1056. Factors Associated with Pre-season Seroprotection to B Lineage Influenza Viruses in Children

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Background. Few studies have examined the duration of immune response against B lineage influenza viruses in relation to prior vaccination and/or influenza infection. We examined factors associated with seroprotective antibody titers in fall 2013 among children 5-17 years old with known influenza vaccination and infection status from the previous season.

Methods. Serum was drawn from 163 children prior to 2013-14 influenza vaccination, including 53 (33%) with PCR-confirmed B lineage infection in 2012-13, 91 (56%) who received the 2012-13 vaccine (Yamagata lineage) and 21 (13%) who were both vaccinated and infected. Antibody titers were measured by hemagglutination-inhibition (HI) assays for both influenza B lineage strains licensed for use in the 2013-14 vaccines. The association between seroprotective titer (≥1:40) and prior vaccine exposure or infection was examined in a modified Poisson regression model. Potential predictors included age, prior vaccine receipt, number of lineage specific vaccines received in the past 5 seasons, and lineage specific B infection in the prior season. Titers were analyzed separately for B/Yamagata and B/Victoria.

Results. Of 163 children, 96 (59%) had seroprotective titers for B/Victoria, 106 (65%) had seroprotective titers for B/Yamagata, and 73 (45%) had seroprotective titers for both viruses; 22 (13%) had been infected with B/Yamagata and 31 (19%) with B/Victoria in 2012-13. Vaccination in the 2012-13 season and ≥1 dose of B/Yamagata containing vaccine in the past 5 seasons were significantly associated with seroprotective titers for B/Yamagata in univariate analyses; prior infection was not significant. In the multivariate model, only 2012-13 vaccine receipt was significantly associated with a seroprotective titer for B/Yamagata (RR 1.5, 95%CI 1.2-1.9). A seroprotective titer for B/Victoria was independently associated with receipt of 2012-13 vaccine (RR 1.4, 95%CI 1.1-1.8) and with B/Victoria infection the 2012-13 season (RR 1.4, 95%CI 1.1-1.8) in the multivariate analysis.

Conclusion. Prior vaccine receipt is an important determinant of seroprotective titers for both B lineages in children. Prior receipt of B/Yamagata vaccine was associated with heterologous titers to B/Victoria.

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