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# **The Intermittent Percutaneous Occlusion of the Coronary Sinus in a Patient with ST-Elevation Acute Coronary Syndrome without Hemodynamically Significant Atherosclerotic Coronary Lesions (A Clinical Case)**

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New ways of adequate antegrade blood flow restoration in the coronary arteries of patients with ST-elevation acute coronary syndrome (STEACS) without hemodynamically significant atherosclerotic coronary lesions have been insufficiently studied. A clinical case of a patient with STEACS without hemodynamically significant coronary lesions and slow antegrade blood flow in the left anterior descending artery (LAD) is described. The patient underwent a percutaneous intermittent occlusion of the coronary sinus for 10 minutes using the balloon catheter in the “inflation-deflation” mode. The procedure had a direct positive effect on coronary hemodynamics manifested as resolution of distal coronary spasm, improvement of myocardial perfusion and restoration of adequate antegrade flow in the LAD.

**Key words:** acute coronary syndrome, ST-segment elevation, native coronary arteries, intermittent occlusion of the coronary sinus, peripheral vasospasm.

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# The Results of Delayed PCI After Thrombolytic Therapy with Indirect Signs of Effectiveness in Elderly Patients with Acute Myocardial Infarction

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The retrospective study was aimed at the investigation of the results of delayed PCI after thrombolytic therapy with indirect signs of effectiveness in elderly patients ( $\geq 75$  years) with acute myocardial infarction. The authors conclude, that the delayed PCI appropriately performed in patients  $\geq 75$  y.o. with acute myocardial infarction who underwent thrombolytic therapy and had indirect ECG signs of coronary reperfusion is relatively safe intervention but its benefit requires additional confirmation.

**Key words:** myocardial infarction, myocardial reperfusion, thrombolysis, PCI, pharmacoinvasive reperfusion, elderly.

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# Hybrid Myocardial Revascularization in Multivessel Coronary Disease. The State of Art

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This article deals with the issue of hybrid coronary surgery, its role in surgical treatment of patients with multivessel coronary disease and stable CHD. The literature data comparing hybrid myocardial revascularization with coronary artery bypass grafting and percutaneous coronary intervention are presented.

**Key words:** hybrid myocardial revascularization, percutaneous coronary intervention, coronary artery bypass grafting.

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## **Interventional Treatment of a Patient with Acute Myocardial Infarction and Cerebrovascular Accident: Two Diseases – One Operating Room**

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The possibility of managing the patients with cerebrovascular accidents with the use of interventional techniques by endovascular surgeons who specialize in emergency cardiological care.

**Key words:** management of cerebrovascular accident, endovascular surgery, thrombus extraction.

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# Our First Experience with Prostatic Artery Embolization via Transradial Access

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The clinical case of successful prostatic artery embolization via transradial access is presented. The main advantages of this vascular access compared to transfemoral access are described.

**Key words:** prostatic artery embolization, transradial access, transfemoral access, benign prostatic hyper-plasia.

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# Prevalence, Determinants and Prognostic Value of Contrast-induced Acute Kidney Injury after Primary Percutaneous Interventions

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**Purpose of study:** to determine the incidence, the predictors and prognostic value of contrast-induced acute kidney injury (CIAKI) in patients with ST-elevation acute coronary syndrome (STE-ACS) after primary percutaneous coronary intervention.

**Material and methods.** CIAKI incidence was estimated using KDIGO 2012 criteria in 216 patients who were admitted to the hospital with STE-ACS and received PPCI (mean age  $64 \pm 13$  years, arterial hypertension in 90%, history of MI in 27%, chronic kidney disease in 7%, diabetes mellitus type 2 in 21%). Logistic regression analysis was used to determine predictors of CIAKI. Patient prognosis was evaluated after 30 days and 12 months using telephone inquiry.

**Results.** CIAKI was diagnosed in 43 patients (20%); stage I in 81% and stage II in 19%. Patients with CIAKI were older ( $69 \pm 13$  and  $63 \pm 12$  years,  $p < 0.01$ ), their baseline serum creatinine level was higher ( $104 \pm 31$  and  $87 \pm 22$   $\mu\text{mol/l}$ ,  $p < 0.001$ ) as were the amount of contrast medium (CM) ( $282 \pm 94$  ml and  $236 \pm 85$  ml,  $p < 0.05$ ) and CM volume to glomerular filtration rate (GFR) ratio ( $4.02 \pm 2.15$  and  $2.32 \pm 1.08$ ,  $p < 0.05$ ), and left ventricle ejection fraction (LVEF) was lower ( $37 \pm 10$  and  $41 \pm 14\%$ ,  $p < 0.05$ ). Following independent predictors of CIAKI were revealed (listed according to their importance): CM volume to GFR ratio  $\approx 5.3$ , chronic kidney disease (CKD), in-hospital admission of nephrotoxic antibiotics, baseline GFR  $\bullet 56.6$  ml/min/1.73m<sup>2</sup>, in-hospital admission of loop diuretics, multivessel disease, LVEF  $\bullet 39.5\%$ , CM volume  $\approx 250$  ml, baseline serum creatinine level  $\approx 114$   $\mu\text{mol/l}$ , age  $\approx 65.5$  years, in-hospital admission of mineralocorticoid receptor antagonists. CIAKI was associated with adverse outcomes: higher 30-days mortality (10 and 3%), higher readmission rate due to cardiovascular diseases (66 and 46%).

**Key words:** contrast-induced acute kidney injury, ST-elevation acute coronary syndrome, primary percutaneous coronary intervention.

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## Acute Left Ventricular Failure in Patients with Type 2 Diabetes Mellitus

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The article presents a literature review on the prevalence, pathogenesis, and treatment of myocardial infarction (MI) complicated by acute left ventricular failure (ALVF) in patients with type 2 diabetes mellitus (T2DM).

Diabetes mellitus contributes to reduction of myocardial contractility. Myocardial remodeling in T2DM is affected by combination of factors associated with diabetic cardiomyopathy, reduction of the metabolic activity of cardiomyocytes, insufficient glucose transport into cells, endothelial dysfunction, diabetic macro- and microangiopathy, myocardial fibrosis leading to disruption of left ventricle filling and development of ALVF. Modern pharmacological agents and interventions for MI increase the life span and improve the quality of life of T2DM patients. However, MI is complicated with ALVF 3 times as frequently and mortality related to acute MI is 2 times higher in T2DM patients compared to non-T2DM patients.

**Key words:** type 2 diabetes mellitus, acute myocardial infarction, acute left ventricular failure.

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## Complications After Stenting of the Aortic Arch Arteries (Review)

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Stenting of the aortic arch arteries is an effective option for primary prevention of ischemic stroke. However, the complications may develop during intervention or after it as for any other surgical intervention. The article reviews various complications related to stenting of the aortic arch arteries, methods of their prevention, diagnosis, and treatment.

**Key words:** complications of stenting of the aortic arch arteries; hypotension, bradycardia; cerebral arterial spasm; subarachnoid hemorrhage; brain hyperperfusion syndrome; distal embolism; contrast-induced encephalopathy, carotid artery rupture.

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