



## Artery Research

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### **P71: TROPONIN INCREASE AND SUBENDOCARDIAL OXYGEN SUPPLY AND DEMAND IMBALANCE IN CARDIAC AMYLOIDOSIS**

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**Background:** Ankylosing spondylitis (AS) is an inflammatory autoimmune disease. AS is a prototype form of spondyloarthropathies (SpA). The precise ethology of AS has not been fully understood. But Inflammation has a critical role in the pathogenesis of the disease. Extra skeletal organs may also be affected by this disease and is also associated with an increase of cardiovascular risk. The effect of large arteries appears by a stiffness that can be an element of disease monitoring.

**Objective:** The objective of this study was to evaluate the finger-toe Pulse Wave Velocity (ftPWV) in patients with AS.

**Methods:** Finger-toe pulse wave velocity (ft-PWV) was measured by pOpmetre<sup>®</sup> allowed to explore arterial stiffness.

**Results:** Demographic and clinical characteristics are presented in Table 1. Twenty-two patients with AS and 24 controls were included in our study, subjects with AS exhibited greater pSBP ( $p < 0.001$ ), pDBP ( $p < 0.001$ ), pPP ( $p < 0.001$ ) and MBP ( $p < .001$ ) compared to controls. Moreover, in the AS group we observed a higher ftPWV with a mean difference of 1.63 ( $p < 0.006$ , 95% CI of .50 to 2.7). No significant difference was observed in pPP.

**Conclusions:** Individuals with ankylosing spondylitis showed increased ftPWV, central and peripheral blood pressure, this contributes to explain the higher risk of cardiovascular disease in this pathology. pOpmetre<sup>®</sup> is a no operator depended, simple and practical device, highlighted an increase in arterial stiffness in patients with AS by measuring the ft-PWV. It could play a role in this disease monitoring and in prediction of cardiovascular complications.

	AS	Controls	p
Age (years)	42.4±11.1	40±9.9	.45
Males/Females	3/13	6/17	.56
BMI	25.5±3.9	27.1±3.5	.16
sSBP (mmHg)	116.4±14	102.3±7	<.01
pSBP (mmHg)	127.6±13	113.8±8	<.01
pDBP (mmHg)	78.3±7	67.7±8	<.01
MBP (mmHg)	68.0±8	65.1±4	<.01
pPP (mmHg)	47±7	46.8±9.3	.84
ftPWV	7.8±2.3	6.1±1	<.006

Table 1. Demographic and clinical characteristics of patients with ankylosing spondylitis and controls.

**P71**  
**TROPONIN INCREASE AND SUBENDOCARDIAL OXYGEN SUPPLY AND DEMAND IMBALANCE IN CARDIAC AMYLOIDOSIS**

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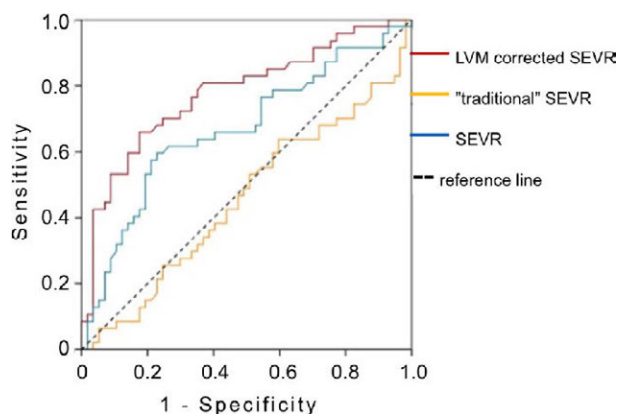
**Background:** The increase in troponin is a cardiac amyloidosis (CA) peculiarity. The most acclaimed hypothesis is direct toxicity of amyloid fibrils on cardiomyocytes, but a subendocardial ischemia due to discrepancy between oxygen supply and demand has not been investigated yet.

**Methods:** 129 outpatients attending the Pavia Amyloid Center were enrolled, 66 of them were affected by CA. Aortic stiffness was assessed measuring carotid-femoral pulse wave velocity (PWV). The subendocardial viability ratio (SEVR) was used to quantify the relationship between subendocardial oxygen supply and demand. Echocardiogram data were used to quantify left ventricular diastolic pressure and left ventricular mass index (LVMI).

**Results:** Troponin was higher in CA ( $p < 0.0001$ ); there was an inverse correlation between troponin and SEVR ( $p = 0.0002$ ). Troponin was strongly correlated with LVMI ( $p = 0.0003$ ). Both the increase in TnI and the reduction of SEVR were related to low values of ejection fraction. The ROC curves showed that SEVR had a greater sensitivity and specificity (AUC = 0.778) than EF% and PWV in identifying pathological troponin values.

**Conclusions:** There is a close relationship in CA between troponin values and the reduction in the SEVR. Ischemic suffering, with undamaged coronary arteries, may be a cause of cardiac myocytes damage in amyloidosis. LVMI

increases with disease progression. On the other hand, amorphous amyloid mass modifies the microcirculation. These two phenomena may seriously affect myocardial perfusion. Moreover, amyloid alters the macrostructural organization of myofibrils, thus heart may need an increased energy-metabolic supply. SEVR assessment may improve the identification of subclinical myocardial damage in cardiac amyloidosis.



**P72**  
**AORTIC PULSE WAVE VELOCITY IN PATIENTS WITH COPD: 5-YEAR DATA FROM THE ARCADE STUDY**

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**Background:** Cardiovascular (CV) disease is a major cause of morbidity and mortality in COPD 1. Aortic pulse wave velocity (AoPWV), an independent predictor of CV risk, is elevated in COPD 2, however, there have been no longitudinal studies of AoPWV in COPD. The Assessment of Risk in Chronic Airways Disease Evaluation (ARCADE) aims to study CV risk factors longitudinally, in COPD. We hypothesised that patients with COPD would have increased AoPWV over 5 years compared to controls.

**Methods:** Thus far, 26 patients with COPD and 26 controls subjects have completed the assessments at baseline and after 5 years. Assessments included: AoPWV (SphygmoCor device), blood pressure (BP), heart rate, BMI and lung function (spirometry).

**Results:** At baseline, patients and controls were similar in age, gender, BP, heart rate and BMI but patients had a trend of greater PWV ( $p < 0.055$ ). After 5 years both COPD and comparators had increased AoPWV ( $p < 0.05$ ). There was no change BP in COPD, but BP increased in controls ( $p < 0.05$ ), while lung function declined in patients with COPD ( $p < 0.05$ ) but not controls. The rate of change of AoPWV was similar in patients and controls after adjustment for changes in BP (Figure 1) ( $p > 0.05$ ).

**Conclusions:** Although the increase in AoPWV over 5 years was similar in COPD and controls, AoPWV was greater in patients with COPD than controls at baseline and after 5 years which may suggest earlier stiffening in COPD. Further longitudinal assessments will inform the understanding of the development of arterial stiffness and may indicate possible therapeutic targets.

