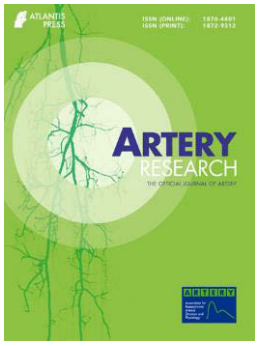

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P91: GREEN TEA EXTRACT REDUCES LIPID PROFILE, PERCENTAGE OF AORTIC AUGMENTATION INDEX AND INCREASES SOLUBLE RAGE CONCENTRATIONS IN NORMOTENSIVE PATIENTS WITH TYPE 2 DIABETES MELLITUS: A RANDOMIZED, DOUBLE-BLINDED, AND PLACEBO- CONTROLLED TRIAL

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work, and increased subendocardial viability index in supine and upright positions ($p < 0.01$ for all). Stroke volume was increased in the supine ($\sim$11 ml, $p < 0.01$) but not in the upright position, while upright ($\sim$1 l/min, $p < 0.01$) but not supine cardiac output was significantly reduced. Upright increase in systemic vascular resistance was amplified after bisoprolol ($p < 0.05$). Pulse pressure amplification was reduced especially in the upright position (supine reduction 10%, upright reduction 20%). Aortic augmentation index, augmentation pressure and pulse pressure were not changed in the supine position, but were increased in the upright position (from 7 to 20%, 3 to 7 mmHg, 28 to 35 mmHg, respectively, $p < 0.01$ for all).

Conclusions: Bisoprolol decreased central and peripheral blood pressure in male subjects with grade I to grade II hypertension, but central blood pressure was reduced less efficiently than peripheral blood pressure. Importantly, the harmful influences of bisoprolol on central pulse pressure and pressure wave reflection were especially observed in the upright position.

P90
POSITIVE EFFECTS OF ANTIHYPERTENSIVE TREATMENT ON AORTIC STIFFNESS IN THE GENERAL POPULATION

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Aortic stiffness is strongly related to age and mean arterial pressure (MAP). We investigated whether antihypertensive treatment modulates the association of the aortic pulse wave velocity (PWV) with age and with MAP in the general population. In the Czech post-MONICA, we measured the PWV in 735 subjects (mean age 61.2 ± 7.8 years, 54.1% women, 44.3% on antihypertensive medication). We used a linear regression model to assess the effect of treatment on the PWV.

The independent covariates in our analysis included sex, age, MAP, body mass index, plasma glucose, low-density lipoprotein cholesterol, smoking and observer. The patients receiving treatment were older (64.1 ± 6.7 vs. 58.9 ± 7.8 years), had higher systolic blood pressure (135.9 ± 16.2 vs. 130.1 ± 16.5 mm Hg) and had higher pulse wave velocity (9.1 ± 2.2 vs. 8.2 ± 2.1 m s 1; P for all o0.0001) than untreated subjects.

After adjustment for MAP, the use of treatment modified the association between age and the PWV (regression equations, treated patients 9.68—0.009 age vs. untreated subjects 6.98 þ 0.020 age, difference of regression slopes, F $^{1}/_{4}$ 11.2; P $^{1}/_{4}$ 0.0009). In analyses adjusted for age, treatment was associated with a smaller increase of the PWV with MAP (treated patients 9.63—0.006 MAP vs. untreated subjects 7.18 þ 0.010 MAP, F $^{1}/_{4}$ 10.70; P $^{1}/_{4}$ 0.0001). These results were driven primarily by subjects whose blood pressure was below 140/90 mm Hg.

In the cross-sectional analysis from a random sample of the general population, antihypertensive treatment was associated with a less steep increase in the PWV with age and the mean arterial pressure.

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GREEN TEA EXTRACT REDUCES LIPID PROFILE, PERCENTAGE OF AORTIC AUGMENTATION INDEX AND INCREASES SOLUBLE RAGE CONCENTRATIONS IN NORMOTENSIVE PATIENTS WITH TYPE 2 DIABETES MELLITUS: A RANDOMIZED, DOUBLE-BLINDED, AND PLACEBO-CONTROLLED TRIAL

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Background: Type 2 diabetes mellitus is associated with premature atherosclerosis and arterial stiffening by an accumulation of advanced glycation end-products in vessel wall (1). Green tea polyphenols are considered a cardioprotective substance and may be used as an adjuvant for diabetes treatment, because its ability to stimulates the soluble RAGE secretion (2). There is no clinical evidence of the effect of green tea extract administration on metabolic parameters, arterial stiffness and the soluble RAGE expression.

Material and Methods: A double-blind, placebo-controlled, randomized clinical trial in normotensive patients with type 2 diabetes mellitus was conducted to identify the effect of green tea extract on arterial stiffness, metabolic and anthropometric parameters and on soluble RAGE (sRAGE) with the S100A1 ligand.

Results: We included 20 subjects, there was no difference between groups at baseline. There was a decrease in the green tea extract group on aortic augmentation index (21.12 ± 8.9 to 18.07 ± 9.7, $p = 0.045$), total cholesterol (203.9 ± 37.6 to 176.9 ± 25.9 mg/dl, $p = 0.019$) triglycerides (202.6 ± 146.9 to 123.2 ± 64.8 mg/dl, $p = 0.023$) and an increase in sRAGE (1358.5 ± 390.0 to 1281.1 ± 369.7 $p = 0.052$).

Table 1. Effect of 12 weeks of Green tea extract intervention or placebo on circulating parameters.

	GTE		PLACEBO		P
	Basal n = 10	Final n = 10	Basal n = 10	Final n = 10	
Fasting Glucose, mg/dl	169.9 ± 92.3	123.9 ± 69.8	168.1 ± 49.7	171.3 ± 39.8	0.089
Creatinin mg/dl	0.75 ± 0.2	0.81 ± 0.14	0.7 ± 0.2	0.78 ± 0.14	0.853
Total Cholesterol mg/dl	203.9 ± 37.6	176.9 ± 25.9	187.9 ± 44.6	216.1 ± 48.2	0.019*
Triglycerids, mg/dl	202.6 ± 146.3	123.9 ± 64.8	159.9 ± 57.0	184.3 ± 93.9	0.023*
HDLc, mg/dl	47.9 ± 7.8	44.9 ± 5.2	48 ± 8.9	46.9 ± 10.2	0.529
LDLC. mg/dl	123 ± 32.8	109.4 ± 25.1	92.3 ± 30.2	111.2 ± 53.3	0.436
TGO, U/ml	25.6 ± 10.1	25.3 ± 7.08	40.7 ± 13.8	44.4 ± 26.8	0.971
TGP, U/ml	23.8 ± 13.6	28.9 ± 11.9	35.4 ± 14.5	44.7 ± 25.4	0.912
TFG, naL/min	119.9 ± 56.3	101.8 ± 23.9	120.6 ± 50.2	102.3 ± 22.7	0.739

Values are arithmetic means ± SE except for mean differences between groups, which have been adjusted for baseline values. Between-group P values reflect the between-group comparison change-scores from Man Whitney U statistic methodology. *Significant ($p < 0.05$) within-group change.

Conclusions: Green tea extract reduces lipid levels, percentage of aortic augmentation index and increases soluble RAGE concentrations in normotensive patients with Type 2 Diabetes.

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SIMULTANEOUS INVASIVE AND NONINVASIVE MONITORING OF CENTRAL BLOOD PRESSURE ON CRITICALLY ILL PATIENTS SUFFERING FROM CARDIOGENIC SHOCK TREATED WITH IABP

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Intraaortic balloon counterpulsation (IABP) is a method of temporary mechanical circulatory support in patients suffering from cardiogenic shock to improves the balance of myocardial oxygen supply and demand by using systolic unloading and diastolic augmentation. Arteriograph is an invasively validated oscillometric device which measures central blood pressure (SBPao) noninvasively.
The recently developed Arteriograph24 is a combination of a 24-hour BP-monitor and a single-measurement Arteriograph which provides both 24-hour peripherial and central BP profile. Comparison of simultaneous invasive measurements by IABP and noninvasive ones by Arteriograph of SBPao was never published yet.
Aim: The aim of this work was to compare the SBPao values measured with these two modalities.
Subjects and method: 11 severely ill patients placed on IABP were included into this study. Noninvasive monitoring of SBPao was carried out by Arteriograph24 simultaneously with IABP. Descriptive statistics were calculated for both measurements and the variables were indicated as means and standard deviations. Linear regression analysis was carried out to define the relationship between the invasive and noninvasive variables.
Results: A strong and linear correlation was found between the invasive and non- invasive SBPao values, Pearson's correlation coefficient was $R = 0.76$; $p < 0.001$.
The diastolic counterpulsation pressure waves could be correctly identified on Arteriograph-registrations. Furthermore, the onset and the end of counterpulsation were also exactly defined noninvasively.
Conclusions: The noninvasive SBPao values showed strong correlation with invasive values. Our results confirm that the SBPao values, measured by Arteriograph, are close to the true aortic SBP. This is the first investigation when Arteriograph24 is validated againts invasive SBPao measurement by IABP.

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ARE HEMODYNAMIC MEASURES ASSOCIATED WITH FRAILTY IN ELDERLY PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE IMPLANTATION?

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Background: Aortic valve stenosis (AS) is common in the elderly and is associated with high morbidity and mortality, and leads to functional decline. The aim of this study was to investigate the possible relation between aortic stiffness, AS and frailty in older patients undergoing Transcatheter Aortic Valve Implantation (TAVI).
Methods: TAVI Care&Cure is an observational ongoing study including consecutive patients undergoing TAVI procedure at the Erasmus University Medical Center. Prior to TAVI echocardiography was performed and aortic stiffness was measured non-invasively by the Mobil-O-Graph. The frailty status was assessed including 5 domains. Primary outcome was to investigate the relationship between structural and functional cardiovascular parameters and frailty status. Linear regression was used.
Results: A total of 212 patients were included for analysis. Mean age was 79,2 years (±7,8), 52,7% men, mean Aortic Valve Area (AVA) was 0,73 (± 0,3), mean Pulse Wave Velocity was 12,6 (±1,5). Frailty was found in 57,8%. Peripheral pulse pressure ($p = 0.04$) and central pulse pressure ($p = 0.02$) but not aortic stiffness were associated with AS severity. AVA was associated with frailty ($p = 0.02$) whereas measures of aortic stiffness were not.
Conclusion: Aortic valve area but not measures of aortic stiffness is associated with frailty status in elderly patients with AS undergoing a TAVI procedure.

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DAPAGLIFLOZIN ACUTELY RESTORES ENDOTHELIAL DYSFUNCTION, REDUCES AORTIC STIFFNESS AND RENAL RESISTIVE INDEX IN TYPE 2 DIABETIC PATIENTS: A PILOT STUDY

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Objective: Sodium-glucose co-transporter-2 inhibitors reduce blood pressure and renal and cardiovascular events in patients with type 2 diabetes through not fully elucidated mechanisms. Aim of this study was to investigate whether dapagliflozin is able to acutely modify systemic and renal vascular function.
Methods: Neuro-hormonal and vascular variables, together with 24h-urinary sodium, glucose, isoprostanes, diuresis and free-water clearance, were assessed before and after a 2- day treatment with dapagliflozin 10 mg/die in 16 type 2 diabetic patients. Brachial artery endothelium-dependent and independent vasodilation (by flow-mediated dilation) and pulse wave velocity were assessed. Renal resistive index was obtained at rest and after glyceril trinitrate administration.
Results: Dapagliflozin decreased systolic blood pressure and urinary isoprostanes and induced an increase in 24h-diuresis, 24h-urinary glucose and serum magnesium; 24h-urinary Na and fasting blood glucose were unchanged; serum magnesium slightly increased. Flow-mediated dilation was significantly increased (2.8 ± 2.2 to $4.0 \pm 2.1\%$, $p < 0.05$), and pulse-wave-velocity was reduced (10.1 ± 1.6 to 8.9 ± 1.6 m/s, $p < 0.05$), even after correction for mean blood pressure. Renal resistive index was reduced (0.62 ± 0.04 to 0.59 ± 0.05, $p < 0.05$), as well as its response to nitrates.
Conclusions: An acute treatment with Dapagliflozin significantly improves systemic endothelial function, arterial stiffness and renal resistive index; this effect is independent of changes in blood pressure and occurs in the presence of stable natriuresis, suggesting a fast, direct beneficial effect on the vasculature, possibly mediated by oxidative stress reduction.

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EFFECT OF CHRONIC INFLAMMATION INHIBITION WITH SALSALATE ON AORTIC STIFFNESS AND VASCULAR ENDOTHELIAL FUNCTION IN OLDER ADULTS: A RANDOMIZED CONTROLLED STUDY

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Chronic activation of the proinflammatory transcription factor nuclear factor kappa-B (NFkB) is linked to age-associated vascular dysfunction. Acute inhibition of NFkB with high-dose salsalate (>4g), a non-acetylated salicylate known to block NFkB activation, improves aortic stiffness and endothelial function in aged rodents and humans.
Therefore, we hypothesized that chronic salsalate therapy at the US FDA approved starting dose (3 g/day) would improve age-associated aortic stiffness and endothelial dysfunction in older adults. A total of 28 normotensive older adults (57.4 ± 1.3 yrs; 11M/13F) were randomized to salsalate 3 g/day ($n = 14$) or placebo ($n = 14$) for 4 weeks and had assessments of aortic stiffness (carotid-femoral pulse wave velocity, CFPWV) and endothelial function (brachial artery flow-mediated dilation, FMD).
A group of 17 young adults (age 26 ± 1 yrs) were not randomized. As expected, baseline CFPWV was higher (8.1 ± 0.3 vs 5.3 ± 0.2 m/sec, $P < 0.01$) and FMD was lower (3.4 ± 0.8 vs. $5.9 \pm 1.0\%$, $P = 0.03$) in the older vs.