Brachytherapy in the New Millennium Abstracts

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ABSTRACTS

Abstracts for Free Papers Session I:

1. Long-Term Prognosis of Percutaneous Transluminal Coronary Angioplasty and Coronary Stenting
Chen Jilin, Gao Runlin, Cai Quangjun, Yang Yuejia, Qiao Shubin, Qin Xuwen, Zhang Jun, Yao Min, et al. Cardiovascular Institute and Fu Wai Hospital, CAMS & PUMC. Beijing 100037, China

In order to examine long-term efficacy of percutaneous transluminal coronary angioplasty (PTCA), coronary stenting and to assess the factors affecting its efficacy, 790 patients who underwent successful PTCA and PTCS+Stent in this Hospital were followed by direct interview or letter. The rate of follow-up was 84.2% for the patients who should be followed. The period of follow-up was 0.9-12.7 (mean 3.5±2.4) years.

During follow-up, 4 (0.5%) patients died, 22 (2.8%) had nonfatal acute myocardial infarction, 10 (1.3%) had coronary artery bypass surgery, and 98 (12.4%) had repeat PTCA. The rate of recurrent angina pectoris was 31.1%. The cardiac event-free survival rate calculated by Kaplan-Meier method was 88.2% at 1 year and 80.6% at 12.7 years. Cox regression analysis showed that there was a positive correlation between OMI history, implanting stent and the risks of cardiac events, and there was a negative correlation between number of diseased arteries and the risks of cardiac events. Compared to PTCA group, patients with PTCA + stent had significantly lower rates of total cardiac events (Table 1). In conclusion, the long-term efficacy of PTCA, especially PTCA + stent in Chinese patients was very satisfactory, suggesting that PTCA + stent therapy should be the first choice of revascularization for patients with coronary heart disease.

<table>
<thead>
<tr>
<th>Table 1. Effects of Stent Implantation on Cardiac Events</th>
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<tr>
<td>PTCA (n=352)</td>
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<tr>
<td>Recurrence of angina (%)</td>
</tr>
<tr>
<td>Total cardiac Events (%)</td>
</tr>
<tr>
<td>AMI (%)</td>
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<tr>
<td>Repeat PTCA (%)</td>
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<tr>
<td>CABG (%)</td>
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</table>

2. Application of Carotid Stenting in Treatment of Carotid Stenosis - 9 Clinical Case Reports
Luo Jianfang, Chen Jiyan, Zhou Yinglin, Zhan Guohua, Wang Shou, Li Yuhui, Tan Ning. Department of Cardiology, Guangdong Provincial Cardiovascular Institute, #96 Dongchuan Road, Guangzhou 510100, China

Objective: To evaluate clinical outcome of stenting carotid stenosis in patients with stroke.

Method: Carotid color echocardiography was performed in 9 patients preprocedurally. Carotid and intracranial angiographies were done before, after the procedure. Carotid color echocardiography was taken in 1st, 3rd, 6th months post procedure. Self-expendable stents (Wallstent, Boston Scientific Co.) were implanted to cover the target lesions. Neurological measurement was taken periprocedurally and during follow-up.

Result: All of the patients aged more than 60 years and seven of them have recurrent transient ischemic attack (TIA) or stroke, two of them were symptomatic. Seven of them have associated severe coronary artery disease (triple vessel disease). Selective angiogram showed that the luminal loss of the stenotic lesion in all cases was >70%. The residual stenosis in all cases was <5% after stenting. Technical success was achieved in all cases. One patient had contralateral intracranial hemorrhage during the procedure and died three days later. All the patients were neurological event free with patent target arteries during the clinical and echographic follow-up study.

Conclusion: Carotid stenting could be a safe and feasible approach in preventing and treating ischemic brain disease in patients with carotid stenosis. It also may be a treatment of the combined ischemic heart and brain disease in the future.
Abstracts for Free Papers Session I:

3.

The Anti-proliferative Effects of Implantation of $^{185}$Pd Radioactive Stent in Abdominal Arteries on Normal Rabbits
Zhou Yingling, Lin Shuguang, Li Gang. Department of Cardiology, Guangdong Provincial Cardiovascular Institute, Guangzhou, China

Objective: To investigate the preventive role of implantation of $^{185}$Pd radioactive stent on restenosis after artery injury.

Method: Fifty male New Zealand White rabbits were randomized into two groups: I. Underwent balloon injury and stent deployment (Jomed stent 3.5-5.0×8mm) on abdominal arteries. II. Underwent balloon injury and $\gamma$-emitting $^{185}$Pd radioactive stent deployment on abdominal arteries. All the animals were sacrificed at 3, 7, 14, 28 and 56 days after stent deployment and their abdominal arteries were harvested for further analysis.

Results: Under microscope, the scores of abdominal arterial injury were similar between the two groups (P>0.05). Pathomorphometric analysis showed the areas under external elastic membrane expressed no changes in both groups, and there were no differences between the two groups. The neointima plus medial areas and lumen areas showed significant differences between the two groups from the end of 2 weeks. At the end of 8 weeks, compared with common stent group, the lumen areas enlarged significantly and neointima hyperplasia were restrained obviously in isotope stent group. The stenosis degrees were reduced significantly in isotope stent group compared with common stent group. Immunochemical study showed from 3 days to 2 weeks after the procedure, the positive ratio (P/A, %) and the positive index of PCNA staining were much more higher in common stent group than in isotope stent group. Angiography results showed compared with the normal diameters in isotope stent at the end of 8 weeks, the minimal lumen diameters and lumen stenosis rates were significantly improved than those in common stent group. It was consistent with the pathomorphometric analysis. Scanning electron microscopy observation: at the end of 4 weeks endothelium recovered almost completely in common stent group but it could not recover completely until by the end of 8 weeks in isotope stent group. At the end of 2 weeks, the hyperplasia intima and median mainly belonged to high or middle density and synthetic phenotype in common stent group, but in isotope group, the majority of SMCs showed middle-low density SMCS and contractile phenotype. Blood cells account shows no changes thorough the whole study in both groups. Dosimetry measurement showed no radioactive in peripheral blood and stent adjacent tissue. The radioactive of isotope stent showed a exponential decrease.

Conclusion: $^{185}$Pd radioactive stent implantation is effective and safety method for reducing the stenosis rate after artery injury.

4.

Evaluation of Intravascular Ultrasound Guidance stent
Wenling Zhu, Chaolian Huang, Ding Han, Zhujun Shen, Xiuchun Jiang, Yanhua Li. Peking Union Medical College Hospital, Chinese Academy of Medical Sciences, PUMC

Objective: To determine the difference of the prognosis between groups using intravascular ultrasound (IVUS) and angiography (CAG) guidance for stenting in order to assess the evaluation of IVUS guidance stent.

Method: One hundred post - PTCA patients were divided into two groups of stenting guided by IVUS and CAG at random. The patients were followed up for six months and the end points were acute or subacute coronary thrombosis, angina pectoris demonstrating in ECG to be in correspondence with target vessels, revascularization and cardiogenic death.

Results: Fifty-three patients were in CAG guiding group (Group A) and forty-seven patients in IVUS guiding group (Group B). There were no significant differences in sex, age, risk factors of CHD and medical therapy between two groups (P>0.05). 34% of cases in Group A had cardiac events (1 acute stent thrombosis, 11 angina pectoris, 3 revascularization and 3 cardiogenic death) and there were no any acute or subacute thrombosis and other events in Group B except 3 angina pectoris (6.4%) (P<0.05).

Conclusion: IVUS guiding stent implantation significantly reduced vascular complications and events.
Abstracts for Free Papers Session I:

5. Systematic Direct Angioplasty and Stent-Supported Direct Angioplasty Therapy for Acute Myocardial Infarction: In-Hospital and Long-Term Survival

Dayi HU, Tianchang LI, Sanqing JIA, Ming YANG, et al. The Heart Center, Beijing Red Cross Chaoyang Hospital, Capital University of Medical Science, Beijing 100020, China

Objectives: This prospective observational study was conducted to examine the apparent impact of a systematic direct percutaneous transluminal coronary angioplasty (PTCA) strategy on mortality in a series of 328 consecutive patients with acute myocardial infarction (AMI).

Background: Previous studies have reported encouraging results with direct PTCA in patients with AMI, but a biased case selection for PTCA may have heavily influenced the observed outcomes.

Methods: All patients admitted with AMI were considered eligible for direct PTCA, including those with the most profound shock, and no upper age limit was used. The treatment protocol also included stenting of the infarct-related artery for a poor or suboptimal angiographic result after conventional PTCA.

Results: Between Oct. 1996 and Dec. 1999, 328 consecutive pts. with AMI who presented within 6 to 72 hrs if there was evidence of ongoing ischemia treated with direct PTCA were evaluated. The angioplasty was considered to be technically successful if there was a residual stenosis of less than 50% and a flow of TIMI grade 2 or 3 at the end of the angioplasty procedure. The successful rate was achieved in 316 pts. (96.3%, 316/328). The mean duration from door-to-needle was 32 minutes. TIMI 3 flow was observed in 309 pts. (94.2%, 309/328). 267 coronary stents were delivered in 255 IRA (77.7%, 255/328). The successful rate of stent delivery was 98.8% (264/267). The indication for stent delivery included: selective 47.4% (127/267), bail-out 9.4% (25/267) and suboptimal 43.1% (115/267). Temporary AV block was observed in 37 pts. (37/328). 10 pts. died from cardiogenic shock (3%) during hospitalization. 296 pts. (90.2%) were followed up. The mean follow-up period was 21 (6-42) months. 4 pts. died from heart failure. Recurrent ischemia occurred in 34 cases (10.8%). Reinfarction were observed in 6 cases (0.19). 102 pts. adopted selective PTCA or CABG for multivessel disease.

Conclusion: Systematic direct PTCA, including stent-supported PTCA, can establish a TIMI grade 3 flow and satisfied results in the great majority of patients presenting with AMI.
Abstracts for Free Papers Session II:

6. Percutaneous Balloon Aortic Valvuloplasty for the Treatment of Congenital Valvular Aortic Stenosis

Gao Wei, Zhou Aiqing, Wang Rongfa. Shanghai Children's Medical Center, University Hospital of Shanghai Second Medical University, Shanghai, China

**Purpose:** The aim of the present study was to assess the effect for the balloon valvuloplasty for congenital valvular aortic stenosis (AS) in children.

**Methods:** 27 (mean aged of 6.09 years) children with AS had accepted the treatment of PBAV. The ratios of balloon/valve were 0.95±0.08 for 19 cases of typical AS and 1.00±0.11 for 8 cases of displastic AS. The patients were evaluated by the gradients across aortic valves in pre- and post-PBAV and by the Doppler ultrasonic cardiology during the follow-up period.

**Results:** The results showed that 15 (78.9%) of 19 cases with typical AS got better outcome and the rest 4 cases (26.7%) had undergone the increase in ΔP after follow-up (ΔP>50mmHg). 4 (50%) of 8 cases with dysplastic AS were good and 3 cases (75.0%) gradient rose after follow-up. There was no moderate to severe aortic insufficiency.

**Conclusion:** It is concluded that balloon aortic valvuloplasty provides safe and significant hemodynamic and clinical improvement. The outcome of PBAV for typical AS is better than displastic AS.

<table>
<thead>
<tr>
<th>Item</th>
<th>Before PBAV</th>
<th>After PBAV</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVSP (mmHg)</td>
<td>166.5±29.16</td>
<td>129.0±16.07</td>
<td>5.50</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>AOSP (mmHg)</td>
<td>96.47±18.61</td>
<td>110.84±16.55</td>
<td>3.96</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>ΔP (mmHg)</td>
<td>70.05±17.36</td>
<td>19.32±12.0</td>
<td>12.86</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

7. C-Reactive Protein as a Risk Factor for Acute Coronary Syndrome

Yang Shengli, He Bingxian, He Xuelan, Zhang Wei, Yang Chunrong. Department of Cardiovascular Medicine, Xinjiang Institute of Cardiovascular Disease, First Affiliated Hospital, Xinjiang Medical University, Urumqi 830054, China

**Background:** Inflammation might promote the development of atherosclerosis, and C-reactive protein (CRP), an inflammatory marker, is reported to predict risk of myocardial infarction (MI).

**Objectives:** We assessed the levels of CRP in patients with acute coronary syndrome (ACS) (including unstable angina pectoris (UAP), acute myocardial infarction (AMI) and sudden cardiac death (SCD)) compared with non-ACS (including stable angina pectoris (SAP), old myocardial infarction (OMI) and healthy volunteers) and sought to test whether CRP are associated with clinical acute coronary syndrome.

**Methods:** Ultrasensitive immunoassay (rate nephelometry with the Beckman Array multistest immunoassay system) was used to measure CRP levels in 91 subjects. The patients were divided into two groups: patients with ACS (20 UAP, 69 AMI and 2 SCD) and 194 controls with non-ACS.

**Results:** CRP levels were higher in ACS group (18.50±23.98 mg/L [SE 2.51, n=91]) compared with non-ACS group (3.89±7.14 mg/L [SE 0.51, n=194]) (p<0.01). Using Logistic Regression, CRP was a potent determinant of ACS (OR=1.65).

**Conclusion:** These results suggest that CRP has a strong association with ACS, and CRP is a risk factor of ACS.

**Keywords:** C-reactive protein, acute coronary syndrome, risk factors, unstable angina pectoris, acute myocardial infarction, sudden cardiac death


Jiayu Cui, Xiufeng Li, Yinghua Wang, Daoying Xu, Aixiang Liu, Ligeng Zong, Rongbo Jia. Binzhou Prefectural People's Hospital, Shandong, China

**Background:** There is still debate about thrombolytic therapy in UA patients. The aim of this study was to research the efficacy of low-dose, prolonged UK+heparin and compared with heparin alone.

**Methods:** This trial enrolled 176 UA patients. Eighty-eight patients were randomized to the treatment with UK (100000u/d) +heparin (UFH or LMWH adjusted dose with ACT 1.5-2.0 times baseline) was administered in 75% of the patients at the physician's discretion. Eighty-eight UA patients were randomized to the treatment with heparin alone as placebo. The usual conventional antianginal medications (nitrates, aspirin β-blockers, and calcium antagonists) were used, if appropriate. Both treatment courses were ten days.

**Results:** At the end of three months, MI in the UK+heparin arm resulted in a 78.4% reduction compared with heparin alone (2.2%, 2/88 vs 10.2%, 9/88). Two patients died, one in the UK+heparin arm, another in heparin alone arm. When compared with run-in period both arms significantly reduced the frequency of angina.

**Conclusion:** Both arms markedly reduced the frequency and duration of ischemic attacks in UA patients, UK+heparin was more effective than heparin alone.
Identification of Viable Myocardium by ST-segment Elevation and Functional Improvement during Low-dose Dobutamine Testing in Q Wave Myocardial Infarction

Li Xianlu, Li Xiao, Zheng Zhigang, Zhang Xiaoping. Cardiac Department, China-Japan Friendship Hospital, Beijing 100029, China

Purpose: To evaluate the clinical value of ST-segment elevation and functional improvement during low-dose dobutamine testing in assessing myocardial viability.

Methods: 35 patients (mean ±SD age 53±9 years) with Q wave myocardial infarction underwent low-dose dobutamine electrocardiography and echocardiography before revascularization, myocardial revascularization was performed in all patients. Resting echocardiogram was repeated one month after revascularization. A score model based on 16 segments and four grades was used to assess left ventricular function. Functional improvement was defined as a reduction of wall motion score ≥ 1 in ≥1 segments at follow up. Dobutamine-induced ST-segment elevation was defined as a new or worsening ≥1 mm elevation, 80 ms after J point, in ≥2 infarct-related leads.

Results: Late functional improvement occurred in 18 patients (51%), ST-segment elevation occurred in 14 patients (40%), ST-segment elevation occurred more frequently during DST (dobutamine stress testing) in patients with functional recovery at follow-up (11 of 18 vs 3 of 17); functional improvement was common during DST in patient with functional recovery after revascularization (16 of 18 vs 2 of 17). When the ST-segment elevation and functional improvement during DST were considered together, among 12 patients who showed both the ST-segment elevation and functional improvement, 11 patients developed functional recovery after revascularization. The predictive value of the ST-segment elevation and functional improvement during DST in assessing improvement of wall motion after revascularization is shown the table.

Conclusion: Dobutamine-induced ST-segment elevation and functional improvement are a valuable marker of myocardial viability. When the two methods were considered, gave a better specificity.

Prevalence of Artherosclerotic Renal Artery Stenosis in Patients with Coronary Artery Disease

Shen Zhujun, Shang Yunpeng, Zhu Wenling, Jiang Yuxing, Huang Chaolian. Peking Union Medical College Hospital, Beijing, China

Objective: To understand the prevalence of artherosclerotic renal artery stenosis (ARAS) in patients with coronary artery disease (CAD) and the relations among coronary artery disease, renal artery stenosis, hypertension and renal insufficiency.

Method: 280 patients with coronary artery disease or suspected coronary disease were carried out renal artery angiography after coronary angiography over 1 year period.

Result: Of the total patient cohort, 58 patients (20.7%) had ARAS, with 43 (15.3%) had significant ARAS (≥50%), 3 (1.0%) were totally obstructed and 14 (5.0%) were bilateral. 47 patients (25.0%) were diagnosed as having ARAS among 188 CAD patients, with 36 (19.1%) had significant ARAS, 7 patients (7.6%) with significant ARAS were found among 92 patients without CAD. The prevalence of significant ARAS was 19.6% and 7.9% as referred to with or without hypertension, p<0.05. 10 patients (55.6%) had significant ARAS in 18 patients with mild renal insufficiency as compared to 33 patients (12.6%) had significant ARAS in 262 patients with normal renal function, p<0.05. In the subgroup of CAD, the prevalence of significant ARAS was 15.3%, 17.1%, 25.4% in single vessel disease, two vessel disease and triple vessel disease patients, p<0.05.

Conclusion: ARAS is a frequent finding in patients with CAD, especially in triple vessel disease patients. Hypertension is closely related to ARAS, it should be the risk factor of ARAS, and can be the clinical manifestation of ARAS. Renal insufficiency without history of chronic glomerulonephritis may indicate ARAS.

High incidence of renal artery stenosis in patients undergoing coronary angiography

Jingang Yang, Dayi Hu, Tianchang Li, Yanhui Li, et al. The Heart Center, Beijing Red Cross Chaoyang Hospital, Capital University of Medical Science, Beijing 100020, China

Renal artery stenosis may be a cause of hypertension and a potential contributor to progressive renal insufficiency. However, the prevalence of renal artery disease in a general population is poorly defined. The purposes of this study were to evaluate the prevalence of angiographically-determined renal artery stenosis in a patient population undergoing routine coronary angiography, and to identify the risk factors for renal artery stenosis. After coronary angiography, nonselected renal arteriography was performed to screen for the presence of renal artery stenosis. Over a 5-month period, a total of 188 patients (128 males, 60 females) were studied and the mean age was 60.2 (29 to 78) years. Renal artery narrowing was identified in 46 (24.5%) of patients. Significant (> or = 50% diameter narrowing) renal artery stenosis was found in 31 patients (16.5%) and insignificant (<50% diameter narrowing) stenosis was found in 15 patients (8.0%). Significant unilateral stenosis was present in 21 (11.2%) patients and bilateral stenosis was present in 10 (5.3%). By univariate and multivariate logistic regression analysis, the association of clinical variables with renal artery stenosis was assessed. Multivariable predictors included myocardial infarction (Wald \( \chi^2 =12.63, P=0.0004 \)), congestive heart failure (Wald \( \chi^2 =10.06, P=0.0015 \)), age (Wald \( \chi^2 =9.98, P=0.0016 \)), severity of coronary artery disease (Wald \( \chi^2 =15.25, P=0.0042 \)) and stroke (Wald \( \chi^2 =7.78, P=0.0053 \)). The variables such as sex, body mass index, smoking history, hyperlipidemia, renal insufficiency and diabetes mellitus were not associated. In conclusion, renal artery stenosis is a frequent finding in patients undergoing coronary angiography.
ABSTRACTS

Abstracts for Free Papers Session II:

12. Bicaval Technique in Orthotopic Homologous Heart Transplantation: Report of One Case
Wu Guanghua, Ma Lining, Dong Lijun, Yang Haiwei, Liu Hua and Chang Li, et al. Department of Cardiothoracic Surgery, Affiliated Hospital of Jining Medical College, Jining 272029, China

In May 1999, we successfully performed bicaval technique for orthotopic homologous heart transplantation in a male patient of 26 years old with end-stage dilated cardiomyopathy. Now, it was shown normally that physiologic function of the transplanted heart. The bicaval technique may preserve atrial contractility and sinus node function and may maintain the atrioventricular valve competence. In contrast to the standard technique, the bicaval technique offers a more physiologic RA size and contraction pattern throughout the cardiac cycle. The donor heart was satisfactorily preserved with continuous antegrade tepid blood cardioplegia. The continuous antegrade tepid blood cardioplegia is a safe and efficacious method of myocardial protection. It may minimized ischemic injury time. During transplantation procedure. Combined anterejection therapy is preferable to a single medicine. The patient have renal insufficiency just early postoperative period receive 17 days of OKT3 monoclonal antibody <MAB>. This allows us to decrease the dose of Cy A treatment after surgery.

13. Effects of Losartan on Endothelin and Nitric Oxide in Patients with Congestive Heart Failure
Jiang Ling, Wu Guanghua, Zhang Chuanhuan. Department of Cardiology, the Affiliated Hospital of Jining Medical College, Jining 272109, Shandong, China

Objective: To study the effects of losartan on plasma endothelin-1 (ET-1) and nitric oxide (NO) levels in patients with congestive heart failure (CHF).

Methods: Sixty patients with congestive heart failure (New York Heart Association [NYHA] functional classes II-IV) were randomised group for either losartan or enalapril. Plasma angiotensin II (Ang II) and endothelin-1 concentrations were assessed by radioimmunossay, and nitric oxide concentrations were assessed by methods of nitric acid reductase.

Results: New York Heart Association functional class improved similarly with losartan and enalapril treatment (versus baseline for both groups), 87% of losartan-treated patients and 83% of enalapril-treated patients were class I or II at the end of study compared with cardiac function at baseline. Plasma endothelin-1 (109.19±28.13 pg/ml), nitric oxide (154.89±40.73 μmol/L) and angiotensin II (344.77±151.79 pg/ml) levels were higher in patients with congestive heart failure than those in normal subjects (p<0.01). NO/ET-1 ratio (1.38±0.58) was decreased in congestive heart failure. Plasma endothelin-1 and nitric oxide levels was reduced, thus, NO/ET-1 ratio was increased after 1 week and 12 weeks of therapy in two groups (p<0.05).

Conclusion: Congestive heart failure is characterized by increase of plasma endothelin-1 and nitric oxide levels. This study showed that oral losartan administered to patients with congestive heart failure resulted in beneficial clinical and neurohormonal effects, with rather good tolerability.

Keywords: Nitric oxide; Endothelin; Heart failure; Congestive; Losartan; Enalapril

14. Coronary Angiographic Changes with Simvastatin Therapy
Wenling Zhu, Yong Zeng, Chaolian Huang, Zhujun Shen, Xiuchun Jiang, Yanhua Li. Peking Union Medical College Hospital, Chinese Academy of Medical Sciences, PUMC

Objective: To evaluate the coronary angiographic change with simvastatin therapy.

Method: 73 patients with CAD, whether serum cholesterol levels elevated or not were randomized to either simvastatin (n=39) or not (n=34) after coronary angiography or successful PTCA. The repeated coronary angiogram and the variation in arterial stenosis from computer assisted quantitation of coronary cineangiogram demonstrated that progression risk of arterial lesions and aggravation risk in patients with CAD computer assisted quantitation of coronary cineangiogram was performed after one year follow-up. The end point was (1) change of serum cholesterol levels (2) the variation of arterial stenosis (3) cardiac events.

Results: Patients on simvastatin had a 15.4% reduction of serum cholesterol, 25.3% reduction of LDL-C, 15.2% reduction of TG and 11.5% increase of HDL-C, while the serum cholesterol levels did not change in control group. 86 vessels in simvastatin group and 82 vessels in control group were analyzed. 20.7% of arterial lesion progression in simvastatin and 30.2% in control (P<0.05) and 31.5% of progression risk decreased with simvastatin therapy. Aggravation of arterial lesions were found in 20.5% of cases in simvastatin group and 55.9% of cases in control (P<0.05). 63.3% of aggravation risk decreased with simvastatin therapy. There was no difference in restenosis after PTCA and stent deployment between two groups. The cardiac events (AMI, revascularization and death) were found in 21 cases (61.8%) in simvastatin group and 11 cases (28.2%) in control (P<0.05) during follow-up. 54.4% of the cardiac events risk decreased with simvastatin therapy. 25.6% of patients in simvastatin and 58.8% of patients in control occurred unstable angina pectoris (P<0.05).

Conclusions: (1) The serum cholesterol levels significantly decreased with one year simvastatin therapy. (2) The variation in arterial stenosis from computer assisted quantitation of coronary cineangiogram demonstrated that progression risk of arterial lesions and aggravation risk in patients with CAD significantly decreased with simvastatin therapy. (3) The cardiac events and unstable angina pectoris significantly decreased with simvastatin therapy.