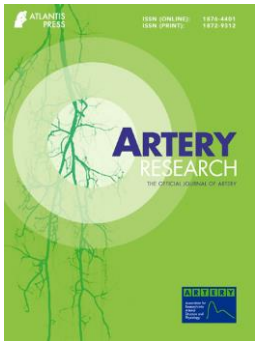

Artery Research

ISSN (Online): 1876-4401 **ISSN (Print): 1872-9312**
Journal Home Page: https://www.atlantis-press.com/journals/artres

P1.21: THE RISK OF HEART FAILURE IS INCREASED IN SUBJECTS WITH RAISED ARTERIAL STIFFNESS: THE ROTTERDAM STUDY

G.C. Verwoert, F.U.S. Mattace-Raso, C. van Noord, S.E. Elias-Smale, A. Hofman

To cite this article: G.C. Verwoert, F.U.S. Mattace-Raso, C. van Noord, S.E. Elias-Smale, A. Hofman (2008) P1.21: THE RISK OF HEART FAILURE IS INCREASED IN SUBJECTS WITH RAISED ARTERIAL STIFFNESS: THE ROTTERDAM STUDY, Artery Research 2:3, 97–97, DOI: https://doi.org/10.1016/j.artres.2008.08.328

To link to this article: https://doi.org/10.1016/j.artres.2008.08.328

Published online: 21 December 2019

guideline. The 236 subjects (mean age 51 ± 11 years, range 26-77, 61% men) were analyzed.
Results: The linear regression analysis showed a significant correlation between UACR and baPWV (beta = 9.52; P < 0.0001), that was independent by multiple linear regression model including, as independent variables, age, gender, body mass index, mean arterial pressure, total cholesterol and smoking (beta = 5.66; p = 0.0115). Compared with those in the lowest UACR quartile, subjects in the highest quartile (UACR > 11.7 mg/g) showed higher baPWV (1492 ± 213 vs. 1655 ± 313 cm/sec) with general linear model adjusted for age, gender, body mass index, mean arterial pressure, total cholesterol and smoking (B=98.5; p = 0.0084).
Conclusion: Hypertensive subjects with urinary albumin excretion in the upper normal range were not free from target organ damage. The present study suggests that the current threshold of microalbuminuria should be lowered.

doi:10.1016/j.artres.2008.08.327

P1.21
THE RISK OF HEART FAILURE IS INCREASED IN SUBJECTS WITH RAISED ARTERIAL STIFFNESS: THE ROTTERDAM STUDY

G.C. Verwoert [1], F.U.S. Mattace-Raso [1], C. van Noord [1], S.E. Elias-Smale [1], A. Hofman [1].
[1] *Department of Epidemiology, ErasmusMC, Rotterdam, Netherlands*
[2] *Department of Internal Medicine, Rotterdam, Netherlands*

Objective: The purpose of the present study is to investigate whether subjects with stiff arteries have an increased risk of heart failure.
Methods: The present study is performed within the framework of the Rotterdam study. Blood pressure, aortic pulse wave velocity and carotid distensibility measurements were obtained. Subjects with heart failure at baseline were excluded. We included 4121 subjects with blood pressure measurements, 3290 subjects with information on aortic pulse wave velocity and 2936 subjects with carotid distensibility measurements. Cox proportional hazard models, adjusted for cardiovascular risk factors, were performed to investigate the risk of heart failure associated with blood pressure and arterial stiffness.
Results: The mean age of the subjects was 72 years, 41,5 % was men. After a mean follow- up of 4.1 years 254 subjects had a heart failure. Hazard ratios and corresponding 95% CI of heart failure for systolic, diastolic, pulse and mean arterial pressure were 1.21 (1.08-1.36), 0.94 (0.83-1.06), 1.31 (1.17-1.46) and 1.08 (0.96-1.22), respectively.
After including both systolic and pulse pressure in one model, only the pulse pressure predicted incident heart failure; estimates for systolic and pulse pressure were 0.90(0.69-1.18) and 1.40(1.07-1.85), respectively. Aortic pulse wave velocity increased the risk of heart failure in subjects up to 70 years (HR 1.72;1.23-2.40), whereas the carotid distensibility did not.
Conclusions: The pulsatile components of blood pressure and aortic stiffness are associated with the risk heart failure in the general population.

doi:10.1016/j.artres.2008.08.328

P1.22
POORER LUNG FUNCTION IS ASSOCIATED WITH GREATER PERIPHERAL ARTERIAL STIFFNESS IN YOUNG ADULTS: THE NORTHERN IRELAND YOUNG HEARTS PROJECT (NIYHP)

N. Kokshoorn [1], I. Ferreira [1], M. Huijberts [1], J.W.R. Twisk [3], C.A. Boreham [2], C.D.A. Stehouwer [1].
[1] *University Hospital Maastricht, Maastricht, Netherlands*
[2] *University College, Dublin, Ireland*
[3] *VU University Medical Center, Amsterdam, Netherlands*

Background & Aims: Associations of poorer lung function (LF) with atherosclerosis and/or arterial stiffness (AS) have been suggested as potential mechanisms explaining the increased cardiovascular risk associated to poorer LF (e.g. in COPD patients but also in the general population). We have therefore examined, in a population of young adults, whether: 1) LF was inversely associated with stiffness of central (i.e. aorta) and peripheral (i.e. upper and lower limbs) arterial segments; 2) these associations were similar in smokers and non-smokers; and 3) low-grade inflammation played a mediating role.
Methods: Subjects were 286 young adults (mean age of 23 yrs), participating in the NIYHP. LF [i.e. forced expiratory volume in 1s (FEV1) and forced vital capacity (FVC), expressed in L] was measured by spirometry. AS was assessed by measuring pulse wave velocity (PWV, in m/s) in 3 arterial segments.
Results: After adjustment for sex, age, height, weight, MAP, smoking and asthma status, both FEV1 and FVC were inversely associated with PWV of all 3 arterial segments, but more strongly and significantly so with PWV of the lower limb segment only: [b=-0.23 (95%CI:-0.38; -0.08), p=0.004 and b=-0.22 (-0.41;-0.02), p=0.029, respectively]. No significant interactions with smoking status were observed. Further adjustment for markers of low-grade inflammation (i.e. CRP and fibrinogen) did not attenuate the associations of FEV1 [b=-0.24 (-0.38;-0.08) or FVC [b=-0.22 (-0.42;-0.03)] with PWV of the lower limb.
Conclusions: Young adults with poorer LF have increased peripheral AS. We found no evidence that low-grade inflammation underlies this association, and other mechanisms need to be explored.

doi:10.1016/j.artres.2008.08.329

P1.23
BLOOD PRESSURE AND AUGMENTATION INDEX IN GENERAL POPULATION IN 5 YEARS FOLLOW-UP

W. Wojciechowska [1], K. Stolarz-Skrzypek [1], A. Olszanecka [1], M. Loster [1], M. Cwynar [2], T. Grodzicki [2], K. Kawecka – Jaszcz [1].
[1] *Department of Cardiology and Hypertension, Medical College, Jagiellonian University, Krakow, Poland*
[2] *Department of Internal Medicine and Gerontology, Medical College, Jagiellonian University, Krakow, Poland*

Objectives: The objective of the present study was to assess changes in blood pressure (BP) parameters and AI in general population after 5-years follow-up.
Methods: From the general population we recruited 197 members from random families (99 parent and 98 offspring (age at baseline: 51.4 and 25.5 years) who constituted 110 normotensives and 87 hypertensives). Initially and after 4.8±0.3 years we recorded the radial arterial waveform using the SphygmoCor device. We evaluated peripheral AI (pAI) and central AI (cAI).
Results: In both generations as well as in normo- and hypertensive groups we observed comparable increase in BMI and decrease in heart rate. We found higher increase in aortic SBP with lesser decrease in central DBP in offspring and in normotensives while cPP increase was higher in parent and in participants with initially diagnosed hypertension (p<0.005). We observed greater elevation of brachial SBP with simultaneous lesser reduction in DBP with similar increase in peripheral PP in offspring and in normotensives. Changes in pAI and cAI were more pronounced in younger generation and resulted respectively 4.4 vs 2.9(%); p=0.004 and 5.2 vs 3.7(%); p=0.001. Moreover we observed higher increase in pAI (4.6 vs 4.3(%); p=0.006) and in cAI (4.8 vs 4.6(%); p=0.005) in hypertensives.
Conclusions: Our findings indicate that AI increased in offspring and can be use as effective tool to detect the progressive increase in aortic stiffness in younger individuals. The aortic pulse pressure more effectively indicate age and blood pressure related changes in arterial wall stiffening than brachial pressure.

doi:10.1016/j.artres.2008.08.330

P1.24
AORTIC PULSE WAVE VELOCITY IS NOT ASSOCIATED WITH ALL-CAUSE MORTALITY IN YOUNG, LOW RISK, FRENCH POPULATION

B. Pannier [1], F. Thomas [2], L. Guize [4], K. Bean [2], B. Jego [2], A. Benetos [3].
[1] *Hopital MANHES, Fleury-Merogis, France*
[2] *IPC Center, Paris, France*
[3] *Hopital Brabois, Nancy, France*
[4] *Hopital HEGP-UniversitéParis Descartes, Paris, France*

Objective: To evaluate the association between aortic pulse wave velocity (PWV) and all-cause mortality in a low to moderate risk population.
Methods: 1952 subjects (1319 men, 633 women), who benefited from a standard health check-up at the IPC center (Paris) in 1992/1993, had also an aortic PWV measurement. Mean follow-up was 13.4 ± 1.2 years, and 61 men (4.6%) and 18 women (2.8%) died. The population was divided in two groups of age (<60 and >=60 years). Cox regression model, including age, gender, tobacco, cholesterol, heart rate, blood pressure, glycaemia, assessed the risk of all-cause mortality for an increase of 1 m/sec of PWV (Hazard Ratio (HR), 95% CI).
Results: Age was 45.0±9.3 years in young and 64.5±3.8 years in old subjects. In overall population, PWV was 9.6±2.2 m/sec, and increased with age: 9.2±2.0 m/sec in youngest and 11.0±2.2 m/sec in oldest. After