5.7: AORTIC PULSE WAVE VELOCITY INCREASES AFTER 2 YEARS IN PATIENTS WITH COPD: DATA FROM THE ARCADE STUDY

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Methods: In this prospective, single center observational study, 61 patients with cancer were included. Peripheral blood pressure and aortic pulse wave velocity (PWV) were performed at baseline and then every two weeks for two months after the initiation of treatment by sunitinib or sorafenib (V0 to V4). Blood samples were obtained from V1 to V4 for the pharmacokinetic study. Concentrations were determined by HPLC and standardized to combine both drugs (Z-score, mean = 0, SD = 1). Statistical analysis was performed through a robust stepwise regression analysis and Cox regression analysis.

Results: Mean age was 59(14), mean SBP 127(20) mmHg. At V2, mean BP increased by 5(14) mmHg. Determinants of PWV increase were high AAD blood concentration and mean BP increase (for 1 SD, +0.4 m/s and +0.3 mHg respectively, p < 0.01). High concentration of AAD during follow-up was associated with a lesser cancer progression and mortality (for 1 SD increase, HR: 0.60 [0.38-0.97] and HR: 0.38 [0.19-0.79] respectively, p < 0.05, figure1). High AAD and low PWV increase are associated with the lowest cancer progression.

Conclusion: Large arteries stiffening observed under AAD is proportional to the intensity of exposure to AAD independently of blood pressure increase. Patients under exposed to AAD are at higher risk of disease progression and mortality.

5.6 AORTIC IS SUPERIOR TO BRACHIAL AMBULATORY BLOOD PRESSURE MONITORING FOR THE DETECTION OF EARLY DAMAGE AT THE HEART AND THE CAROTID ARTERY BUT NOT AT THE RETINAL MICROCIRCULATION: THE NON-INVASIVE AORTIC AMBULATORY BLOOD PRESSURE MONITORING FOR THE DETECTION OF TARGET ORGAN DAMAGE (SAFAR) STUDY


Introduction: Preliminary evidence suggests the superiority of office aortic (a) blood pressure (BP) over brachial (b) in the management of arterial hypertension. The 24-hour ambulatory blood pressure monitoring (ABPM) is regarded as the optimal method for assessing cardiovascular (CV) risk. The non-invasive 24-hour aABPM is now feasible with validated operator independent brachial cuff-based oscillometric devices.

Objective: To examine whether aABPM is superior to bABPM for the early detection of cardiac and/or arterial damage in hypertensives.

Design and method: The SAFAR study is an ongoing cross-sectional observational study assessing heart function and structure, arterial (carotid, femoral and lower limb) atheromatosis, arterial stiffness (carotid and aortic), arterial hypertrophy (carotid and retinal) and microcirculation in individuals referred for BP evaluation.

Results: In consecutive individuals referred for BP evaluation the aABPM had greater ability than bABPM to detect both left ventricular hypertrophy and diastolic dysfunction (n = 229, area under the curve: 0.74 versus 0.69, p = 0.004 and 0.69 versus 0.63, p = 0.001, by c-statistics respectively), common carotid intimal-medial thickness greater than 0.9 mm (n = 490, 0.62 versus 0.6, p = 0.009), but not narrowed retinal arteries assessed by central retinal arterial equivalent in fundus photography, (n = 402 eyes, 0.62 versus 0.61, p = ns).

Conclusions: aABPM is able to detect better than bABPM an early local damage at the heart and the nearby conduit arteries, but not at the distal retinal microcirculation.

5.7 AORTIC PULSE WAVE VELOCITY INCREASES AFTER 2 YEARS IN PATIENTS WITH COPD: DATA FROM THE ARCADE STUDY

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Objectives: Patients with COPD have increased risk of cardiovascular (CV) events and mortality beyond that attributable to smoking. However, there have been no longitudinal studies of arterial stiffness in COPD. The Assessment of Risk in Chronic Airways Disease Evaluation (ARCADE) aims to study CV risk factors in COPD and controls, free from respiratory disease, longitudinally. We hypothesised that patients with COPD would have increased Aortic pulse wave velocity (ApPWV) over 2 years.

Methods: At baseline, ApPWV was measured using the Sphygmocor device in 525 patients with COPD and 150 controls. Lung function (Forced expiratory volume in 1 second (FEV1) and Forced vital capacity (FVC)), BMI, blood pressure (BP) and systemic inflammation (HsCRP) was also measured. These were repeated after 2 years.

Results: At baseline, patients and controls were similar in age, gender and BMI, but patients had greater PWV, systolic and mean arterial BP, heart rate and HsCRP (all p < 0.05). Thus far 200 patients with COPD have completed the 2 year follow-up assessment. Patients had a mean ApPWV increase of 0.5 m/s (95% CI 0.25-0.71, p = 0.001), despite no change in central mean arterial BP. In addition, lung function declined (p < 0.05) and HsCRP remained high.

Conclusions: The 2 year ApPWV increase in COPD was independent of traditional risk factors suggesting an alternative mechanism for aortic stiffness in COPD. Further longitudinal assessments of a control group will inform the understanding of the development of arterial stiffness and may indicate possible therapeutic targets.