

6th International Conference on

Biomarkers & Clinical Research

August 31-September 02, 2015 Toronto, Canada

A comprehensive approach for blood-derived biomarker assessment in pulmonary hypertension

Vasile Foris^{1,2}, Gabor Kovacs^{1,2}, Philipp Douschan^{1,2}, Horst Olschewski^{1,2}, Andrea Olschewski^{1,3}, Bahil Ghanim², Walter Klepetko³ and Alexander Avian³

¹Ludwig Boltzmann Institute for Lung Vascular Research, Austria

²Medical University of Graz, Austria

³Medical University of Vienna, Austria

Background: Apelin, TNF-like Weak Inducer of Apoptosis (TWEAK), and Growth Differentiation Factor-15 (GDF15) may be suitable for screening and prognostic evaluation in Pulmonary Hypertension (PH).

Patients & Methods: We performed a power analysis based on a pilot study in 10 IPAH patients, 10 CTEPH and 10 controls for apelin-12, -13, -17, -36, TWEAK and GDF-15, resulting in n=31 IPAH patients and 24 CTEPH patients needed for a prospective study assessing apelin-17 and GDF-15 as compared to matched controls to provide 80% power for detection of differences.

Results: Apelin-17 was increased in IPAH and in CTEPH as compared to control ($p < 0.0001$ CTRL vs. IPAH, $p < 0.001$ CTRL vs. CTEPH). In addition, GDF-15 was elevated both in IPAH and in CTEPH as compared to control ($p < 0.0001$ CTRL vs. IPAH, $p < 0.001$ CTRL vs. CTEPH). GDF-15 was correlated with NT-proBNP in both IPAH and CTEPH. Area under the ROC curve for apelin-17 and GDF-15 were similar with an AUC of 0.86 and 0.83 respectively. A cut-off value of 1480 pg/mL for apelin-17, detected IPAH with a sensitivity of 68% and a specificity of 93%. A cut-off value of 1270 pg/ml for apelin-17, detected CTEPH with a sensitivity of 71% and a specificity of 87%.

Conclusion: Among apelin isoforms, apelin-17 may be a promising biomarker for IPAH and CTEPH and performs similar to GDF-15. Both biomarkers may be relevant for both IPAH and CTEPH.

Biography

Vasile Foris obtained his MD from University of Medicine and Pharmacy 'Iuliu Hatieganu' Cluj-Napoca, Romania. He has been employed as a Junior Scientist at the Ludwig Boltzmann Institute for Lung Vascular Research in Graz, Austria, where he also joined the PhD Program "Molecular Medicine" of the Medical University of Graz. His research interests focused mainly on circulating progenitor cells as well as on clinically relevant blood-derived biomarkers for pulmonary hypertension. He is elected as a Clinical Fellow at the Department of Internal Medicine, Division of Pulmonology at the Medical University of Graz.

vasile.foris@medunigraz.at

Notes: