



Artery Research

ISSN (Online): 1876-4401

ISSN (Print): 1872-9312

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

P91: THE EFFECTS OF DEVICE-GUIDED PACED BREATHING ON ARTERIAL STIFFNESS: IMPACT OF THE AUTONOMIC NERVOUS SYSTEM

Bushra Farukh, Luca Faconti, Phil J. Chowienczyk

To cite this article: Bushra Farukh, Luca Faconti, Phil J. Chowienczyk (2018) P91: THE EFFECTS OF DEVICE-GUIDED PACED BREATHING ON ARTERIAL STIFFNESS: IMPACT OF THE AUTONOMIC NERVOUS SYSTEM, Artery Research 24:C, 105–105, DOI: <https://doi.org/10.1016/j.artres.2018.10.144>

To link to this article: <https://doi.org/10.1016/j.artres.2018.10.144>

Published online: 7 December 2019

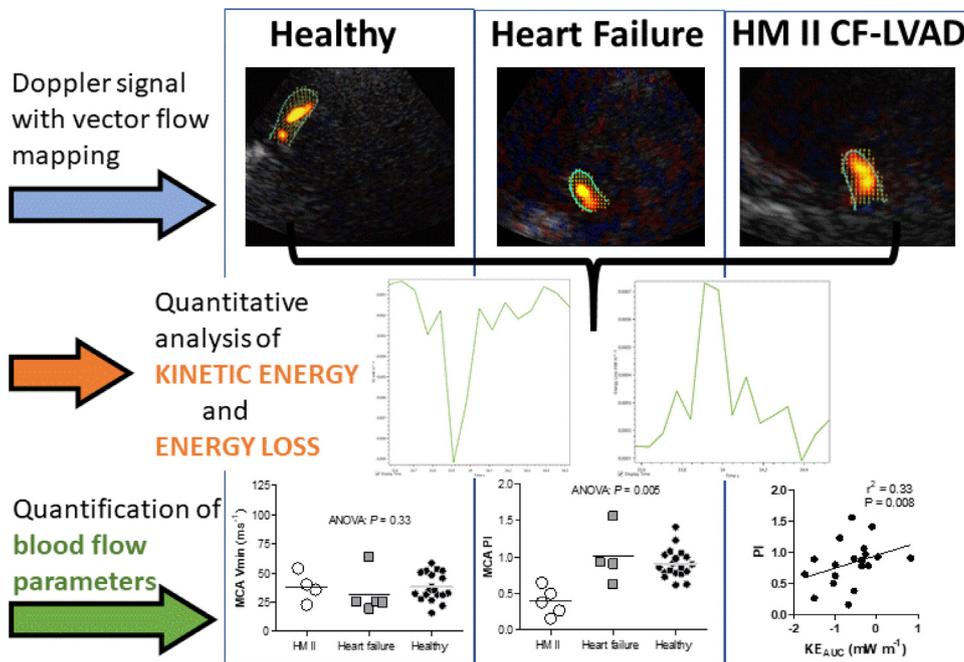
different heart rates (ELAUC/time & KEAUC/time) revealed the same results. PI correlated with KEAUC ($\log r^2 = 0.33$, $P = 0.008$) but not ELAUC ($\log r^2 = 0.154$, $P = 0.087$).

Conclusions: ELAUC and KEAUC were significantly lower in HM II. The correlation between KEAUC and PI suggests that pulsatility may have an important impact not only on the stretch of arteries but also on the energetics of blood flow. Future studies should evaluate the clinical meaning of these observations.

P92
PARAMETERS FOR CENTRAL BLOOD PRESSURE AS PREDICTORS FOR THE EARLY CLINICAL AND FUNCTIONAL OUTCOME AFTER STROKE

Katrin Holzhauser

Abteilung für Nephrologie des Klinikums Rechts der Isar (TUM), USA



P91
THE EFFECTS OF DEVICE-GUIDED PACED BREATHING ON ARTERIAL STIFFNESS: IMPACT OF THE AUTONOMIC NERVOUS SYSTEM

Bushra Farukh, Luca Faconti, Phil J. Chowieniczky
King's College London, Department of Clinical Pharmacology, UK

Objective: The autonomic nervous system (ANS) plays an important role in regulating blood pressure (BP), but its action on arterial stiffness (AS) is still debated. Here we examine if device-guided paced breathing (DGB) 1, via its action on ANS, can affect AS beyond its BP-lowering effect in hypertensive (HT) subjects.

Design and Methods: Central mean arterial pressure (MAP) (pulse-wave analysis of the radial artery, SphygmoCor, AtCor Medical, Australia), AS (carotid-femoral pulse wave velocity (cfPWV), SphygmoCor) and ANS activity (as high resolution heart rate variability (HRV) of low-frequency/high-frequency range (LF/HF)), (Schiller Medilog AR12plus, United States) were determined in HT subjects. All measurements were performed in supine position after 15 min of rest and subsequently repeated during supervised DGB therapy.

Results: 33 HT patients (18 male); age (mean \pm SD) 46 ± 13 years; BP $144 \pm 19/86 \pm 9$ mmHg; cfPWV 9.9 ± 2.1 m/s were recruited. DGB decreased (mean [95% CI]) LF/HF by 0.15 [0.08, 0.22] as well as MAP (-6.7 [$-8.4, -5.1$] mmHg) and cfPWV (-1.1 [$-0.8, -1.3$] m/s), all $P < 0.01$. Bivariate analysis showed a positive correlation between decrease in HRV activity and reduction of cfPWV and MAP ($\beta = 0.476$ and $\beta = 0.402$ respectively, both $P < 0.05$). The relationship between cfPWV and HRV activity was also still significant in multi-regression models adjusted for confounders (baseline PWV value and change in BP), $P < 0.05$.

Conclusions: DGB, via its action on ANS, affected both BP and AS in HT subjects. Reduction of cfPWV was not fully explained by the BP-lowering effect suggesting that the ANS may play an independent role in modulating AS.

References

1. Cernes R, Zimlichman R. RESPerATE: The role of paced breathing in hypertension treatment. *J Am Soc Hypertens.* 2015;9:38–47.

Background: High mortality and the rate of patients who depend on care after survived stroke illustrate the importance of prevention and the importance of the development of predictors to identify patients with a high risk for an adverse progress of disease. The level of the arterial blood pressure depends especially on the function of vessels. This function can be described by the pulse wave velocity (PWV). New studies show that there is a correlation between the central blood pressure and possible damages of end organs like heart, kidney and brain.

Methods: In a prospective study, we enrolled patients with acute ischemic stroke 7 ± 2 days after stroke onset. We conducted a 24-h-blood pressure measurement as well as a pulse wave analysis with the Mobil O Graph (I.E.M., Stolberg, Germany 2009). We objectified the functional outcome after stroke on basis of the National Institute of Health stroke scale (NIHSS).

Results: In univariate analysis, we show that patients with a good early outcome after stroke have a significant lower PWV ($p = 0.027$). Central systolic blood pressure (cSBP), central diastolic blood pressure (cDBP), central pulse pressure and augmentation index were tendentially but not significantly lower in patients with good early outcome.

Conclusion: In ischemic stroke low aortic stiffness is associated with good early outcome. Patients with good early outcome had tendentially but not significantly lower cSBP and cDBP.

P93
RELATIONSHIP BETWEEN AORTIC PULSE WAVE VELOCITY AND MID CEREBRAL ARTERY PULSATILITY INDEX IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE; PILOT DATA FROM THE ARCADE STUDY

Mahfoudha Al Shezawi^{1,2}, John Cockcroft², Maggie Munnelly², Laura Watkeys², Nichola Gale¹, Barry McDonnell²