I-2. Burden of the disease

Pertussis is a re-emerging infection worldwide, as the immunisation programs started in the 1950s could control the diseases, but could not eradicate the pathogen. Waning immunity, a possible change in the pathogen itself could also contribute to the present situation: pertussis is still a global health threat.

Newborns and young, not yet immunized, or not yet fully immunized infants are at a particularly high risk of developing pertussis if the possibility of transmission is in the proximity – e.g.an adolescent or an adult with unrecognised pertussis. This age group is not only susceptible to pertussis until after the third infant DaPT-IPV-Hib± HBV dose, but has a higher risk of severe disease and pertussis-related complications than later in life. This leads to hospitalizations – even intensive care – early in life, causing a severe disease burden both for the infant and family and preventable costs for medical care.

Typical pertussis is characterized by a cough which is either paroxysmal and/or followed by whooping and posttussive vomiting. Typical pertussis occurs mainly in young, unimmunized children as a result of primary infection, whereas reinfections later in childhood, adolescence or adulthood as well as breakthrough disease in partially or fully immunized individuals usually is less typical. A persistent nasty cough may then be the only hallmark of the infection.

Complications of pertussis and their frequencies vary by age. Most frequent is pneumonia which occurs in approximately 3% of all cases rather independent of age. In contrast, feeding difficulties (3%), apnea/bradykardia and cyanosis (15%), respiratory distress (5%) and death (1%) almost exclusively occur in infants younger than 3 months and especially in newborns.

The most serious complication of pertussis is hyperleukocytosis which almost exclusively affects young infants. It is caused by pertussis toxin, which interferes with intravascular adherence of lymphocytes to the endothelium, thereby increasing the lymphocyte count to values of 50’000/ul and higher. These high lymphocyte counts may result in obstruction of small pulmonary vessels and lead to severe, life-threatening pulmonary hypertension.

Topic conclusions

Pertussis is a re-emerging infection worldwide. New-borns and young, not yet fully immunized infants are at highest risk of severe (even deadly) diseases or complications.