

Age and gender associated changes in immunoglobulin subclass levels specific to *S.pneumoniae*, serotype 1

Abstract

S. pneumoniae is an important human pathogen which has a polysaccharide capsule with virulent properties. This work aims to estimate the titres of *S. pneumoniae* specific IgG and IgA isotypes, with respect to age and sex. An in-house whole bacterial cell ELISA was used for the determination of relative levels and endpoint titres of IgG subclasses and IgA1 subclass specific for *S. pneumoniae* serogroup 1, and to quantify specific IgG1 and IgG2 levels. Significantly lower anti-pneumococcus IgG1 titres were found in older individuals, which was more pronounced in men. Lower IgG2 titres were detected in men over 50 years of age, in comparison to women under 50 years of age. The levels of IgG3 and IgG4 did not differ between different sex and age groups. Lower IgA1 levels were detected in male individuals in both age groups in comparison to females under 50 years of age. The levels of IgG1 showed a moderate correlation with IgG4 in younger individuals of both sexes ($r = 0.61$ in men and 0.63 in women) which was not noted in the older age group. We highlight the deficiency in humoral immunity in older people, especially male and suggest immunization of this population with pneumococcal vaccines.