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Summary The IgG subclass antibody response to the two parts of *Pseudomonas aeruginosa* lipopolysaccharide; endotoxic lipid A and the O-polysaccharide, were investigated in a retrospective longitudinal study involving 16 patients with cystic fibrosis and chronic *P. aeruginosa* lung infection. The purpose of the study was to see if any of the IgG subclasses of either specificity could be used as prognostic markers in the development and subsequent course of the lung disease. IgG2 anti-lipid A, IgG3 anti-lipid A, and IgG2 anti-polysaccharide showed a significant positive correlation with deteriorating pulmonary function already before chronic *P. aeruginosa* lung infection was diagnosed as well as in subsequent years. The findings suggest antigenic exposure of the patient before chronic infection is detected by routine sputum examinations, and further support our previous findings of a critical role of the IgG subclass response in modulating the course of inflammatory lung damage in these patients.