

Editorial



Importance of Functional Assessment of Immunity against Group B Streptococcus

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Streptococcus agalactiae (group B streptococcus, GBS) is a major cause of invasive disease in neonates and young infants.¹ It is also an important cause of infection in pregnant women, adults with predisposing medical conditions and adults over 65 years of age.

After the introduction of intrapartum antibiotic prophylaxis, incidence of early-onset neonatal GBS has decreased markedly, however this strategy has no impact on late-onset GBS infection and only a limited impact in pregnant women.² Maternal immunization during pregnancy has been anticipated to be the best strategy to prevent early-onset, late-onset GBS disease and possibly infections in pregnant women. Considering epidemiological changes including increase in incidence among adults, immunization may also be a way to prevent disease in high risk adults or elderly subjects.³ Whereas there are various potential candidates as to who would benefit from GBS vaccination, serological data are almost negligible among different age groups.

Two methods are most commonly used to assess GBS serotype-specific immunity, the enzyme-linked immunosorbent assay is used for detection of GBS serotype-specific immunoglobulin G concentrations, and functional assays based on opsonophagocytosis are highly appreciated, in which serotype-specific antibodies promote killing of GBS by polymorphonuclear leukocytes in the presence of complement.

In the current issue of *Journal of Korean Medical Science*, Lee et al.⁴ reported the seroprevalence of opsonophagocytic antibodies against GBS serotype Ia, Ib, II, III, and V among different age groups. The five serotypes included in the analysis account for up to 94.1%–99.0% of all invasive GBS infections among young infants.^{5,6} Opsonic indices (OIs) were lowest among infants and only 16.9%–36.0% of infants showed seropositivity against serotypes Ia, Ib, III, and V. This reflects the susceptibility for invasive GBS infection in these age groups. Seropositivity rates were up to 84.3% for serotype II in infants, which may be the reason serotype II is least detected (approximately 6.0%) among the five serotypes in invasive diseases. Seropositivity rates were relatively high for adults and elderly groups ranging from 85.7%–100%, except for serotype Ia, which showed seropositivity in 28.6% and 77.4% in the adult and elderly group, respectively. As protection against GBS is serotype-specific, these

differences in seropositivity rates show that although subjects may have protection against a majority of the serotypes, one could be susceptible to another.

Although the opsonophagocytic assay is highly valued as a functional assay, standardization of methods is needed to facilitate wide spread application and evaluation. Also, the serological correlates of protection are not yet well defined. Therefore, the seropositivity rates in this study may not directly correlate with protection against invasive GBS diseases. Further studies are needed to establish a correlate of protection to truly identify those who are immune and those who are susceptible to invasive GBS infection.

Nonetheless, this study is important as it gives us a glimpse at the difference in serology against various serotypes among different age groups. Recently, the World Health Organization reported that respiratory syncytial virus and GBS were identified as important pathogens causing a large burden of disease among neonates and infants.⁷ Efforts in development of vaccines to prevent these infections are accelerating and there is a great demand for functional serological assays that could accurately assess immunity against serotype-specific GBS. Further studies should be continued and expanded among subjects of different age groups, immunocompromised hosts or subjects with various underlying conditions, subjects including maternal and infant pairs, and subjects infected and recovered from invasive GBS infection, etc. These studies will provide us with important data which will enhance our knowledge towards levels of protection, impact of vaccination and further help recognize important candidates for vaccination.

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