaccine-induced immunity appears to be shorter lived than the one engendered by wild virus, suggesting that infants of vaccinated mothers may lose passively acquired antibodies faster than those of previously infected mothers. Children from younger mothers were susceptible to measles at a younger age than those from older mothers. However, at 6 months, around 94% children of both groups were already negatives<sup>2</sup>. Considerable numbers of measles cases occur below the target age for vaccination in the Indian subcontinent<sup>4</sup>. Many researchers have worked on decay of passively acquired maternal antibodies to measles in order to determine the optimal time for vaccination.

"A study on measles antibody status in children below nine months of age and its implication on measles vaccination" by Chowdhury J P et al in this issue of

JAFMC is a time honoured work on this field. In this study they find out the rate of seropositivity in infants of seropositive mothers started declining from 5th month and the rate of declining increased as the age of infants advanced.

Now-a-days females are vaccinated before reproductive age in Bangladesh. So a more rapid decay of antibody may be expected in future generations of Bangladeshi children. For this reason the target age for measles vaccination might be reduced. Further studies of seroconversion and impact on measles are needed.

### References

1. Brooks GF, Carroll KC, Butel JS, Morse SA. Jawetz, Melnick & Adelberg's Medical Microbiology. 24th Edition. New York: McGraw-Hill; 2007. p. 559-560.
2. Maternal measles antibodies in children from mothers of pre-vaccination and vaccination eras: Do they influence the optimal age for vaccination? [Apha.confex.com/apha/128am/techprogram/session-411.htm](http://Apha.confex.com/apha/128am/techprogram/session-411.htm).
3. Cutts FT, Henderson RH, Clements CJ, Chen RT, Patriarca PA. Principles of measles control. Bull WHO. 1991;69:1-7.
4. de Francisco A, Hall AJ, Unicomb L, Chakraborty J, Yunus M, Sack RB. Maternal measles antibody decay in rural Bangladeshi infants-implications for vaccination schedules. Vaccine 1998 Apr;16(6):564-8.

1. Maj Gen A S M Matiuir Rahman (Retd) D Bact, MSc, FCPS, FICS, FRCP, Professor of Microbiology.