The association between inflammatory markers, serum lipids and the risk of cardiovascular events in patients with rheumatoid arthritis.

OBJECTIVE: To examine the association of serum inflammatory markers (erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP)) and serum lipid measures (low-density lipoprotein (LDL)- and high-density lipoprotein (HDL)-cholesterol) with risk of myocardial infarction (MI) and ischaemic stroke (IS) among rheumatoid arthritis (RA) patients.

METHODS: We conducted a retrospective cohort study using 2005-2010 data from a US commercial health plan. Eligible patients had two or more physician diagnoses of RA during a baseline period of at least 180 days with continuous medical and pharmacy coverage. We computed age-adjusted incidence rates of MI and IS, and used spline regression to assess non-linear associations and Cox-regression to quantify the independent association between the laboratory values and the outcomes.

RESULTS: We identified 44 418 eligible RA patients (mean age 49 years; 76% women). CRP>10 mg/L compared with <1 mg/L was associated with increased MI risk (HR 2.12; 95% CI 1.02 to 4.38). ESR>42 mm/h compared with <14 mm/h was associated with increased risk of MI (HR 2.53; 95% CI 1.48 to 4.31) and IS (HR 2.51; 95% CI 1.33 to 4.75) risk. HDL-cholesterol
≥60 mg/dL (1.6 mmol/L) compared with <40 mg/dL (1.0 mmol/L) was associated with reduced MI risk (HR 0.37; 0.21 to 0.66). The association between LDL and MI was not linear; the lowest risk was observed among patients with LDL between 70 mg/L (1.8 mmol/L) and 100 mg/L (2.6 mmol/L). We did not observe a significant association between LDL and IS.

**CONCLUSIONS:** This study provides evidence supporting the hypothesis that RA-related systemic inflammation plays a role in determining cardiovascular risk and a complex relationship between LDL and cardiovascular risk.

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