STUDY OVERVIEW ON THE STREPTOCOCCUS PNEUMONIAE AND ITS DIMENSIONS

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Abstract
Streptococcus pneumonia or pneumococcus commonly colonizes upper respiratory tract and may cause some infections in respiratory system (e.g. otitis media, sinusitis) or an invasive disease like pneumonia, bacterium, and also meningitis. Pneumococcus is a diplodocus having polysaccharide capsule, lancet form and gram positive that is seen as single or chain coccus . up to now, we have discovered about 90 serotypes according to their special capsule polysaccharide. Some antiserums against pneumococcus polysaccharides have been specified with other serologic groups(e.g. 6B, 6A) or other bacteria (like E. coli, streptococcus group B and hemophilus influenza type B) and they show cross reactions. Most of healthy people carry pneumococcus in their upper respiratory tract more than 90% of 6months to 5years children has pneumococcus in their nasopharyngeal for a while. 19f, 18c, 14, 9v, 6b, 4 and 23f serotypes have contained most of invasive cases in children during four recent decades in United States and from among them, 6b, 9v, 14, 19f aren’t sensitive to penicillin in many cases. In this article explains have review of streptococcus pneumonia.  

Keywords: Streptococcus Pneumonia, Pneumococcus Capsule, Clinical Protests

Introduction
Streptococcus pneumonia or pneumococcus commonly colonizes upper respiratory tract and may cause some infections in respiratory system (e.g. otitis media, sinusitis) or an invasive disease like pneumonia, bacterium, and also meningitis (Srifuengfung 2008). Pneumococcus is the most common cause of bacteria, bacterial pneumonia and media otitis and the second prevalent reason of meningitis in children. After the public vaccination in US with conjugated homophiles flu vaccine type B, pneumococcus have turned to the second common cause of bacterial meningitis in kids and the most prevalent cause in adults (Tawfiq 2006). The importance of bacteria has been increased with the emergence of resistant strains to penicillin and some other drugs. beginning of public vaccination of infants from 2000 with 7 valence pneumococcus konjoge vaccine can be due to decrease of nose-throat carriers,serotypes ‘changing, reducing antibiotic resistance among pneumococcus causing disease and also decreasing the amount of pneumococcus diseases in children and probably unvaccinated adults, have considerable effects on the epidemiology of this organism. (Huebner 2000)
Etiology
Pneumococcus is a diplodocus having polysaccharide capsule, lancet form and gram positive that is seen as single or chain coccus. Up to now, we have discovered about 90 serotypes according to their special capsule polysaccharide. Some antiseraums against pneumococcus polysaccharides have been specified with other serologic groups (e.g. 6B, 6A) or other bacteria (like E. coli, streptococcus group B and hemophilia influenza type B) and they show cross reactions. Only capsulated strains lead to serious disease in humans. Bacteria’s capsule prevents its phagocytosis (Blach 1973). Part of its pathogenesis ability relates to size of capsule but some types of pneumococcus which have capsules with equal size, may have very different pathogenic potential. In the solid medium, pneumococcus forms colorless and belly shaped colonies which are surrounded by partial hemolysis (Abdullahi 2012). Pneumococcus in bile (Doxycyclin NAC 10%) is soluble and moderately sensitive to iptochin. Pneumococcus has a close relation with serogroup viridience streptococcus (mites) (Rapola 1997). These organisms have a considerable phenotype overlapping with pneumococcus. The recent recognition laboratory methods still rely to sensitivity to bile or iptochin and according to these methods, pneumococcus is still sometimes confused with alpha streptococcus. We can see pneumococcus capsule under the microscope and determine its type by placing the organism exposed to especial antiseraums which combine by their related polysaccharide capsules, and give light refraction to capsule (Quellung reaction). Special anti poly saccharide antibodies protect host and lead to improvement of ipsoniasion and phagocytosis. Matter C is an antigen of cell wall which mostly relates to pneumococcus species rather than a particular serotype and is formed of ticocik acid which contains phosphocolin and galactose-amin -6-phosphat. The C material accompanying with a Beta globulin named C reactive protein, activates complement and facilitates phagocytosis and then sediments. (Ferreira 2001)

Epidemiology
Most of healthy people carry pneumococcus in their upper respiratory tract, more than 90% of 6months to 5years children have pneumococcus in their nasopharyngeal for a while. 19f, 18c, 14, 9v, 6b, 4 and 23f serotypes have contained most of invasive cases in children during four recent decades in United States and from among them, 6b, 9v, 14, 19f aren’t sensitive to penicillin in many cases. Usually one single serotype is carried for a long time (45days to 6months). Bacteria carriage doesn’t always cause enough local or systematic immunity in order to prevent reacquisition of the aforementioned serotype. The amount of pneumococcus carriers reach to their highest value during the first two years of life and then decrease gradually (Rapola 1997). The amount of carriers in childcare institutes and during the last days of autumn and winter is at maximum value and is the least in summer. The existence of pneumococcus is common in the nasopharyngeal of those little children who care out of home and its point prevalence is 21-59% and 65% in long term studies. Since the approving of konjoge seven valence vaccines (pcv7), the prevalence of carriers and also infections causing from vaccine have decreased and in contrast, carriers and caused infections by other strains have been increased. Pneumococcus is the most common cause of bacteremia, bacterial pneumonia and media otitis and the second common cause of meningitis in children (Shen 2003). The decrease of antibody’s ability against polysaccharide antigens independent of T cells and high frequency of colonization in under 2 year children may explain their increased sensitivity to pneumococcus infection and also decreasing the effect of polysaccharide vaccines. The amount of invasive disease in natives American and African American children is 2-10 times more than other healthy children (Abramson 2008). Before the entrance of PCV7 into routine children vaccination program in America, the prevalence of invasive pneumococcus disease during 6-11months was more than 540 cases in each
100,000 healthy children in America. With the emergence of this vaccine, infection incidence in children also has a significant decrease in both healthy and endangered kids. For example in Tennessee, the maximum amount of prevalence among under 2year aged children between 235 cases in 100,000 before vaccination with PCV7 has fell to 46 cases in 100,000 after introducing the vaccine. Studies about the occurrence of carriage condition for vaccine serotypes show the similar reduction. Pneumococcus disease commonly occurs as Eric spores, but Pneumococcal can be transferred from a person to another one by respiratory droplets. Recurrence and severity of pneumococcus disease in patients with sickle cells, lack of spleen, humeral immune deficiencies(B cell) and compleman, HIV infection, mutation in kinaz gene related to interleukin receiver (IRAK-4)1,special malignancies (like leukemia, lymphoma);old chronic disease, pulmonary, kidney (particularly nephrotic syndrome);cochlear implants and cerebrospinal fluid leakage syndromes will be increased. (Scharge 2001)

Clinical Protests
Signs and symptoms of pneumococcus depend on anatomic location of disease. Common clinical syndromes are: pneumonia, otitis media, and sinusitis, hidden bacteremia in infants and young children and sepsis. Before the beginning of vaccination by conjugated seven valences in America, pneumococcus was the cause of more than 80% bacteremia cases in 3-36 infants whose fever hasn’t a recognizable source. Pneumococcus abscess of upper respiratory tract, larengotracobronchit and peritonitis also occur but they are rare. (Except initial peritonitis are scarcein children with asit and nephritic syndrome). Local side effects of infection can also be seen and cause ampiem, pricardiet, mastoidit, epidural abscess or meningitis (Dudley 2001). Pneumococcus colonization may spread and through Eustachian tube and aspiration of infected upper respiratory secretions cause media otitis and pneumonia respectively. Konjectivic epidemic causing from pneumococcus without capsule or with capsule also has been reported. Bacteremia may follow meningitis, osteomyelitis and purulent arteritis, and hardly brain abscess. Hemolytic syndrome-uremic and spread intravascular coagulation occur too and are among rare side effects of these infections. (Jenkins 2008)

Conclusions
Pneumococcus is a diplodocus having polysaccharide capsule, lancet form and gram positive that is seen as single or chain coccus. We can see pneumococcus capsule under the microscope and determine its type by placing the organism exposed to especial antiserums which combine by their related polysaccharide capsules, and give light refraction to capsule (Quellung reaction). Special anti poly saccharide antibodies protect host and lead to improvement of ipsoniasion and phagocytosis. Signs and symptoms of pneumococcus depend on anatomic location of disease. Common clinical syndromes are: pneumonia, otitis media, and sinusitis, hidden bacteremia in infants and young children and sepsis. Before the beginning of vaccination by conjugated seven valences in America, pneumococcus was the cause of more than 80% bacteremia cases in 3-36 infants whose fever hasn’t a recognizable source. Pneumococcus abscess of upper respiratory tract, larengotracobronchit and peritonitis also occur but they are rare. (Except initial peritonitis are scarcein children with asit and nephritic syndrome). Local side effects of infection can also be seen and cause ampiem, pricardiet, mastoidit, epidural abscess or meningitis.

References