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Carotid Artery Back Pressure and Cerebral Intolerance During the Occlusion in Carotid Stenting with the Mo.Ma Proximal Embolic Protection Device

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Introduction: The Mo.Ma proximal embolic protection system provide neuroprotection during all phases of the carotid artery stenting (CAS) procedure. However, cerebral intolerance is not an infrequent occurrence with this approach. In most of the cases, intolerance is a benign phenomenon which resolves quickly. However, in some cases, the symptoms may persist and this requires further action. There is no much information about relationship between procedural cerebral intolerance and carotid back pressure during the occlusion. Here, we report our experience about this relationship in 25 patients undergoing CAS with the Mo.Ma device.
Method: During the procedure, cerebral protection was achieved by means of balloon occlusion of the common and external carotid artery with a Mo.Ma System. The patients' neurologic status was assessed during the intervention. The blood pressure at the carotid bifurcation was measured before the onset of carotid balloon occlusion. Afterwards, carotid back pressures at the carotid bifurcation were measured immediately after the occlusion of carotid balloon and immediately before the deflation of carotid balloon during the procedure.
Results: The procedure was technically successful in all cases. No strokes, deaths, or myocardial infarctions occurred. The average duration of carotid occlusion was 8.2 minutes. The blood pressure measured in the carotid artery was on average 130±27 mm Hg before the onset of carotid balloon occlusion. Carotid artery back pressure was 53±15 mm Hg immediately after occlusion of the carotid balloon. Of the 25 patients, 4 patients (16%) experienced cerebral intolerance. The patients with cerebral intolerance demonstrated back pressures of 20, 25 and 21and 20 mmHg, respectively. Mean carotid artery back pressure was 21.5±2 mmHg in these patients during the occlusion and back pressures continued to fall at the end of occlusion (18±5 mmHg) (immediately before the deflation of carotid balloon). However, in the patients without cerebral intolerance, mean carotid back pressure was 53±15 mm Hg and back pressure did not change significantly at the end of occlusion (immediately before the deflation of carotid balloon). As expected, the carotid back pressure was under 30 mmHg in the patients developing symptoms during the occlusion. However, 4 asymptomatic patients had also a distal back pressure under 30 mmHg during the occlusion.
Conclusion: One of the most important concerns with the use of Mo.Ma proximal embolic protection device is possible cerebral intolerance. This usually consists to transient neurological symptoms which may occur during the proximal occlusion. In the patients undergoing CAS with the Mo.Ma system, a commonly held notion is that back pressure of <30 mm Hg cause symptoms of cerebral intolerance during the occlusion. However, our study showed that a low carotid back pressure of <30 mm Hg may not always result in symptoms of intolerance during occlusion.

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Efficacy and Safety of Percutaneous Suture-Mediated Closure Devices in Interventional Cardiology: Outcomes of the Largest Series of Percutaneous Vascular Closure in Turkey

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Introduction: Closure devices are well established as an alternate to mechanical compression or surgical closure after some percutaneous intervention. The single ProGlide, the Prostar device and the double ProGlide devices can be used for 5F to 8F, 8.5F-24F and 9F-21F access sites, respectively. The potential for adverse outcomes is greater with an increased-diameter femoral access sheath, given the increase risk of hemorrhage in the event of device failure. We evaluated the incidence and types of complications encountered with use of percutaneous suture-mediated closure devices (ProGlide and Prostar) in conjunction with the preclose technique to seal puncture sites after some percutaneous interventions.
Methods: In this single center retrospective study, our medical records were reviewed for the patients having access site closures with the single Perclose ProGlide, double Proglide and Prostar devices performed in conjunction with some percutaneous interventions (TAVI, balloon aortic valvuloplasty, carotid stenting, renal stenting, renal denervation, and coronary interventions). Procedure success was defined as hemostasis with the preclose technique without the need for any ancillary procedure. Access-related major adverse events included perforation, bleeding, lower leg ischemia, pseudoaneurysm, arteriovenous fistula, hematoma, embolization, laceration, femoral artery thrombosis, nerve injury, infection, or death owing to an access site injury.
Results: We identified 251 consecutive patients, between June 2011 and June 2013 in whom single Proglide, double Proglides and Prostar closure devices were used during 98 peripheral vascular interventions (renal, carotid), 53 coronary interventions, 46 TAVI procedure and 7 aortic balloon valvuloplasty procedures. In the single Proglide, double Proglide and Prostar closure devices, procedure success were achieved in 167 (98.8%) of 169 patients, in 49 (94.2%) of 52 patients and in 1 (96,6%) of 30 femoral sites, respectively. In the single Proglide group (n=169), there were only 2 device failures managed with manual compression. Minor complications included two groin hematomas and two cases of persistent pain at the arteriotomy site. In the double Proglides group, there were three device failures treated with surgical closure or Prostar (n=1). Minor complications included two groin hematomas and two cases of persistent pain at the arteriotomy site. In the Prostar group, there were one device failure treated with surgical closure and, two minor complications included two cases of persistent pain at the puncture site.
Conclusion: In our study, vascular complications were considerably low in the three groups. We have also found the double ProGlide technique to be easy to use, safe,and feasible for access sites ≥9F.

Valvular Heart Diseases

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A Novel Indicator for Assessment of Mitral Regurgitation Severity: Pro-Adrenomedullin

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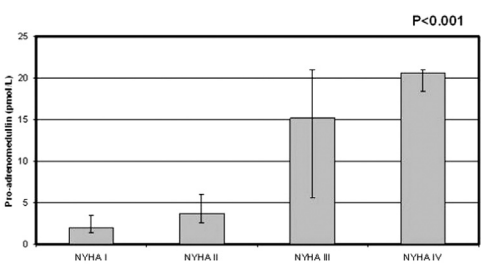
Background: In some patients, including elderly, physically inactive or obese patients, it is difficult to assess the symptoms because of inactivity in patients with chronic mitral regurgitation. A noninvasive marker that shows early changes in the cardiovascular system would therefore be helpful in evaluating patients with MR. The aim of this study was to evaluate the association between plasma pro-adrenomedullin levels and MR and its prognostic value as indicator of cardiovascular prognosis in patients with moderate/severe MR.
Methods: A total of 221 consecutive patients (129 women [58.4%]; mean age 61.6±12.5 years) with isolated and organic moderate MR, moderate to severe MR or severe MR were included in the study. Patients were categorized according to the NYHA functional class. We assessed and graded the severity of MR using a multiparametric approach. Pro-adrenomedullin was measured with ELISA method. Patients were followed-up by outpatient assessments and telephone contact.
Results: Baseline demographic and clinical characteristics of the study population are listed in Table 1. Echocardiographic and laboratory parameters of patients with mitral regurgitation and comparison between asymptomatic and symptomatic patients are listed Table 2. Pro-adrenomedullin was significantly higher among symptomatic MR patients when compared with asymptomatic patients (p<0.001). Median pro-adrenomedullin levels increased significantly with NYHA class (p<0.001, Figure 1) and with higher degrees of MR (p<0.001, Figure 2). Increased levels of serum creatinine, pro-adrenomedullin level, male gender, reduced LVEF, and higher NYHA functional classes were significantly associated with an increased risk of death during follow-up. In multivariate analysis, LVEF and NYHA class were the only independent predictors of death (Table 3).
Conclusion: Pro-adrenomedullin levels can help to identify patients with asymptomatic moderate/severe mitral regurgitation from the symptomatic ones. This may be useful in the optimal timing of mitral valve surgery in certain subset of patients.



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