

Antibody and T-cell responses during acute and convalescent stages of invasive pneumococcal disease.

Abstract:

To understand the pattern of immune responses to pneumococcal proteins during invasive disease as a guide to their development as vaccine candidates. **METHODS:** The antibody concentration and avidity, as well as frequency of interferon-gamma (IFN- γ)-, interleukin-10 (IL-10)-, and tumor necrosis factor-alpha (TNF- α)-containing CD4+ T-lymphocytes in response to pneumolysin, pneumococcal surface protein A (PspA), and choline-binding protein A (CbpA), during and after invasive pneumococcal disease (IPD) in 20 children were compared to those of 20 healthy matched controls. **RESULTS:** During the acute phase of IPD, the concentrations of antibodies against these three pneumococcal proteins were lower, whereas the frequencies of IL-10- and TNF- α -producing CD4+ T-cells were higher, compared to values obtained during convalescence and in healthy controls ($p < 0.01$). In addition, the concentrations of antibodies against the capsular polysaccharides for the serotypes isolated from these patients, were all below the detection level of the assay during both the acute and convalescent phases of IPD.

CONCLUSION: These data indicate that the recognition of these antigens by the immune system occurs in variable proportions according to the stage of infection, implying the important role of these in the pathogenesis of IPD, and support their usefulness in vaccine development.