

LETTER TO THE EDITOR

Adjusted Seroepidemiology Pattern from ELISA Test for Respiratory Syncytial Virus

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Respiratory syncytial virus (RSV) is one of the most serious pathogenic infections in children, causing severe morbidity and mortality [1]. Despite substantial research into epidemiology, clinical symptoms, diagnostic procedures, animal models, and infectious immunobiology [1]. In order to set a public health plan to correspond to the infection, the data from seroepidemiology study for RSV among the pediatric population is useful. In brief, the newborn can have transplacental transfer antibody from mother. The waning of transferred antibody will occur and there is a chance of new infection. The dynamic pattern of seroprevalence change of the antibody against RSV at different age is interesting. According to a new study, RSV antibodies rapidly wane in infants, and RSV infection subsequently raises anti-RSV IgG titers. Before the age of seven months, RSV immunization in children should be advised [2].

However, the diagnostic capability of the laboratory instrument is a significant issue in laboratory medicine for the seroprevalence investigation for RSV. Although ELISA is generally used widely, ELISA kits frequently still have low sensitivity and a high rate of false negatives [3]. Therefore, it is crucial to account for the impact of false negative in order to evaluate the data from a seroepidemiology investigation. The authors of this article discuss the modified seroepidemiology pattern of RSV antibodies among children of various age groups in an Indochina nation. The recent report is the foundation for the basic data. The EUROMIN ELISA test is

Table 1. Adjusted RSV seroepidemiology pattern for different populations.

Group	Adjusted seroprevalence (%)
Maternal	89.6
At birth	99
7 months	11.9
5 years	93.8
Reinfection	37.1

utilized for serological research, per the prior report [2]. Based on the available product data, the EUROMIN ELISA test has 96.2% sensitivity and 100% specificity, which imply 3.8% false negative. At birth, 95.2% of newborns and 85.8% of mothers both had IgG antibodies against RSV. After birth, the antibody begins to wane until it reaches the lowest level, 8.1% at 7 months of age. Then, a new infection may develop, which will cause the antibody to wane once again until it reaches 90% at 5 years of age [2]. Additionally, 33.3% of the children had anti-RSV IgG seroconversion or elevated titers of at least 50 RU/mL, which are indicators of reinfection or new infection [2].

The adjusted seroepidemiology is presented in Table 1. To adjust for false negatives, this formula is as follows: "adjusted rate = reported rate + possible false negative rate". It can show that after adjustment, there is a significant change. It might imply that waning of RSV antibody might not rapidly occur and the rate of new infection might be very high. This data is useful basic information for disease control as well as planning for immunization when the vaccine is available.

Declaration of Interest:

None.

References:

1. Borchers AT, Chang C, Gershwin ME, Gershwin LJ. Respiratory syncytial virus-a comprehensive review. *Clin Rev Allergy Immunol* 2013;45:331-79. (PMID: 23575961)
2. Pasittungkul S, Thongpan I, Vichaiwattana P, et al. High seroprevalence of antibodies against human respiratory syncytial virus and evidence of RSV reinfection in young children in Thailand. *Int J Infect Dis* 2022 Dec;125:177-83. (PMID: 36332904)
3. Swenson PD, Kaplan MH. Rapid detection of respiratory syncytial virus in nasopharyngeal aspirates by a commercial enzyme immunoassay. *J Clin Microbiol* 1986;23(3):485-8. (PMID: 3514658)