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# Cardiovascular diseases

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The research of cardiovascular diseases at the faculties of Charles University has a long tradition. In 1930, Otto Klein from the Faculty of Medicine in Prague published his unique cardiac output measurement results in 11 patients. It was the world's first diagnostic cardiac catheterisation in human medicine. The tradition continues today – the invasive cardiology area, including hemodynamic and therapeutic catheter interventions is still the most successful area of cardiovascular research at CU. The highest distinction of the European Society of Cardiology in 2014 – the Gold Medal was awarded to Petr Widimský for his research results in the field of transcatheter treatment of myocardial infarction. Other areas of research of cardiovascular diseases at all Five Faculties of Medicine of the CU include:

treatment and imaging techniques in coronary heart disease, cardiomyopathy and myocarditis, pulmonary hypertension, peripheral vascular disease, heart failure, arterial hypertension, preventive cardiology, invasive diagnostics and therapy, physiology and pathophysiology of pulmonary circulation, acute coronary syndromes and thrombosis, reperfusion therapy of acute strokes, new technologies in interventional cardiology, surgical and interventional treatment of arrhythmias and new biological markers and prognostic factors and pharmacological and non-pharmacological treatment.

The research thus effectively covers the entire spectrum of cardiovascular diseases, and all CU Faculties of Medicine are involved, which cooperate on many projects (e.g. the internationally unique series of clinical trials "PRAGUE").

## Selected outputs

- Widimsky P, Koznar B, Peisker T, Vasko P, Vavrova J, Stetkarova I. Direct catheter-based thrombectomy in acute ischaemic stroke performed collaboratively by cardiologists, neurologists and radiologists: the single-centre pilot experience (PRAGUE-16 study). *EuroIntervention*. 2014 Nov;10(7):869-75.
- Rosa J, Widimský P, Toušek P, et al. Randomized comparison of renal denervation versus intensified pharmacotherapy including spironolactone in true-resistant hypertension: six-month results from the prague-15 study. *Hypertension*. 2015 Feb;65(2):407-13
- Kočka V, Malý M, Toušek P, Buděšínský T, Lisa L, Prodanov P, Jarkovský J, Widimský P. Bioresorbable vascular scaffolds in acute ST-segment elevation myocardial infarction: a prospective multicentre study 'Prague 19'. *Eur Heart J*. 2014 Mar;35(12):787-94
- Budera P, Straka Z, Osmančík P, Vaněk T, Jelínek S, Hlavička J, Fojt R, Červinka P, Hulman M, Šmíd M, Malý M, Widimský P. Comparison of cardiac surgery with left atrial surgical ablation vs. cardiac surgery without atrial ablation in patients with coronary and/or valvular heart disease plus atrial fibrillation: final results of the PRAGUE-12 randomized multicentre study. *Eur Heart J*. 2012 Nov;33(21):2644-52. (IF 10,478)
- Veselka J, Krejčí J, Tomašov P, Zemánek D. Long-term survival after alcohol septal ablation for hypertrophic obstructive cardiomyopathy: a comparison with general population. *Eur Heart J* 2014;35:2040-5.
- Stěrba M, Popelová O, Vávrová A, Jirkovský E, Kovaříková P, Geršl V, Šimůnek T. Oxidative stress, redox signaling, and metal chelation in anthracycline cardiotoxicity and pharmacological cardioprotection. *Antioxid Redox Signal*. 2013 Mar 10;18(8):899-929. doi: 10.1089/ars.2012.4795. IF 7,667