Capvaxive (V116): A new frontier in the prevention of pneumococcal pneumonia and invasive disease

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Pneumococcal Pneumonia (PP) and Invasive Pneumococcal Disease (IPD), both highly contribute to the rate of morbidity and mortality in adults around the globe. They are caused by the bacteria called Streptococcus pneumoniae. According to a population-based study, the Global Incidence Rate of PP cases was 90.7 per 100,000 person-years, with a 7.6% case-fatality rate.[1] For adults Pneumococcal Conjugate Vaccines (PCVs), mainly PCV15 and PCV 20, along with Pneumococcal polysaccharide vaccine (PPSV23) are currently recommended by the Centers for Disease Control and Prevention. Among these already vaccines, arises Capvaxive (V116) by Merck for active immunization for the prevention of PP and IPD.

Capvaxive, also known as pneumococcal 21-conjugate vaccine recently approved by the FDA for active immunization for prevention of pneumonia and invasive disease caused by 21 different serotypes of streptococcus pneumoniae in adults.[2] It is administered as a single intra-muscular dose of 0.5 ml. It stimulates the body's immune response by antigenic stimulation, leading to opsonophagocytic activity [OPA] against invasive S. Pneumoniae. It is known to induce OPA by activation of macrophages and neutrophils for engulfment and phagocytosis of bacterial cells.[3]

Multiple trials have been conducted all over the world as reported to understand the safety, tolerability, and immunogenicity. Studies conducted resulted in non-inferiority to its comparator PPSV23[4,5], encouraging its development for safety against S. Pneumoniae.

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Neither of the studies reported vaccine-related serious adverse effects or deaths. The most common adverse effect reported was solicited infusion site reaction, reported in up to 73% of participants.[4] When compared, Capvaxive infused participants had a higher antibody titer and induced immune response against all 21 serotypes, with a similar safety profile to its comparators. It notably had a more immunogenic reaction against the 9 unique serotypes, previously not targeted in PPSV23.[4]

As the newly FDA approved vaccine enters the market, it is crucial to keep track of its safety and tolerability as it reaches a wider population. It is a notable landmark of pharmacology to target 21 variants of S. Pneumonia which has been proved to be lethal in the past as it causes mortal pneumonia. As reported to have low levels of systemic side effects on patients infused with this vaccine, this is a step forward in encountering the deadly S. Pneumonia with more than 100 serotypes known to man.

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