

C-reactive protein and chronic *Chlamydia pneumoniae* infection—long-term predictors for cardiovascular disease and survival in patients on peritoneal dialysis

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Background. Accelerated arteriosclerosis with cardiovascular disease is the main cause of death in end-stage renal disease patients. Increased, levels of C-reactive protein (**CRP**) and evidence of chronic *Chlamydia pneumoniae* infection have been identified as risk factors for cardiovascular disease in the general population. We tested the hypothesis that elevation of **CRP**, indicating chronic inflammation, and positive serum antibody titres for *C. pneumoniae* are associated with an increased cardiovascular mortality in patients on chronic peritoneal dialysis.

Methods. We measured **CRP** and antibodies to *C. pneumoniae* in 34 patients on peritoneal dialysis. **CRP** was measured by a sensitive ELISA and *C. pneumoniae* antibodies by microimmunofluorescence. In addition, risk factors such as lipids, smoking status and hypertension were assessed. Coronary artery disease (CAD) was defined by cardiac stress testing and/or angiography. Patients showing clinical evidence of systemic or peritoneal dialysis-associated infection during the investigation period of 6 months (between 1990 and 1991) were excluded.

Results. The incidence of CAD was significantly increased in patients with **CRP** values >1.5 mg/l (odds ratio 7.0, $P<0.022$) during 72 months of follow-up. In addition, in patients seropositive for IgA *C. pneumoniae* antibodies, the incidence of CAD was significantly increased (odds ratio 7.2, $P<0.014$). These findings resulted in an increased risk of death in patients with mean **CRP** values >1.5 mg/l at the start of the study (odds ratio 20.0, $P<0.001$). Furthermore, in patients seropositive for IgA *C. pneumoniae* antibodies, the risk of death (odds ratio 10.2, $P<0.005$) was significantly increased. There was a highly significant correlation between **CRP** and seropositivity for IgA *C. pneumoniae* antibodies ($r=0.445$, $P<0.01$).

Conclusions. Increased circulating **CRP** and seropositivity for *C. pneumoniae* in patients on chronic peritoneal dialysis are associated with reduced survival due to cardiovascular complications. **CRP** and *C. pneumoniae* antibodies may indicate a chronic inflammatory process as an underlying cause and/or result of arteriosclerosis.

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