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**POS0213 20 YEAR FOLLOW-UP OF CARDIOVASCULAR EVENT RISK IN RHEUMATOID ARTHRITIS COMPARED TO DIABETES**

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**Background:** Patients with rheumatoid arthritis have an increased risk for developing cardiovascular diseases (CVD) compared to the general population, similar to the CVD risk in patients with diabetes mellitus. However, there are no controlled studies investigating the incidence of cardiovascular (CV) events in RA patients with follow up of more than 20 years.

**Objectives:** The objectives of the current study were to investigate the incidence rates of CV events in a long-term follow up cohort of RA patients, and to compare these to a similar cohort representing the general population, i.e., the Hoorn study.

**Methods:** The CARRÉ study is an ongoing prospective cohort study, which started in 2001, investigating CV mortality and morbidity in 353 randomly selected patients with RA. Primary endpoints, i.e. verified medical history of coronary, cerebral or peripheral arterial disease, were determined at baseline, and after three, ten, fifteen and twenty years of follow up. Patients were censored at the date of an experienced CV event or their death. Incidence density rates per 100 patient years were calculated. Data were compared to results from the Hoorn study, a Dutch cohort study of glucose metabolism and other CV risk factors that began in 1989. All 2,484 participants were subject to an extensive and repeated CV screening program similar to that used in the CARRÉ study.

**Results:** After 20 years of follow up 118 patients (33%) developed at least one CV event in the Carré group. Mean (SD) follow up time was 11 (6) years with a total of 3,500 years at risk and an incidence rate of 3.4 per 100 patient-years. A total of 3,500 years at risk and an incidence rate of 3.4 per 100 patient-years. This again confirms the need for CV screening program similar to that used in the CARRÉ study. Nevertheless, our study shows that RA patients have an increased CV risk compared to the general population, with an incidence rate of 3.4 per 100 patient-years, which is slightly up from the figure reported at 15 years, i.e. 3.2 per 100 patient-years.

**Conclusion:** In our cohort the incidence rate of CV events in RA patients has remained consistently high when compared with the general population, despite the introduction of new treatments and the use of biological agents. RA patients have an increased CV risk compared to the general population, with an incidence rate of 3.4 per 100 patient-years. This confirms the need for CV screening program similar to that used in the CARRÉ study. Nevertheless, our study shows that RA patients have an increased CV risk compared to the general population, with an incidence rate of 3.4 per 100 patient-years. This again confirms the need for CV screening program similar to that used in the CARRÉ study. Nevertheless, our study shows that RA patients have an increased CV risk compared to the general population, with an incidence rate of 3.4 per 100 patient-years. This confirms the need for CV screening program similar to that used in the CARRÉ study.
Background: Epicardial adipose tissue volume (EATv) predicts coronary atherosclerosis presence, progression and cardiovascular event risk in general patients. Our group recently reported that EATv associated with greater subclinical coronary plaque burden, non-calcified plaque presence and vulnerable plaque characteristics in patients with rheumatoid arthritis (RA). The relationship was stronger in RA patients with lower disease duration, no traditional cardiac risk factors, and who were not obese.

Objectives: To evaluate the predictive value of EATv on long-term coronary atherosclerosis development, and moderators of the association between EATv and plaque formation.

Methods: This single-center observational cohort study included 100 patients without symptoms or diagnosis of cardiovascular disease who underwent computed tomography angiography for evaluation of EATv and coronary atherosclerosis at baseline and repeat assessments 6.9±0.3 years later to evaluate plaque progression. New plaque formation in segments without plaque at baseline was the main outcome. Robust multivariable logistic regression evaluated the effect of high versus low EATv (based on median) on likelihood of new plaque formation, accounting for clustering of segments within patients. Potential moderator effects of prespecified predictors were also assessed.

Results: High EATv (>107 cm³) predicted new plaque formation in segments without baseline plaque (OR 2.77 [95% CI 1.43-5.37], p=0.003); however, significance was lost in the multivariable model. Importantly, high EATv associated with formation of higher-risk non- and partially calcified plaque after adjusting for Framingham DAGostino risk score, obesity, segment location, time-averaged CRP, duration of bDMARD and statin treatment and cumulative prednisone dose (adjusted OR 2.57 [95% CI 1.02-6.48], p=0.045). RA duration (<10 versus >10 years), cardiac risk factor burden (≤1 versus >1), presence of mixed/calcified plaque in other coronary segments at baseline, and statin exposure (≤1 versus >1 year, based on median) modestly affected the effect of EATv on all new plaque formation (all p for interaction ≤0.021). Specifically, high EATv predicted new plaque formation in patients with RA duration <10 years (adjusted OR 5.75 [95% CI 1.77-18.67]), those with ≤1 cardiac risk factors (adjusted OR 3.40 [95% CI 1.46-7.90]), those without calcification at baseline (adjusted OR 2.65 [95% CI 1.11-6.31]) and those with statin treatment <1 year (adjusted OR 3.33 [95% CI 1.13-9.77]). This was not the case for patients with RA >10 years, ≥2 cardiac risk factors, calcification at baseline and statin treatment >1 year (figure 1).

Conclusion: High baseline EATv independently predicted future higher-risk non-calcified and mixed coronary plaque in RA. Moreover, it conditionally promoted new plaque formation overall in patients with earlier disease, low cardiac risk factor burden, who had little or no atherosclerosis at baseline and who had limited exposure to statin therapy. These findings indicate the need for a larger prospective evaluation of the role of EATv as a biomarker of coronary atherosclerosis development in RA.

REFERENCES: