LIPID ALTERATIONS AND MEASUREMENT OF ARTERIAL STIFFNESS IN RHEUMATOID ARTHRITIS

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**Background:** Rheumatoid arthritis (RA) is a chronic inflammatory disease. Increased arterial stiffness, an independent risk factor for premature coronary artery disease, has been reported in patients with RA. The objectives of this study were first to assess, in patients with RA and controls, the prevalence of lipid alterations and to measure arterial stiffness. And second, to investigate the relationship between arterial stiffness, disease activity, disease duration and other traditional cardiovascular (CV) risks factors.

**Methods:** between January 2010 and May 2011, 91 consecutive adult RA patients (fulfilling 2010 ACR/EULAR criteria) and 79 controls (patients seen at the rheumatology section with diagnoses of non-inflammatory diseases) were included. Exclusion criteria were previous history of cardiovascular disease, using of lipid-altering drugs and uncontrolled hypothyroidism. Data from each patient of smoking, blood pressure, weight, height, body mass index (BMI), waist size, glucose levels, HDL cholesterol, LDL cholesterol, triglycerides (TG), total cholesterol (TC), DAS28, sedimentation rate (ESR) and medication were obtained. Carotid femoral pulse wave velocity (PWV) was measured in 56 RA patients and 25 controls. RA patients were divided in active patients (DAS28>=2.6, n=39) or patients in remission (DAS28<2.6, n=17). Reference values for PWV were those published by the European Society of Cardiology. Patients with PWV over the value expected for age and optimal blood pressure were considered to have arterial stiffness.

**Results**: Patients characteristics are shown in table 1. Mean RA duration was 7.5 years (SD 4.5). RA patients and controls had similar values of lipids and other classic CV risk factors (table 1). Arterial stiffness measured by PWV was found in 1 control (4%) and 6 RA patients (10.7%) (p=0.3). Mean carotid femoral PWV was 8,78 m/s (SD 2.1) for controls and 9.3 m/s (SD 2,6) for RA patients (p=0.4). PWV was similar in remission RA patients and active RA patients, means 9,23 m/s (SD 3.4) and 9.3 m/s (SD 2.3) respectively ( p=0,9). Patients with hypertension had an increased PWV compared with non-hypertensive patients (p=0.0003). In fact in multivariate analysis, only arterial hypertension correlated independently with arterial stiffness (OR 19.9, CI 2.2-178). No relationship was found between carotid femoral velocity and DAS 28, ESR, disease duration, medications or other CV risk factors.

**Conclusions:** in this cohort, RA patients and controls had similar CV risk factors and we found no differences in PWV between them. In RA patients, neither disease duration nor disease activity, measured by DAS28, was related to increased arterial stiffness. Arterial hypertension was the only

CV risk factor associated with arterial stiffness. We did not find increased pulse wave velocity in RA patients as has been previously reported.

| | CONTROLS (n=79) | RA PATIENTS (n=91) | P value |
|---|---|---|---|
| Age, years (SD) | 58.6 (12.6) | 58.4 (12.4) | 0.92 |
| Female,%(CI) | 94.9 (87.5-98.6) | 93.4 (86.2-97.5) | 0.67 |
| Hypertension, % (CI) | 53.2 (41.6-64.5) | 46,1 (37.4-57) | 0.36 |
| Hyperglycemia, % (CI) | 6.5 (CI 2.1-14.5) | 5.5 (CI 1.5-13.4) | 0.8 |
| Current smokers, % (CI) | 19 (11-29.4) | 11,3 (5.3-20.3) | 0.17 |
| BMI (SD) | 27.9 (5.6) | 26.02 (5,3) | 0.02 |
| Waist perimeter, cm (SD) | 94.31 (14.08) | 88.76 (14.28) | 0.01 |
| HDL <40 mmol/L, % (CI) | 6.4 (2.1-14.3) | 6.6 (1.8-15.9) | 0.97 |
| LDL >= 160 mmol/L, % (CI) | 17.9 (10.2-28.3) | 15.5 (7.3-27.4) | 0.7 |
| TG > 150 mmol/L, % (CI) | 16.7 (9.2-26.8) | 7.1 (2-17.3) | 0.1 |
| TC> 200 mmol/L, % (CI) | 41 (30-52.7) | 50.6 (39.4-61.8) | 0.22 |
| Dyslipidemia, % (CI) | 58.2% (IC 46,6-69,2) | 51.7% (IC 40,8-62,4) | 0,39 |