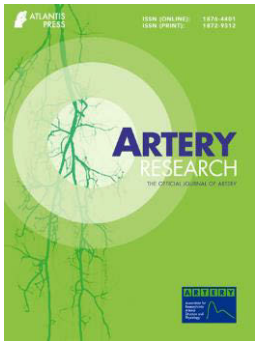

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1.6: DETRIMENTAL EFFECTS ON CAROTID PERFUSION OF INTRA-AORTIC BALLOON PUMP SUPPORT

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Background: Migraine is associated with an increased risk for ischemic stroke and other cardiovascular (CV) events, including angina, myocardial infarction, and CV death. However, the mechanisms which link migraine to CV disease remain uncertain. In the present case-control study, we hypothesized that aortic stiffness, a direct measure of pulse wave velocity and an independent predictor of stroke and CV disease, may be increased in young migraineurs with no overt CV disease or major CV risk factors.
Methods and Results: We studied 41 individuals with migraine (age 31 ± 8 years, 82% females, blood pressure $118/73 \pm 12/9$ mmHg) and 41 age- and sex-matched healthy control subjects. In all participants, carotid-to-femoral pulse wave velocity was determined by applanation tonometry (SphygmoCor). Cases and controls were free from overt CV disease, diabetes, and major CV risk factors. Subjects with migraine had a higher aortic pulse wave velocity than matched control subjects (7.4 ± 1.2 *vs* 6.5 ± 1.1 $m \times s^{-1}$, $p = 0.001$). Age, mean arterial pressure as a measure of distending pressure and the presence of migraine (all $p < 0.05$) independently predicted aortic pulse wave velocity when a consistent number of cardiovascular risk factors was simultaneously controlled for.
Conclusions: Migraine is independently associated with an increased aortic stiffness. This finding, obtained in young subjects without major cardiovascular risk factors, may represent one possible mechanism underlying the increased cardiovascular risk in patients with migraine.

1.5
INCREASED CRP EARLY IN THE RA DISEASE COURSE PREDICTS AN INCREASED RISK OF CARDIOVASCULAR DISEASE AND ARTERIAL STIFFNESS: 15-YEAR FOLLOW-UP OF THE EURIDISS COHORT

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Background: Patients with rheumatoid arthritis (RA) have increased cardiovascular morbidity and mortality. **Objective**: To explore whether early markers of RA inflammatory disease activity could predict later cardiovascular disease and arterial stiffness, and to describe the impact of later use of disease-modifying antirheumatic drugs (DMARDs) on arterial stiffness.
Methods: Two hundred and thirty eight patients with early RA were comprehensively examined at baseline. At the 15-year follow-up these examinations were repeated and additionally patient-reported cardiovascular disease (CVD) and arterial stiffness, pulse wave velocity (PWV) (Sphygmocor apparatus), recorded. Adjusted logistic and linear regression analyses were performed.
Results: Cardiovascular disease was reported by 33% patients at the 15 year follow-up. Baseline RA disease duration, high sensitivity CRP and scores of Stanford Health Assessment Questionnaire (HAQ) and the Ritchie Index predicted patient-reported CVD in separate models adjusted for age, sex, diabetes and smoking ($p < 0.05$ for all variables).
Baseline CRP and use of prednisolone were significant independent predictors of PWV in patients without known CVD or diabetes, in models that were adjusted for current cardiovascular risk factors (ß (SE) 0.24 (0.08)) and (1.12 (0.41)) respectively. Current monotherapy use of prednisolone was associated with an increase in PWV, (2.06 (0.42)) improving the adjusted R^2 from 0.77 to 0.84.
Conclusion: Inflammation early in the disease course predicts increased occurrence of patient-reported CVD and increased arterial stiffness after 15 years supporting the importance of early control of the inflammatory process in patients with RA although use of glucocorticoids may be detrimental.

1.6
DETRIMENTAL EFFECTS ON CAROTID PERFUSION OF INTRA-AORTIC BALLOON PUMP SUPPORT

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Introduction: Intra-aortic balloon pumping is widely used to augment diastolic coronary perfusion. However, far less is known about its effects on other large arteries. In this study we assessed the effects of intra-arterial balloon pump pressure support on pressure and flow in the proximal aorta, carotid, coronary and renal arteries.
Methods: Recordings of simultaneous pressure and flow velocity were made using intra-arterial sensor tipped wires. Velocity time integral (VTI) was calculated at each location.
Results: With balloon pump support VTI increased in the coronary arteries (458 to 540 cm, 15%). In contrast, in the carotid arteries VTI markedly decreased (278 to 228 cm, -21%). VTI remained constant in the renal arteries (247 cm) and the aorta (225 cm). The detrimental reduction in carotid VTI was due to the sudden fall in pressure occurring with balloon deflation, which results in carotid velocity transiently becoming negative (Fig. 1).
Conclusion: Intra-arterial balloon pumping augments coronary blood flow, at the expense of diminishing carotid blood flow. This could lead to cerebral insufficiency in patients with obstructive carotid disease.

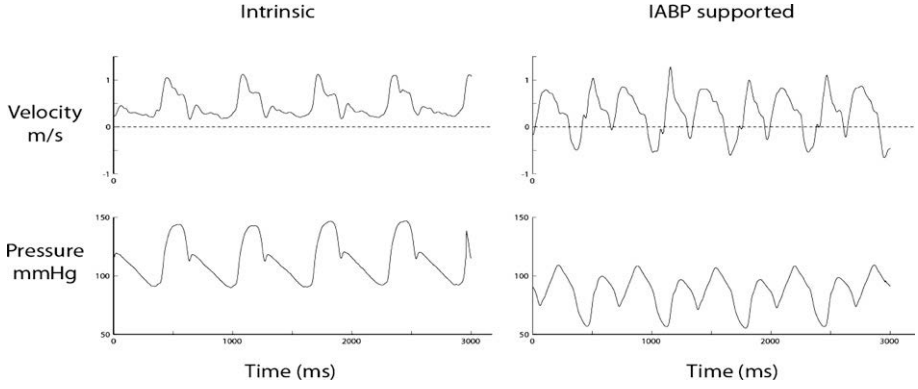

Figure 1 Pressure and velocity in the carotid artery before (left) and during (right) intra-arterial balloon pump support.