P150 Study of Hemodynamic and Macrocirculation Indices Between Uncontrolled Naïve Hypertensives and Well Controlled Diabetic Patients

Areti Triantafyllou, Nick Koletsos, Konstantina Dipla, Ioanna Zografou, Xristos Averinos, Stauros Papadopoulos, Alexandros-Savvas Zafeiridis, Stella Kritikou, Eugenia Gkaliagkousi, Andreas Zafeiridis, Stella Douma

Aristotle University of Thessaloniki, Greece

ABSTRACT

Introduction: Both Type II Diabetes mellitus (DM) and hypertension have been associated with an increased risk for cardiovascular disease and linked to impairments in micro- and macrocirculation. However, previous studies examining micro- and macrocirculation in DM mainly include patients with comorbid hypertension. Therefore, the aim of the study was to compare hemodynamic and vascular indices in DM and non-DM patients, independently of their hypertension status.

Materials and Methods: Fifty-seven DM patients and 79 non-DM participants were enrolled. Participants underwent physical examination, ambulatory BP monitoring and estimation of pulse wave velocity (PWV) and intima-media thickness (IMT). Resting hemodynamic parameters were assessed by impedance cardiography. Participants also performed a 3-min-submaximal isometric handgrip (30% MVC) with continuous beat-by-beat BP/HR assessment (Finapress). The double product (DP = systolic blood pressure × heart rate) during HG was calculated, as an index of myocardial stress.

Results: No differences were observed in age, BMI, and resting BP among groups. Patients with DM had significantly higher PWV and IMT ($p < 0.01$) but lower velocity (VI) and acceleration index (ACI) compared to non-DM individuals ($p < 0.05$). Hypertensives had significantly higher myocardial stress during exercise compared to normotensives, independently of the presence of diabetes.

Conclusion: Despite similar blood pressure levels in DM and non-DM groups, the DM patients had higher PWV and IMT than non-DM participants. There were no differences between patients with isolated adequately controlled DM or isolated hypertension in macrocirculation indices, suggesting a possible equal impact of the above diseases on the macrovascular network.

REFERENCES


© 2019 Association for Research into Arterial Structure and Physiology. Publishing services by Atlantis Press International B.V. This is an open access article distributed under the CC BY-NC 4.0 license (http://creativecommons.org/licenses/by-nc/4.0/).