衞生防護中心
Centre for Health Protection

Scientific Committee on Vaccine Preventable Diseases

Recommendations on the Interchangeability between 7-valent Pneumococcal Conjugate Vaccine (PCV7) and 10-valent Pneumococcal Conjugate Vaccine (PCV10)

Note: *These recommendations should be read in conjunction with SCVPD Recommendations on the Use of Pneumococcal Vaccines*[1] *and Use of Hepta-valent Pneumococcal Conjugate Vaccine in the Childhood Immunisation Programme*[2]

Background

The 10-valent pneumococcal conjugate vaccine (PCV10) has been registered and available in Hong Kong since 2009. It is indicated for active immunisation against invasive diseases, pneumonia and acute otitis media caused by pneumococci in infants and children from 6 weeks to 2 years of age.

2. PCV10 contains capsular antigens of 10 serotypes of pneumococci (1, 4, 5, 6B, 7F, 9V, 14, 18C, 19F and 23F) in which seven of them are common to the serotypes contained in PCV7. Eight out of the 10 serotypes (1, 4, 5, 6B, 7F, 9V, 14 and 23F) are adsorbed to protein D derived from non-typeable Haemophilus influenzae (NTHi), while serotypes 18C and 19F use tetanus toxoid and diphtheria toxoid as carriers respectively.

[1] SCVPD. March 2009. Recommendations on the Use of Pneumococcal Vaccines http://www.chp.gov.hk/files/pdf/Kitemark_Pnemococcal_vaccin_position_statement_Mar%202009.pdf

[2] SCVPD. October 2008. Use of Hepta-valent Pneumococcal Conjugate Vaccine in the Childhood Immunisation Programme. http://www.chp.gov.hk/files/pdf/Use%20of%20Hepta-valent%20Pneumococcal%20Conjugate%20Vaccine%20in%20the%20Childhood%20Immunisation%20Programme.pdf

3. According to the World Health Organization assessment criteria on new pneumococcal conjugate vaccine, PCV10 generally meets the non-inferior criteria when compared to PCV7.

4. PCV10 includes serotypes 1, 5 and 7F that are not contained in PCV7. Immunogenicity data shows that PCV10 confer protection to IPD caused by these serotypes. PCV10 also includes antigens that stimulate antibody production against NTHi but the clinical or epidemiologic benefit of that is unknown.

5. The safety and reactogenicity profile of PCV10 is generally comparable to PCV7. The most common adverse reactions observed in clinical trials were redness at the injection site and irritability. Other common adverse reactions that were reported include drowsiness, appetite loss, pain, swelling at the injection site and fever.

6. While studies has confirmed the safety and efficacy (towards the seven common pneumococcal serotypes) of giving one dose of PCV10 as booster in PCV7-primed children, there is currently no published immunogenicity data on the interchangeability of PCV10 and PCV7 within the primary series. However, from the antigenicity point of view, as the polysaccharide antigens in PCV7 and PCV10 are from the same bacteria, it is not likely that switching from one vaccine to another would cause undesirable reaction. As for the conjugates (CRM197 in PCV7; Protein D, tetanus toxiod and diphtheria toxoid in PCV10), all are from bacterial source that have either been used as vaccine or commensals in humans. The risk of untoward reaction in changing the vaccine should not be higher than that documented for the individual vaccine.

7. Overseas experience also supported that PCV10 can be used safely as a direct replacement of PCV7 during primary series. In some provinces of Canada, PCV10 was given to over 80 000 children who started their immunisation with PCV7 during the transition period without safety issues emerged.

Recommendations

8. Having reviewed the scientific evidence, local epidemiology and overseas experience on the use of PCV10, the Scientific Committee on Vaccine Preventable Diseases (SCVPD) acknowledges that PCV10 should confer a non-inferior protection against IPD among children below 2 years, when compared to PCV7.

9. Regarding interchangeability of the two vaccines, SCVPD

suggests that PCV10 can be used as a direct replacement for PCV7 at any point during the course of immunisation. The immunisation schedule for the remaining dose(s) should remain unchanged.

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