Synopsis of the GSK Symposium at ISPPD 2016

Date and time: 27 June 2016, 8.00-9.30 am
Room: Scottish Exhibition and Conference Centre (SECC), Clyde Auditorium
Title: The impact of PCVs on public health: Not exactly what we thought?

Chair/Moderator:
Dr Norman Begg, Head of Global Scientific Affairs and Public Health, GSK Vaccines

How much does overall protection count?

By Dr William Hausdorff
Independent Consultant

The clinical and public health value of a pneumococcal conjugate vaccine (PCV) lies in its overall impact on pneumococcal disease. While it is tempting to assume that the clinical impact of a PCV is simply proportional to the number of serotypes in a formulation, in reality the total impact on invasive disease is a mixture of three separate outcomes: effect on vaccine type (VT) disease, effect (if any) on vaccine-related types (eg 19A) and degree of non-vaccine type (NVT) disease replacement[1]. The ability of specific PCVs to influence each of these effects should not be considered on vaccine serotype composition alone, but also on their conjugation chemistry (eg reductive amination vs cyanylation)[1,2] and carrier proteins. Now that impact data are increasingly available, it seems that the most meaningful way of assessing vaccines is their overall impact[1,3] on the different pneumococcal manifestations: meningitis, sepsis, pneumonia, and acute otitis media. However this appears to be complex and challenging, and this session aims to discuss the reasons for this and potential solutions. The presentation will include available paediatric data with PCVs and whether our understanding of them has changed with more data and experience.

What is the current status of vaccination with PCVs in developing countries?

By Dr Richard Adegbola
Director of Scientific Affairs and Public Health, GSK Vaccines

It was estimated there were 14.5 million episodes of serious pneumococcal disease causing about 826 000 deaths globally in 2000[4]. More than 90% of these deaths occurred in developing countries. The introduction of PCVs into routine infant immunization programme in developed countries led to remarkable reduction in rates of invasive pneumococcal disease (IPD) in vaccinated children and herd protection in unvaccinated children and adults[5]. Could similar results be expected from developing countries? The epidemiology of pneumococcal disease in developing countries is different. It is characterised by higher overall incidence and greater diversity of non-vaccine serotypes. Pneumococcal serotype distributions[6] and carriage rates[7] also vary by region. PCVs are now being introduced rapidly into the routine infant immunisation programme of developing countries with support from Gavi because of the high burden of IPD in young children[4]. This presentation will discuss the impact of PCV vaccination in developing countries and the future challenges.

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Have we reached the full PCV impact?

By Dr Bernard Hoet
Global Medical Affairs Lead, Pneumococcus vaccines, GSK Vaccines

We have seen a large reduction in IPD following vaccine introduction[3,8]. However, we know that there are also signs of an increase in NVT serotypes[9]. The long term impact of PCVs will depend on the steady state balance reached between reducing VT and increasing NVTs and in particular, by the propensity of emerging NVTs to cause IPD[1,9]. The question is how long it will take to reach the point of this new equilibrium - and how will we know when it has been reached? There are obvious implications for the use of current vaccines and for the design of future formulations.

It is likely that current PCVs will remove most of the more virulent strains from the nasopharynx, and leave a niche for colonization by strains less virulent[1]. The increasing availability of effectiveness data will further support and help sustain the global demand for PCVs. Additionally, there will be increased interest in common antigen pneumococcal vaccines for all ages with the potential for pan-serotype protection. Protein and PCV combination formulations might represent a future approach for pneumococcal vaccination. Pneumococcus will likely remain an important cause of disease for some time to come.[1]

References

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