20 (20.6%) of them were permanent atrial fibrillation, 2 (2.1%) were persistent atrial fibrillation, 4 (4.1%) paroxysmal atrial fibrillation. 61.9% of them were women and 38.1% were men.

Out of 11 (11.3%) death cases in this period of time 6 (6.1%) patients were diagnosed with atrial fibrillation.

**Conclusion.** In this study at the time we can see correlation tendencies (p=0.078) between risk score for major bleeding HASBLED and early death risk in patients of 32nd ward (cardiological) in Riga Stradiņš University with diagnosed pulmonary embolism. Further investigation is needed. The rest of the results will follow in RSU International Student Conference in Health and Social Sciences 2015.

**PHARMACOKINETICS OF METFORMIN IN 21 HEALTHY PARTICIPANTS AFTER 500 MG SINGLE ORAL DOSE ADMINISTRATION**

**Authors:** Dainis Kalnacs¹, Linda Zaharenko², Ilze Konrade³, Aivars Lejnieks³, Valdis Pirags⁴, Dace Hartmane⁶, Solveiga Grinberga⁶, Osvalds Pugovics⁶, Janis Klovins²

¹Faculty of Medicine, Riga Stradiņš University, Riga
²Latvian Biomedical Research and Study Center, Riga
³Riga East Clinical University Hospital "Gailezers", Riga
⁴Department of Endocrinology, Pauls Stradiņš Clinical University Hospital, Riga
⁵Faculty of Medicine, University of Latvia, Riga
⁶Latvian Institute of Organic Synthesis, Riga

**Key words:** Metformin, Pharmacokinetics, LC-MS/MS

**Introduction.** Metformin is widely used drug to treat patients with type 2 diabetes mellitus (T2DM). To get the most beneficial results from therapy with metformin, it must have individualized prescription.

**Aims.** The aim of our study is to identify variability between individuals according to pharmacokinetic (PK) parameters of metformin in plasma, erythrocytes and urine, and use obtained data to individualize selection of antidiabetic therapy.

**Methods.** 21 healthy volunteers (6 men and 15 women, age range 22-49) were investigated after a single oral dose of 500mg of metformin (Metforal Berlin Chemie). For analysis of PK parameters venous blood and urine samples were taken in 7 time points up to 24 h after drug administration according to the study protocol (Ethical review Nr.201212-10L). All plasma,
urine and erythrocyte samples were stored at -20 C until determination of metformin by using liquid chromatography-tandem mass spectrometry (LC-MS/MS) assay.

Results. Especially for our study liquid chromatography-tandem mass spectrometry (LC-MS/MS) assay was developed and used to determine quantity of metformin in plasma, erythrocytes and urine. C\text{max} (maximum observed concentration) and t\text{max} (time point of observed C\text{max}) and AUC\text{0-24} (area under curve) were both obtained directly from the measured data. C\text{max/plasma}=395,55-1294,13 ng/mL (704,075±395,55), t\text{max/plasma}=1-3 h (2,15±0,91), AUC\text{0-24/plasma}=2631,9-9396,8 ng*h/mL (5157,9±1478). C\text{max/erytr.}=84,32-290,70ng/mL (158,5±61,2), t\text{max/erytr.}=6-10 h (9,6±1,2). C\text{max/urine}=66,42-1025,42 µg/mL (373,685±270,398), t\text{max/urine}=3-10 h (5,65±2,8). Serum creatinine = 73,67±11,73 µmol/L. AUC\text{0-∞}, (area under curve from time 0 extrapolated to infinite time), k (elimination rate constant), elimination half-life (t\text{1/2}), Vd (volume of distribution), Cl (clearance), bioavailability (F) were calculated by using standard equations. Results show great diversity of obtained pharmacokinetic parameters.

Conclusions. As results show variability between individuals according to PK parameters of metformin, the next step will be to combine results with gene variants coding metformin transporters to identify novel markers of metformin individualized therapy.

CLINICAL OUTCOMES ONE YEAR AFTER CAROTID ARTERY STENTING

Authors: Evija Knoka\textsuperscript{1}, Deniss Vasiljevs\textsuperscript{2}
Co-authors: Andrejs Ērglis\textsuperscript{3}, Andis Dombrovskis\textsuperscript{3}, Dace Sondore\textsuperscript{3}, Kārlis Štrenge\textsuperscript{3}, Kristīne Būmeistere\textsuperscript{3}
Scientific research supervisor: Kārlis Trušinskis\textsuperscript{3}

\textsuperscript{1} Riga Stradins University, Faculty of Medicine, Latvia
\textsuperscript{2} Daugavpils Hospital, Latvia
\textsuperscript{3} Latvian Centre of Cardiology, Pauls Stradins Clinical University Hospital, Riga, Latvia

Key words. angioplasty, carotid arteries, stenosis, stroke, revascularization

Introduction. Atherosclerotic lesions in coronary arteries are frequently accompanied by lesions in other vascular beds including carotid arteries. Although historically carotid endarterectomy was considered as the gold