



## Artery Research

ISSN (Online): 1876-4401

ISSN (Print): 1872-9312

Journal Home Page: <https://www.atlantis-press.com/journals/artres>

---

### **P3.10: REGIONAL CAROTID MECHANICS IS SIGNIFICANTLY IMPAIRED IN PATIENTS ON HEMODIALYSIS**

Oleg Kerbikov\*, Ekaterina Borskaya, Irina Kaloshina, Anna Kaloshina, Olga Telnova, Natalia Ustyantseva, Maria Agakina

**To cite this article:** Oleg Kerbikov\*, Ekaterina Borskaya, Irina Kaloshina, Anna Kaloshina, Olga Telnova, Natalia Ustyantseva, Maria Agakina (2015) P3.10: REGIONAL CAROTID MECHANICS IS SIGNIFICANTLY IMPAIRED IN PATIENTS ON HEMODIALYSIS, Artery Research 12:C, 13–13, DOI: <https://doi.org/10.1016/j.artres.2015.10.235>

**To link to this article:** <https://doi.org/10.1016/j.artres.2015.10.235>

Published online: 7 December 2019

atherosclerotic burden and PWV than (C) and also the clinical score of risk (FRS) and the severity of vascular disease score. DBT2 and MS were almost similar.

**Conclusion:** The progression of vascular disease from the early MS to DBT2 could explain the higher degree of complications in DBT2. These findings suggest the usefulness of vascular evaluation of MS patients to guide and intensify preventive measures to improve the prognosis of DBT2 patients.

### P3.10

#### REGIONAL CAROTID MECHANICS IS SIGNIFICANTLY IMPAIRED IN PATIENTS ON HEMODIALYSIS

Oleg Kerbikov <sup>1,\*</sup>, Ekaterina Borskaya <sup>2</sup>, Irina Kaloshina <sup>2</sup>, Anna Kaloshina <sup>3</sup>, Olga Telnova <sup>1</sup>, Natalia Ustyantseva <sup>1</sup>, Maria Agakina <sup>2</sup>

<sup>1</sup>Federal Research Clinical Center FMBA of Russia, Moscow, Russia

<sup>2</sup>Federal State Clinical Hospital #86 FMBA of Russia, Moscow, Russia

<sup>3</sup>I.M. Sechenov First Moscow State Medical University, Moscow, Russia

**Objective:** To study the correlation between carotid mechanics, carotid stiffness and cardiac parameters in patients on hemodialysis (kidney failure) and healthy subjects.

**Methods:** Study population consisted of 12 patients on hemodialysis (aged 24-73, median=48) and 24 healthy controls of the same age and gender. All subjects underwent comprehensive transthoracic echocardiography and ultrasound carotid exams. Peak carotid longitudinal, circumferential strains and longitudinal and radial displacement were measured using two-dimensional Speckle-Tracking Imaging. Carotid stiffness was calculated using wall-tracking software.

**Results:** Univariate analysis revealed direct correlations between carotid strains and displacement and parameters of LV diastolic function and carotid stiffness ( $r=0.44$  between longitudinal strain (ST\_L) and  $e'$  (interventricular septum),  $r=-0.27$  between ST\_L and carotid\_PWV,  $r=-0.47$  between ST\_L and Intima\_Media\_Thickness,  $p<0.05$ ) and correlations between LV diastolic function and carotid stiffness ( $r=-0.51$  between carotid\_PWV and  $e'$ ). These correlations were confirmed by multiple linear regression after adjusting for potential confounders (age, blood pressure, gender, weight, etc.). Analysis showed significant decrease in carotid strains and displacements and increase in carotid stiffness in patients on hemodialysis (carotid PWV=8.9 and 6.9 m/s, ST\_L=4.6 and 6.7 in dialysis patients and healthy subjects accordingly,  $p<0.05$ ). Multivariate modeling confirmed that hemodialysis is an independent determinant of regional carotid mechanics.

**Conclusions:** This study demonstrated that regional carotid mechanics is related to heart diastolic function and carotid stiffness. Development of atherosclerosis impairs carotid mechanics. Key parameters of carotid mechanics are significantly decreased in patients on hemodialysis. Measurement of these parameters is important because their diversions may serve as an early marker of cardiovascular disease.

### P3.12

#### URINARY LIVER-TYPE FATTY ACID-BINDING PROTEIN IS ASSOCIATED WITH AORTIC STIFFNESS IN MALE CORONARY ARTERY DISEASE PATIENTS

Kaido Paapstel <sup>1</sup>, Mihkel Zilmer <sup>1</sup>, Jaan Eha <sup>1</sup>, Kaspar Tootsi <sup>1,\*</sup>, Anneli Piir <sup>1</sup>, Jaak Kals <sup>1,2</sup>

<sup>1</sup>University of Tartu, Tartu, Estonia

<sup>2</sup>Tartu University Hospital, Tartu, Estonia

**Background:** Urinary liver-type fatty acid-binding protein (L-FABP) is a promising diagnostic and prognostic biomarker for both acute and chronic kidney injury. Furthermore, this protein has been shown to possess antioxidant properties and appears to provide a prognostic value for cardiovascular morbidity and mortality in different clinical settings. The aim of the current study was to evaluate its relationship to inflammation and arterial stiffness in coronary artery disease (CAD) patients without reduced kidney function and in healthy controls.

**Methods:** We studied 52 patients with CAD (age  $63.2 \pm 9.2$  years) and 41 clinically healthy controls (age  $60.1 \pm 7.2$ ). Urinary L-FABP, serum adiponectin and resistin levels were measured using the enzyme-linked immunosorbent assay method. The technique of applanation tonometry was used for non-invasive pulse wave analysis and pulse wave velocity assessments.

**Results:** Higher carotid-femoral pulse wave velocity (cf-PWV) was observed in the CAD patients as compared to the controls ( $9.7 \pm 2.6$  vs.  $8.2 \pm 1.7$  m/s;  $P=0.003$ ). The two groups also differed in adiponectin ( $5701 \pm 2890$  vs.  $7081 \pm 3612$ ;  $P=0.045$ ) and resistin ( $3.4$  (2.6-4.5) vs.  $2.8$  (2.4-3.5);  $P=0.043$ ) levels. There was a positive relationship between log-L-FABP and cf-PWV ( $r=0.46$ ,  $P=0.001$ ) in subjects with CAD, which remained significant after adjustment for potential confounders. Log-L-FABP also correlated with serum adiponectin levels in the patient group ( $r=0.35$ ,  $P=0.015$ ).

**Conclusions:** Our findings suggest that urinary L-FABP might be independently associated with aortic stiffness and adiponectin in individuals with CAD.

### P3.13

#### ARTERIAL STIFFNESS ASSESSED BY ULTRAFAST IMAGING IN HEALTHY SUBJECTS

Zoubir Mourad Bensalah

Hospital of Perpignan, Perpignan, France

**Aim:** To assess normal values on the common artery by using new methodology using shear wave methods in healthy subjects

**Methods:** Healthy subjects underwent aortic stiffness by using shear wave echography (Aixplorer) at the carotid artery. All subjects were free from cardiovascular disease and medication. PWV at the beginning of systole (BS) and the end systolic (ES) of the cardiac cycle.

**Results:** 32 healthy subjects (16 male and 16 female) were included. The mean age was 41y.o (23 to 61). BS PWV  $4.35/0.32$  (3.18 to 5.37) and ES PWV was  $5.96/0.45$  (4.58 to 9.8) m/s.

Both ES PWV and BS PWV have high correlation with age ( $r_2: 0.64$  and  $0.58$  respectively,  $p<0.0001$ ).

**Conclusion:** Arterial stiffness assessed by ultrafast imaging is a promising method for assessment of arterial stiffness, which can potentially be clinically useful.

### P3.14

#### ASSOCIATION OF CAROTID INTIMA-MEDIA THICKNESS, ENDOTHELIAL FUNCTION AND AORTIC STIFFNESS WITH CARDIOVASCULAR EVENTS IN METABOLIC SYNDROME PATIENTS

Ligita Ryliskyte <sup>1,2</sup>, Jurate Balsyte <sup>1,2,\*</sup>, Jolita Badariene <sup>1,2</sup>, Roma Puronaite <sup>1</sup>, Rokas Navickas <sup>1,2</sup>, Svetlana Solovjova <sup>1,2</sup>, Kristina Ryliskiene <sup>1,2</sup>, Jurgita Kuzmickiene <sup>1,2</sup>, Aleksandras Laucevicius <sup>1,2</sup>

<sup>1</sup>Vilnius University Hospital Santariskiu Klinikos, Santariskiu Str. 2, LT-08661, Vilnius, Lithuania

<sup>2</sup>Faculty of Medicine, Vilnius University, M.K. Ciurlionio Str. 25, LT-03101, Vilnius, Lithuania

**Objective:** The objective of this study was to assess predictive value of various arterial markers for cardiovascular (CV) events in patients with metabolic syndrome (MS).

**Design and methods:** A follow-up study enrolled 2728 ( $53.95 \pm 6.18$  years old, 63% women) MS patients without overt CV disease. Patients were followed-up for  $3.9 \pm 1.7$  years for CV events. Various CV risk factors and arterial markers, such as brachial flow-mediated dilatation (FMD), carotid intima-media thickness (cIMT), carotid stiffness index (CSI), aortic pulse wave velocity (aPWV) and cardio-ankle vascular index (CAVI) were assessed. **Results:** Over the follow-up period, 83 (3%) patients had at least one CV event. In a multivariate stepwise Cox proportional hazard regression analysis, an increase in aPWV [HR 1.21 (1.04-1.4),  $p = 0.016$ ] and cIMT [HR 1.003 (1.001-1.003),  $p = 0.036$ ] and decrease in FMD [HR 0.30 (0.16-0.56),  $p < 0.001$ ] was independently associated with the occurrence of the CV event.

In a two-level survival trees analysis we established that patients with  $cIMT > 793$  mcm had higher CV risk and their prognosis was further compromised with an  $FMD \leq 0.23$  mm, whereas in patients with  $cIMT \leq 793$  mcm, aPWV but not FMD was of greater predictive value. The lowest Kaplan-Meier cumulative proportion surviving was observed in patients with  $cIMT > 793$  mcm and aPWV values above the cut-off point 10.5 m/s ( $p < 0.001$ ).

**Conclusions:** In the middle-aged patients with MS and increased cIMT, aPWV was strongest independent CV event predictor, whereas in patients with relatively low cIMT values, CV risk was associated primarily with endothelial dysfunction.

### P3.15

#### CARDIAC PERFORMANCE VASCULAR PHYSIOLOGY AND ERECTILE STATUS; A QUESTION OF A HEALTHY DIET

Athanasios Angelis <sup>\*</sup>, Nikolaos Ioakeimidis, Mahmoud Abderasoul, Ioanna Gourgouli, Konstantinos Aznaouridis, Dimitrios Terentes, Konstantinos Rokkas, Charalampos Vlachopoulos, Dimitrios Tousoulis  
Hippocraton Hospital, 1st Department of Cardiology, University of Athens, Athens, Greece

**Purpose:** The Mediterranean diet (Med-Diet) assists cardiovascular disease prevention. Erectile dysfunction (ED) reflects functional damage of the small peripheral vessels. Our aim is to investigate whether left ventricular (LV)