TCTAP A-110
Impact of the Distribution of Hemodynamically Significant Coronary Stenosis Assessed by Fractional Flow Reserve on the Patency of Bypass Graft
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BACKGROUND Although the relationship between the preoperative fractional flow reserve (FFR) value and the graft patency has been reported, the impact of the distribution of hemodynamically significant coronary stenosis on bypass graft patency has remained unknown.

METHODS We retrospectively investigated 72 patients who underwent coronary bypass surgery including internal mammary artery (IMA) to left anterior descending artery (LAD) graft after FFR measurement in our institution between 2008 and 2014. The graft patency was assessed within one year after bypass surgery.

RESULTS All patients had hemodynamically significant stenosis with FFR <0.80 at distal LAD. Based on the FFR pullback recording, we divided the patients into two groups, proximal lesion group (n=52) and distal lesion group (n=20), according to whether FFR at mid LAD was <0.80 or >0.80. The distal lesion group had higher FFR value both in distal and mid LAD than the proximal lesion group (FFR in distal LAD: 0.71±0.07 vs. 0.64±0.07, p<0.001; FFR in mid LAD: 0.83±0.03 vs. 0.71±0.05, p<0.001, respectively). The patency of bypass graft was lower in the distal lesion group than in the proximal lesion group (65% vs. 90%, p=0.016).

CONCLUSION The distribution of the pressure gradient in a coronary artery could affect the patency of bypass grafts even on hemodynamically significant lesions.

TCTAP A-111
Development of an ECG-Independent Algorithm for the Calculation of Instantaneous Wave-Free Ratio (iFR): A Step Towards Further Simplification of Physiological Lesion Assessment
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BACKGROUND The instantaneous wave-Free Ratio simplifies stenosis assessment by eliminating the need for vasodilators. Current software requires the use of ECG signals for calculation of iFR. In this study, we tested a new ECG-independent algorithm for iFR calculation.

METHODS 320 baseline coronary pressure traces were assessed using a new methodology for calculation of iFR which only requires analysis of the relatively small radial artery size. Radial artery spasm (RAS) is one of the main reasons causing failure and/or complication of trans-radial intervention (TRI). Causes of spasm include anxious/sensitive patient, small radial artery size especially in elderly lady, frequent cather passage especially guiding cather with relative blunted and hard tip. RAS usually resolves with intra-arterial vasodilators such as nitrate and verapamil, sedation and/or analgesics but sometimes persists despite all kinds of treatment. Since brachial artery spasm rarely occurs and initial entry of hydrophilic radial sheath with the assistance of the tapered dilator is usually easy, use of long hydrophilic radial sheath up to distal brachial artery should avoid RAS.

RESULTS Apart from one trans-femoral percutaneous coronary intervention (PCI) done in a lady with system lupus erythematosis with Raynauld phenomenon of both hands, there was a total of 160 coronary procedures done during that period by the author in that CCL were entered into the data set. All coronary procedures done during that period by the author in that CCL were entered into the data set. All procedures were done by trans-radial route unless absolute contraindication to radial approach existed. The patients' demographics including age and sex, the body weight, the nature of procedure, the nature and dosage of intra-arterial vasodilators such as nitrate and verapamil, sedative and/or analgesics, the presence of RAS, the vessels tackled, success/failure of procedure, in-hospital and early (within 1 week of procedure) vascular complications and major adverse cardiac event were all recorded.

RESULTS Apart from one trans-femoral percutaneous coronary intervention (PCI) done in a lady with system lupus erythematosis with Raynauld phenomenon of both hands, there was a total of 160 consecutive trans-radial coronary procedures done by the author at that CCL during that period. There were 129 coronary angiography (CA) proceeding to PCI, 24 CA with intravascular ultrasound but not PCI, and 7 CA only. There were 107 males and 53 females, with average age of 62.5 years old (range: 41-87) and body weight of 67.2 kg (range 43.2-110). All CA or/and PCI were successfully done trans-radially using the 6F 25cm long hydrophilic radial sheath (St Jude Engage TR sheath 105, and Terumo M Coat Radial Sheath 55). No switch over to trans-femoral
route was needed in any patient. No RAS was noted. No injection of vasodilators/ sedation/ analgesics was needed except for one patient who had mild spasm of distal brachial artery after the 0.035 inch guide wire passing through the loop and straightening the loop at that distal brachial artery. The spasm was promptly resolved with intra-arterial 200ug nitroglycerin. At the end of the procedures, all the sheaths were successfully removed without difficulty or complications. All patients were discharged the next morning. No major adverse cardiac event or vascular complication was noted during hospitalization and clinic follow-up within a week after procedure.

CONCLUSION TRI using 25 cm long hydrophilic radial sheath (St Jude Engage TR sheath or Terumo M Coat Radial Sheath) up to distal brachial artery seemed to eliminate the problem of radial artery spasm without the use of intra-arterial vasodilators such as nitrate and verapamil, sedative and/or analgesics. The use of this long hydrophilic radial sheath also appeared safe without any vascular complication. There was no problem in the removal of the sheath after procedure. A larger scale, prospective randomized trial of long versus ordinary radial sheath in TRI may be warranted.

**TCRAP A-113**

Clinical Characteristics of Acute Myocardial Infarction in Young Patients in Tangshan

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**BACKGROUND**

Myocardial infarction in youth refers to young people below 40 years of age, regardless of cause of acute myocardial infarction. Myocardial infarction in young adults is often missed or misdiagnosed, most of the patients are confirmed by autopsy after death, because it is always sudden death.

However the acute and long-term mortality rates of myocardial infarction in young adults are low, After discharge from hospital parts of the patients are in a stable condition, and the labor can be recovered, so short-term and long-term prognosis in young patients with acute myocardial infarction are better.

Comprehensive knowledge and understanding of regularity and characteristics of myocardial infarction in young adults are very important for the prevention and successful treatment of myocardial infarction in young adults.

**METHODS**

The 468 patients who have received coronary angiogram were chosen in Tangshan workers’ Hospital from February 2006 to July 2014. We consulted the medical records, analyzed the clinical characteristics and results of coronary angiogram in the 312 of young patients (age <45), and compared with the 156 of old patients (age ≥60).

**RESULTS**

1. The AMI occurs in young man more than young women. It occurs mostly in winter and then summer. 2. Compared with the old patients, the percentages of smoking were much higher [75.6% vs. 53.85%] p <0.05; 3. Compared with the old patients, the percentages of hyperlipidemia were much higher [63.14% vs. 51.28%] p <0.05; 4. the percentages of hypertension is much lower in young patients [34.62% vs. 58.97%] p <0.05; 5. percentages of the simplex lesion was Difference, the group of young patients is much higher in old patients (61.7% vs 35.90%) p <0.05.

**CONCLUSION**

The clinical characteristics of young patients with AMI are different from the old patients. Health education should be conducted in the youth to avoid risk factors. When the AMI onset measures of effective reperfusion should be taken to reduce mortality and improve the quality of life in the future.

**TCRAP A-114**

Comparison Between High and Low Doses of Subcutaneously Infiltrated Nitroglycerin on Transradial Access for Coronary Procedures

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**BACKGROUND**

Subcutaneously infiltrated nitroglycerin leads to vasodilation of radial artery, enhances palpability of the radial pulse and thus makes the puncture of radial artery easier. Our objectives were to compare the effects of high (500mcg) and low (100mcg) doses of subcutaneously infiltrated nitroglycerin on transradial access for coronary procedures.

**METHODS**

Patients undergoing transradial coronary angiography and angioplasty were randomized to Group A or Group B. An of nitroglycerin (500mcg in Group A and 1000mcg of Group B) along with 2 ml of local anesthesia (20% lignocaine) was infiltrated subcutaneously. Measurements were performed at baseline and repeated at 1 minute after injecting the solutions. Other parameters assessed were the number of punctures, the time to access radial artery, pre-cannulation spasm and pulse-palpability score.

**RESULTS**

A total of 30 patients with 15 patients in each of the two groups were included in this study. There was no significant difference between the two groups with respect to the pulse-palpability score, the number of punctures and the time to access radial artery. Pre-cannulation spasm of radial artery occurred in negligible percent of patients in both the groups.

**CONCLUSION**

Nitroglycerin subcutaneously infiltrated at a dose of 1000mcg leads to significant vasodilation of radial artery similar to that of 500mcg. Subcutaneously administered nitroglycerin, irrespective of the dosage, enhances the palpability of radial artery and makes the transradial puncture easier.