

M-01

Assessment of outcomes for percutaneous transluminal angioplasty for peripheral artery disease in the lower extremities

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OBJECTIVE: To assess the outcome of percutaneous transluminal angioplasty (PTA) for peripheral artery diseases of lower extremity. **METHODS and RESULTS:** During February 3, 2000 and November 9, 2004, 90 patients (115 lesions) underwent PTA for lower extremities in our hospital. Among them, 38 patients (64 lesions) with follow-up angiography were included in our study. Patient characteristics were 37 male (97.4%), 68.0 ± 10 years old, diabetes mellitus;40%, hypertension;62.0%, hypercholesterolemia;38%, current smokers;54.1%, obese;7.9%, and multivessel disease;55.3%. Ten % of the lesions were classified as Fontaine III or IV. Treatment strategy was as follows; POBA alone; 28.1%, stenting alone; 15.0%, stenting after pre-dilatation; 56.9%, and thrombectomy; 10.8%. In all of the lesions, target lesion revascularization (TLR) rate was 25.0%, restenosis rate was 28.6%. TLR and restenosis rate in chronic total occlusions was 44.4%. TLR rates of common iliac artery, external iliac artery, superficial femoral artery and popliteal artery were 18.2, 33.3, 29.2, and 50.0%, respectively. **CONCLUSION:** TLR rate after PTA for lower extremities was relatively high, especially for small arteries. New devices such as drug-eluting stents are considered to be necessary to improve the prognosis of PTA for lower extremities.

M-02

Initial results of peripheral intervention in our hospital

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Objectives: We analyzed the initial results and complications of peripheral intervention (PI) procedures during four years in our hospital. Methods: We performed 57 procedures of PI in 54 patients during 4 years in Saiseikai Saijo Hospital. These 57 procedures consisted of 29 iliac artery lesions, 21 femoral artery lesions, three below the knee lesions, two subclavian artery lesions, one brachial artery lesion, and one abdominal aorta lesion. We analyzed the initial success rate and complications of these 57 procedures. Results: 1) initial success rate was 91% (52/57), 2) the failure of wire cross in the CTO lesions was found in 4/5 lesions, 3) stents were implanted in 89% of iliac lesions, 26% of femoral lesions, 33% of BK lesions, and 50% of subclavian lesion., 4) major complications, such as perforation/death/emergency surgery was not recognized, 5) restenosis rate at 6 mo was 4% in iliac lesions and 68% in femoral artery lesions, 6) PI in patients with severe ischemic limbs was 6%. Conclusions: The PI in iliac artery lesions is acceptable in our hospital, but high restenosis rate in femoral artery and BK lesions was an important problem. It is possible to perform PI safely in our hospital without vascular surgeons if case selection.

M-03

Clinical results of percutaneous transluminal angioplasty (PTA) for peripheral artery disease in the lower extremities

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<Purpose> To evaluate the clinical outcome of PTA at the initial time and middle-term for peripheral artery disease in the lower extremities.

<Methods> From August 2003 to July 2005, PTA was performed in 86 patients (67 male, aged 70 ± 9 years, HT 87%, DM 58%, HLP 56%, smoking 31% HD 15%), 175 lesions. We have examined each parts -iliac artery (IA ,62 lesions) and superficial femoral artery (SFA, 97 lesions)- about the following factors. Initial success rate, TASC type, ABI (ankle-brachial pressure index) and Fontaine classification score (pre-procedure, immediate after PTA and chronic phase at 6 months), procedural complications and major complications.

<Results>Initial success rate was 100% in TASC type A, B and C lesions in both group, and in the cases of TASC type D, it was 86% (5/6 lesions) in IA group and 80% (20/25 lesions) in SFA group. Changes in ABI (pre-procedure, post procedure and 6 months later) in IA group were 0.71 ± 0.16 , 0.90 ± 0.18 and 0.87 ± 0.25 and in SFA group were 0.72 ± 0.17 , 0.95 ± 0.13 , 0.94 ± 0.13 . In the all successful cases, the Fontaine class was better, but 3 patients in IA group and 4 patients in SFA group got worse at 6 months after, and needed TLR. There was no major initial complication- death, amputation and emergency bypass- and 1 patient in SFA group was done bypass surgery in chronic phase.

<Conclusion>The success rate of PTA for iliac artery or femoral artery was acceptable. And it seemed that PTA was the safety and effective method for peripheral artery disease.

M-04

Comparison of hemodynamic and clinical outcomes between plain old balloon and cutting balloon angioplasty in severe diabetic critical limb ischemia

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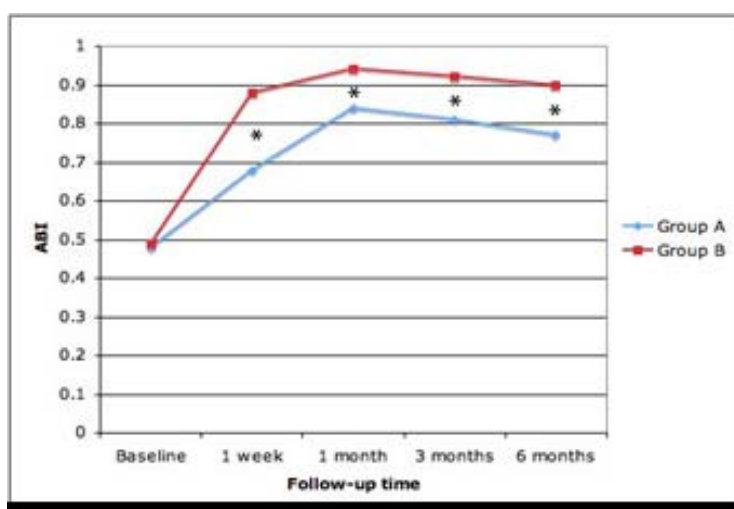
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[Purpose] To investigate the hemodynamic and clinical outcomes between plain old balloon angioplasty (POBA) and cutting balloon angioplasty (CBA) in diabetic patients with critical limb ischemia (CLI).

[Methods] Nineteen patients with 19 limbs and 62 arteries underwent POBA and 14 patients with 17 limbs and 63 arteries received CBA. Hemodynamic measurements were evaluated by ankle-brachial index (ABI) and duplex ultrasound.

[Results] The success rate of angioplasty was not different (83% vs. 93%, $p=0.096$) in both groups, but CBA had a higher optimal result (35% vs. 63%, $p=0.007$) and a lower rate of vessel dissection (92% vs. 57%, $p<0.001$) than POBA. The ABI after intervention was significantly higher in CBA. The limb salvage rate at one year was similar (67% vs. 76%, $p=0.296$), but POBA had a higher restenosis rate (27% vs. 10%, $p=0.027$) and toe amputation rate (53% vs. 6%, $p=0.009$).

[Conclusion] In diabetic patients with CLI, CBA achieved more hemodynamic improvement, lower vessel dissection, lower restenosis and toe amputation rates as compared to POBA.



M-05

Chronic mesenteric ischemia patient successfully treated by percutaneous transluminal angioplasty

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Chronic mesenteric ischemia is an unusual but important cause of abdominal pain. Although this condition accounts for only 5% of all intestinal ischemia, it can have significant clinical consequence with overall 40% mortality rate. We experienced a case of chronic mesenteric ischemia with successfully treated by percutaneous transluminal angioplasty (PTA). A 75-year-old woman was referred to our hospital because of worsening postprandial abdominal pain over 6 months. Abdominal echo and CT revealed decreased mesenteric arterial flow and abdominal angiography confirmed 90% stenotic lesion of proximal supra mesenteric artery. We diagnosed the case as chronic mesenteric ischemia presenting abdominal angina and decided immediate angioplasty. We performed stent implantation (LUMINAXX 7mm) after pre-dilation with SYNERGY 4.0mm Balloon using 8F Guiding catheter RDC1. The procedure finished successfully and she no longer had abdominal pain after that. Despite chronic mesenteric ischemia has often been considered to need surgical operation, we conclude that it could be treated by PTA.

M-06

Stenting with an Easy Wallstent in a patient with acute superior mesenteric artery occlusion.

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PURPOSE: We reported a case of acute thrombotic superior mesenteric artery(SMA) occlusion in a 68-year-old man with acute myocardial infarction treated with percutaneous coronary intervention(PCI). At 3 days after PCI, the patient experienced an episode of bloody diarrhea with abdominal pain and tenderness. **METHODS AND RESULTS:** An emergent abdominal computed tomographic scan showed signs of thrombosis of the proximal SMA. An angiogram revealed a significant thrombotic occlusion of the proximal SMA. After removal of fresh thrombus from SMA using Thrombuster, residual atherosclerotic stenosis remained. An Easy Wallstent was deployed percutaneously, restoring adequate luminal dimension and blood flow. At 25 months follow-up, the patient was free of symptoms and angiogram revealed a patent SMA stent. **CONCLUSION:** This case shows that thrombus aspiration and percutaneous transluminal angioplasty and stent placement can be useful in the treatment of acute thromboembolic occlusion of the proximal SMA.

M-07

Effect of two different neuroprotection systems on microembolization during carotid artery stenting

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[Purpose] Despite the introduction of cerebral protection systems, neurological complications during carotid artery stenting (CAS) cannot completely be prevented. Transcranial Doppler (TCD) and the detection of microembolic signals (MES) may aid in assessing the efficacy of different neuroprotection systems.

[Methods] 42 patients with internal carotid artery stenoses were treated by CAS using either a filter device (E.P.I. FilterWire™, Boston Scientific, USA) (n=21) or a proximal endovascular clamping device (MO.MA-system, Invatec, Italy) (n=21). MES counts were compared during five phases: placement of the protection device, passage of the stenosis, stent deployment, postdilation and retrieval of the protection device.

[Results] There were no significant differences in clinical or angiographic outcomes between the 2 groups. Compared to the filter device, the MO.MA-system significantly reduced the MES counts during the procedural phases of wire-passage of the stenosis, stent deployment, postdilation and in total (MES counts for the filter device were 25 ± 22 , 73 ± 49 , 70 ± 31 and 196 ± 84 during the three phases and in total, MES counts for the MO.MA-system were 1.8 ± 3.2 , 11 ± 19 , 12 ± 21 and 57 ± 41 respectively; $p < 0.0001$).

[Conclusion] In comparison to a filter device the MO.MA-system led to significantly lower MES counts during CAS. The detection of MES by TCD may facilitate the evaluation and comparison of different neuroprotection systems.

Sequential hybrid carotid and coronary artery revascularization

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[Background]The incidence of adverse events following combined coronary artery bypass grafting (CABG)-carotid endarterectomy (CEA) procedures is significantly higher than the single interventions. Staged procedures have the advantage to reduce risks by addressing first the more unstable and symptomatic vascular bed. Yet, management of simultaneous coronary and carotid disease remains controversial. Aim of this study is to assess technical feasibility of sequential hybrid carotid artery stent implantation (CAS) and CABG.

[Methods]Between February 2004 and May 2005, 38 (7.5%) out of 500 coronary patients referred for CABG had significant carotid disease confirmed by ultrasonography and angiography. Of these we selected 16 patients (12 males, mean age 70 ± 9.5 years, mean Euroscore 7 ± 1), considered at high risk either for combined or staged CABG-CEA procedures. All patients, after preoperative brain CT-scan and two-day pre-treatment with Aspirin 100 mg/die, underwent CAS with distal filter protection under full heparinization. Immediately after CAS, all patients were submitted to CABG. Clopidogrel (300 mg as a loading dose, then 75 mg daily for one month) was started in the Intensive Care Unit, 6 hours after CABG or at the end of significant (>50 ml/hour) surgical bleeding.

[Results]All patients underwent successful CAS+CABG with no in-hospital mortality, stroke, myocardial infarction. All patients were discharged after sonographic demonstration of stent patency and unchanged brain CT-scan.

[Conclusion]For patients at high surgical risk for both staged and combined CABG+CEA, a same-day sequential hybrid procedure seems quite a safe option with less surgical trauma. Preliminary results appear at least comparable to conventional surgical strategies.

M-09

Short- & long-term results of percutaneous transluminal angioplasty for dysfunctional hemodialysis shunts

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Purpose: The purpose of this study was to evaluate the short-term and long-term results of percutaneous transluminal angioplasty (PTA) for dysfunctional hemodialysis shunt. **Methods:** From July 1994 to January 2005, eighty-eight PTA procedures were performed without stent for 34 hemodialysis shunts in 31 patients. **Results:** There was no life threatening complication during procedures. The initial success rate was 91.2%. All of the three failed cases were diabetic. Acute occlusion occurred only in one case several hours after successful procedure during shunt compression due to bleeding. Including the failed cases, primary patency rates at 1, 2, 3, and 5 years were 42.9%, 39.3%, 34.9%, and 27.9%, respectively. With repeated PTA, secondary patency rates at 1, 2, 3, and 5 years were 64.2%, 60.1%, 55.1%, and 47.2%, respectively. In diabetic cases secondary patency rates were significantly lower than those in non-diabetic cases. In a diabetic case, which had had 8 surgical shunt revisions before the initial PTA, 41 PTA procedures were performed for the same shunt, and it remained patent during 10 years. In cases that had already experienced shunt failure and shunt revision, primary and secondary patency rates were significantly lower than those had not. **Conclusions:** PTA is a safe and effective treatment for dysfunctional hemodialysis shunt. Even though the patency after initial PTA is not sufficient, especially in diabetic cases, repeated PTA is a choice of treatment, as well as surgical revision.