



## CASE REPORT

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# Advantages of Percutaneous Coronary Intervention in Relation to Medication Therapy in Patients with Stable Angina Pectoris (Three-Wessel Coronary Disease)

## ABSTRACT

Patient, a man, age of 66 years, was admitted to the Internal Department, Interventional Cardiology Department for chest pains by type of stable angina pectoris. CCS II. In ambulatory conditions he was made non-invasive diagnostics, and after a positive ergometric test, a decision was made that the patient be admitted to the catheterization hall for invasive diagnosis and possible percutaneous coronary intervention.

**Key words:** angina pectoris, coronary disease, percutaneous coronary intervention, interventional cardiology, case report

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## Introduction

Three randomized studies compared PCI with medication treatment. The ACME study<sup>1,2</sup> is planned to evaluate whether PCI is better than optimal pharmacological therapy for alleviating angina in patients with the disease of one and two coronary arteries. PCI previously relieved angina more thoroughly than medicament therapy and was associated with better effort and / or less ischemia in the load test.<sup>1</sup> Some early beneficial effects of PCI in patients with single-headed coronary disease have been maintained, which makes it an attractive therapeutic option in such patients.<sup>2</sup> The ACIPO study<sup>3</sup> is targeted to patients with severe daily ischemia. At the 48-hour Holter ECG, patients had an ischemic effort and at least one episode of silent ischaemia. Two years after randomization, total mortality was significantly reduced, from 6.6% in the angina-guided strategy to 4.4% in

ischemic strategy and 1.1% in the revascularization strategy.<sup>4</sup> (Recommendations for PCI in the treatment of objective extensive ischaemia: IA). However, in patients with no symptoms or with mild symptoms, the situation is different, with poor probability of improvement with PCI, as demonstrated in the AVERT study.<sup>5,6</sup> After 18 months, 13% of patients in whom aggressively lowered lipids had episodes of ischemia, in conjunction with 21% of patients undergoing planned PCI. This difference was initially statistically significant, but it lost significance in a later analysis. There are two major limitations of AVERT experiment: (I) Comparison of pharmacological therapy and PCI is not adequate, as more aggressive hypolipemic therapy is used in the pharmacological part; stenting was done in only 30%, and restenoses that require re-intervention are more likely to be in the PCI group than in conservatively treated patients. (II) AVERT did not

show the anti-ischemic effect of the statin but showed that statins can prevent acute coronary events. RITA-2 was a randomized experiment in which long-term effects of PCI and conservative (pharmacological) treatment of patients with CAD suitable for another therapeutic option were compared.<sup>7</sup> After a median follow-up of 2.7 years, in 6.3% of patients treated with PCI, myocardial infarction or myocardial infarction occurred, as opposed to 3.3% of patients under medication therapy ( $P = 0.02$ ). On the other hand, PCI has been associated with greater symptomatic improvement, especially in patients with severe angina. However, RITA-2 can not be applied to today's modern PCI. Only 7.6% of patients received stents. The study did not mention ticlopidine, clopidogrel, or GP IIb/IIIa inhibitors. The meta-analysis of randomized controlled experiments found that PCI could significantly reduce angina compared to pharmacotherapy, although experiments did not include enough patients for an informative assessment of the effect of PCI on myocardial infarction, death, or later revascularization.<sup>8</sup> Regardless of involvement in invasive or pharmacological treatment (study TIME) and the administration of at least two antianginos anti-angina drugs, the long-term survival of patients aged 75 or over, in the class of angina II or higher toward the Canadian Cardiac Society (CCS), was similar. Benefits of both types of treatment in relation to angina alleviation and improvement of quality of life were present, but non-fatal events were more frequent in patients under medical therapy. Regardless of whether patients were catheterized at the beginning or only after failing pharmacotherapy, survival was better when they were revascularized in the first year.<sup>9</sup> Expenses should not be an argument against invasive treatment of elderly patients with chronic angina.<sup>10</sup>

### Case Report

Patient, a man, age of 66 years, was admitted to the Internal Department, Interventional Cardiology Department for chest pains by type of stable angina pectoris. CCS II. In ambulatory conditions he was made non-invasive diagnostics, and after a positive ergometric test, a decision was made that the patient be admitted to the catheterization hall for invasive diagnosis and possible percutaneous coronary intervention. EHO heart: Ao root 35 mm, AR 1+, LPK 42 mm, EDD 52 mm, ESD 29 mm, IVS 11 mm, PW 11 mm, EF 60%, MR 1-2 +.

Ergometry: the physical load test was interrupted in the third minute of grade III due to fatigue and angina pain with the achieved SMF. During the test registered ST depression of 3mm in left overdrive and ST elevation in aVR outflow. Earlier it was treated with a mild form of hypertension and hypercholesterolemia. Positive family history.

### Finding Coronarography: Right Radial Approach:

LCA: LM: correct deviation, direction, lumen, no stenosis, divides into LAD and LCx. LAD: correct deviation, direction, proximal in the long segment narrowed by tubular stenosis of about 95%, distal stenosis about 50%. LCx: the correct deviation, direction, gives OM1 a branchless limb, the OM2 branch that is proximal narrowed about 60-70% (tandem lesion) and the OM3 (PD) branch is proximal subcoded to 99%. (Figure 1). RCA: correct deviation, direction, lumen, no stenosis, minor. (Figure 2). (LCA-left coronary artery, LAD-anterior descending artery, LCx-circumflex artery, OM-obtuse marginal artery, PD-posterior descending, RCA-right coronary artery.

**Figure 1. RAO CAUD (subcooled LAD with stenoses on OM2 and OM3 branches)**



**Figure 2. LAO CAUD (Right coronary artery minor)**



PCI SYNTAX Score II: 23.0; PCI 4 year mortality 3.8%. CABG SYNTAX Score II: 25.3; CABG 4 year mortality 4.6%.

**Figure 3.** Implanted stent DES Orsiro 3.0x35mm and BMS 3,5x15mm over-lap technique with stenoses on OM2 and OM3 branches



**Figure 4.** Implanted stents BMS Integrity 2.5x18mm in OM3 (PD) branch and stent DES Resolute integrity 2.5x22mm in the direction of the OM2 branch



Percutaneous coronary intervention of LAD, OM2 and OM3: given by Heparin a 8000 i.j.i.a. Installed guiding catheter EBU 3.75 from 6fr to ostium LCA.

PCI LAD: Placed guidewire Runtrough floppy in the direction of Dg branch as protection and guidewire BMW to the periphery of LAD. Stenosis predilatation, SC Pantera balloon 2,0x20mm insufflation to 14atm and balloon NC Sprinter 2,5x15mm insufflation up to 16atm. Implanted stent DES Orsiro 3.0x35mm insufflation to 14 atm. Proximally implanted stent over lap by BMS Integrity 3.5x15mm insufflation to 16atm. After that, POT technique was made, balloon of BMS stent insufflation to 18atm and postdilatation of over lap with insufflation of up to 18atm. (Figure 3).

PCI OM3: Replaced guidewire BMW in PD direction and Direct technique implanted BMS Integrity stent 2,5x18mm insufflation to 18atm.

PCI OM2: Placed guidewire Runtrough floppy in the direction of OM2 branch and Direct technique implanted stent DES Resolute integrity 2.5x22mm insufflation to 16atm. Final result without residual stenosis, without dissection with TIMI flow III. (Figure 4).

### Conclusion

The patient was admitted to the catheterization hall due to chest pains by the type of stable angina pectoris with a positive physical fatigue test. After percutaneous coronary intervention, the patient was discharged to a home without symptoms and electrocardiographic signs of ischemia with a proposal to continue treatment with medication (dual antiaggregation therapy and high dose statins). At the checkup, after a month and six months, the patient still has no problems with the proposal to continue the prescribed therapy for one year. The aim of the case is to indicate the significance of percutaneous coronary intervention in patients with stable angina pectoris versus drug therapy. The procedure must be gradual and carefully planned. Conclusion based on the literature and the case itself, a patient with a clinical picture has stable angina pectoris and well-performed non-invasive diagnostics, they discover with significant coronary artery stenosis. Consequently, the performance of PCIs in such patients can be considered as a more effective treatment method than a medical treatment due to a reduction in the symptoms itself and the development of consequent ischemic cardiac insufficiency.

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## Prednosti perkutane koronarne intervencije u odnosu na medikamentoznu terapiju kod pacijenata sa stabilnom anginom pektoris (trosudovna koronarna bolest)

### SAŽETAK

**Uvod:** Cilj ovog rada je prikazati postupak perkutane koronarne intervencije kod pacijenata sa stabilnom anginom pektoris i njene prednosti, s obzirom da se ne preporučuje rutinska PCI kod pacijenata sa stabilnom anginom prema važećim preporukama, dobijenih na osnovu velikih randomizovanih studija, koje će kroz rad biti opisane.

**Prikaz slučaja:** U Pacijent, muškarac, životne dobi od 66 godina, primljen je na Interno odeljenje, odsek za Interventnu kardiologiju zbog bolova u grudima po tipu stabilne angine pektoris. CCS II. U ambulantnim uslovima mu je učinjena neinzvazivna dijagnostika, te nakon pozitivnog ergometrijskog testa, donešena je odluka da se uradi invazivna dijagnostika i eventualna PCI. PCI SYNTAX Score II: 23,0; PCI četvorogodišnji mortalitet 3,8%. CABG SYNTAX Score II: 25,3; CABG četvorogodišnji mortalitet 4,6%. Koronarografija: LCA: LM: pravilnog odstupa, pravca, lumena, bez stenoz, račva se na LAD i LCx. LAD: pravilnog odstupa, pravca, proksimalno u dužem segmentu sužena tubularnom stenozom oko 95%, distalno stenoz oko 50%. LCx: pravilnog odstupa, pravca, daje OM1 granu koja je bez suženja, OM2 granu koja je proksimalno sužena oko 60-70% (tandem lezija) i OM3 (PD) grana je proksimalno subokludirana 99%. RCA: bez stenoz, minorna. PCI LAD: Implantiran stent DES Orsiro 3,0x35mm insuflacijom do 14 atm. Proksimalno implantiran stent over lap tehnikom BMS Integrity 3,5x15mm insuflacijom do 16atm. Nakon toga, urađen POT tehnika, balonom od BMS stenta insuflacijom do 18atm i postdilatacija over lap-a insuflacijom do 18atm. PCI OM3: Replasiran guidwire BMW u pravcu PD grane i Direct tehnikom implantiran stent BMS Integrity 2,5x18mm insuflacijom do 18atm. PCI OM2: Plasiran guidwire Runtrough floppy u pravcu OM2 grane i Direct tehnikom implaniran stent DES Resolute integrity 2,5x22mm insuflacijom do 16atm. (LCA-leva koronarna arterija, LAD-prednja descendenta arterija, LCx-cirkumfleksna arterija, OM- optuzna marginalna arterija, PD- zadnja descendenta arterija, RCA-desna koronarna arterija).

**Zaključak:** Procedura mora biti postupna, pažljivo planirana i da tek nakon inicijalne i dobre neinvazivne dijagnostike, se treba pristupiti odluci o perkutanoj koronarnoj intervenciji. Značajan stepen stenoz na koronarnim arterijama i tegobe koje pacijent ima su presudne u odluci o izvođenju PCI. Ako se pažljivo izvodi, PCI se i dalje može smatrati dragocenom tehnikom kod odabranih pacijenata u odnosu na samu medikamentoznu terapiju.

**Ključne riječi:** angina pektoris stabilis, perkutana koronarna intervencija, medikamentozna terapija