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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