Clinical Infectious Diseases

CORRESPONDENCE

Recommendation to Take a Holistic View of the Dynamic Pathogenic Pneumococcal Environment

To the Editor—

In a recent article in this journal, Anglemyer et al reported an increase in the 19A invasive pneumococcal disease (IPD) incidence in children <5 years old after PCV10 (*Synflorix*, GSK) replaced PCV13 (*Prevenar 13*, Pfizer Inc.) in New Zealand's national infant immunization program in 2017 [1]. The authors referred to similar increases in other PCV10-using countries and inferred a direct causal link with the PCV13-to-PCV10 switch in the immunization program. Although a rise in the 19A incidence was indeed observed in <2-year-olds in New Zealand, a similar rise was seen in 2–4-year-olds. However, based on the timing of the PCV13-to-PCV10 switch, 2–4-year-olds had most likely received either a PCV13 schedule or a mixed PCV13/PCV10 schedule. The authors reported the vaccination status of 19A cases that occurred in children <5 years in 2020 and showed that 12/18 children were fully vaccinated or up to date for their age. However, they did not report the vaccine(s) administered. It would have been valuable to show a breakdown of vaccination status by age and vaccine for the entire study period. For instance, New Zealand surveillance data showed that of 8 of the 19A breakthrough cases in fully vaccinated <5-year-olds in 2018–2019, all had received ≥1 PCV13 dose and 5 had received 3–4 PCV13 doses [2], consistent with 19A being one of the main serotypes associated with PCV13 vaccine failure [3].

Most importantly, no increase in the incidence of total IPD was observed in any age group after the PCV13-to-PCV10 switch in 2017, confirming that although differences in serotype-specific disease impact may exist, the two vaccines do not differ in their net impact on the total disease burden, as previously highlighted in several reviews and studies [4–8]. This is consistent with a recent retrospective cohort study that compared the effectiveness of PCV10 vs PCV13 against pneumonia and otitis media (OM) among cohorts immunized during the PCV transition periods in New Zealand (Paynter et al, manuscript in preparation). This study found that both PCVs were equally effective against pneumonia- and OM-related hospitalizations, although a lower risk of pneumonia and OM was associated with PCV10 during the PCV13-to-PCV10 transition period. Another retrospective cohort study in New Zealand found that both PCVs also significantly reduced clinically suspected IPD in children (Howe et al, manuscript in preparation).

As the goal of PCV programs is to reduce the incidence of serious pneumococcal disease, it is important to focus on the burden of disease in its entirety, not only disease caused by selected serotypes, which are readily replaced, sometimes with more virulent types. Diversity in the serotypes affecting children has been increasing in association with vaccine programs [9]. After the first 4 years of PCV13 use, the United Kingdom has observed rises in IPD due to some virulent non-PCV13 types and serotypes 3 and 19A. Together, these trends have mitigated the additional benefits of the higher-valent vaccine [10]. When considering the national PCV program we recommend taking a holistic view of the dynamic pathogenic pneumococcal environment.

Notes

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