-10-

EFFECTS OF ACUTE PERCUTANEOUS TRANSLUMINAL ANGIOPLASTY FOR ACUTE MYOCARDIAL INFARCTION -RELATION OF RESIDUAL STENOSIS WITH WALL MOTION-

Kazuo Komamura, Shinsuke Nanto, Masashi Naka, Koichi Taniura, Atsushi Hirayama, Tohru Masuyama, Yoshihiro Kimura, Hiroshi Sato, Kazuhisa Kodama, Yukihiro Koretsune*, Masayoshi Mishima*, Michitoshi Inoue*, Takenobu Kamada*.

The cardiovascular division of Osaka Police Hospital, & *The First Dept. of Medicine, Osaka University, Osaka

This study was attempted to clarify the efficacy of PTCA in acute stage of myocardial infarction for the improvement of wall motion in chronic stage. In 27 cases of acute antero-septal myocardial infarction (successful coronary thrombolysis (CT) 11 cases and successful CT+PTCA 16 cases), the infarct size and cardiac performance in chronic stage were examined. As an index of infarct size, % abnormally contracting segment (%ACS), total CK release ($\bar{L}$ CK) were used. Anterior regional ejection fraction (REF) was provided for an index of chronic left ventricular performance.

Results were :

- 1) The %ACS was significantly smaller in the CT+PTCA group than in the CT group.
- 2) The residual stenosis and the elapsed time had no correlation with the %ACS and the REF.
- 3) The difference between the % stenosis before and after PTCA had significantly positive correlation with the %ACS and negative correlation with the REF.

Thus the degree of dilation in PTCA related the infarct size and the left ventricular performance.

-11-

EFFECT OF THROMBOLYTIC THERAPY AND PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION RECANALIZED WITHIN TWO HOURS FROM THE ONSET

Tsuneo Hoshino, Shoichi Yokoyama, Shinichi Takayama, Noriko Mori, Hiroshi Yoshida, Tomoyuki Iwase, Kazuyuki Sakata, Tetsuzi Singu and Tsuneo Kaburagi

Department of Cardiology, Shizuoka General Hospital

Effects of thrombolytic therapy (TT) and percutaneous transluminal coronary angioplasty (PTCA) on left ventricular function and infarct size were evaluated in 13 patients (pts) with acute myocardial infarction (AMI) recanalized within 2 hours from the onset of symptoms (Group 1). Eight pts with AMI recanalized after more than 2 hours (Group 2), 10 pts with AMI without reflow or with conventional therapy (Group 3) and 20 normal controls were also examined. In Group 1, 8 pts were treated by TT and 5 pts were treated by combined TT and PTCA.

Regional wall motion (RWM) in the infarcted zone was analyzed using left ventricular cineangiogram in the right anterior oblique projection. End-diastolic and end-systolic outlines of the left ventricular chamber were superimposed, and % shortening of each of 14 radial axes drawn from the center of gravity of end-systolic left ventricu-

lar chamber was calculated. Evaluation of infarct size was performed using Tl-201 emission computed tomography (ECT). With circumferential profile analysis in two short-axis sections and one long-axis section of the ECT images, the extent of hypoperfused myocardium was calculated as % defect and uptake loss.

Results: Group 1 was clearly classified into 2 subgroups; 9 pts with normal RWM and small Tl defect (Group 1A) and 4 pts with severely depressed RWM and large Tl defect same as those in Group 2 or Group 3 (Group 1B). Group 1A was composed of 5 pts treated by PTCA, 2 pts with residual stenosis less than 75 % after TT and 2 pts with spontaneous recanalization. All 4 pts in Group 1B had 99 % residual stenosis.

Conclusions: Although early reflow is essential, enough coronary flow after thrombolytic therapy is also needed for myocardial salvage.

-12-

THE BENEFITS AND RISKS OF EMERGENCY PTCA

Yoshihiko Kinoshita, Osamu Yoshida, Naoru Yanagihara, Yuzo Oka, Keiko Hiyama, Masaharu Kajiyama, Toshiharu Masuoka, Atsushi Takanashi, Taro Tsuchiya,

Department of Cardiovascular Medicine, Akanekai Tsuchiya Hospital, Hiroshima

This report represents the benefits and risks of the emergency PTCA comparing to those of other therapeutic procedures. Primary angiographic success rate was similar in emergency PTCA group (77%) and the elective PTCA group (78%). Incidence of complication of emergency PTCA (12%) was somewhat higher than elective ones (4%), though there was not statistical significance. According to therapeutic procedures, emergency cases with LAD occlusion were subdivided into four groups containing A-group (emergency PTCA), L-group (thrombolysis), G-group (emergency CABG) and C-group (conservative therapy). Anterior wall motion was quantitatively described as anterior hypo-kinetic index (AHZ). In A-group, EF increased from $45 \pm 9\%$ in acute phase to $56 \pm 13\%$ in chronic phase ($p < 0.01$) and AHI decreased from 338 ± 118 to 189 ± 148 ($p < 0.01$). Although similar such changes were detected in L-group, no statistical significance was obtained. In G-group, such a beneficial change was revealed itself only in AHI (from 325 ± 191 to 173 ± 119 , $p < 0.05$). These two parameters of A, L and G-group showed more normal value in chronic phase than C-group. A criteria for indication of emergency PTCA may be decided from analysis of other factors such as time interval from onset to recanalization and severity of LAD lesion. Mortality rate has decreased drastically in our hospital after conduction of these invasive therapeutic procedures.

Chairman

13-18 H. Yamaguchi, Tokyo
19-24 T. Fujinami, Nagoya

-13-

A STUDY OF TOTAL CORONARY OCCLUSION OCCURRING BETWEEN TWO ANGIOGRAPHIES BASED ON A COMPARISON OF PATIENTS

Japanese Circulation Journal Vol. 50, June 1986

WITH AND WITHOUT MYOCARDIAL INFARCTION

Yoshiharu Murohara, Takao Ishimura, Kazutaka Nagae, Satoshi Uehara, Takashi Umezawa, Akira Wakabayashi

Division of Cardiology and Internal Medicine, Kitano Hospital, Osaka

The relationship between coronary artery occlusion and myocardial infarction (MI) was studied angiographically with reference to clinical findings. Sixty-four patients underwent two coronary angiographies (CAG) with intervals ranging from 4 to 47 months, with an average of 25. In 14 of them, the second CAG demonstrated that new total occlusions appeared in one or more coronary arteries with the concurrent occurrence of interim MI (Group A, 7 patients) and without it (Group B, 7 patients).

The average age of Group A was younger than that of Group B (52 ± 5 vs 62 ± 2 years), but there were no significant differences in other clinical data, including coronary risk factors. In the first CAG, Group A was determined to have rather mild coronary artery lesions compared to Group B: in Group A, 1) the average number of diseased segments, having stenosis of more than 75 %, was smaller (1.4 ± 1.5 vs 2.1 ± 1.0), 2) development of collateral vessels was less frequent (14 vs 71 %), and 3) coronary lesion, which showed more than 75 % stenosis and later developed into a total occlusion, was less frequent (29 vs 88 %).

Thus, the younger patients with rather mild coronary lesions may have a tendency to have MI when a total coronary occlusion occurs. These findings suggest that the occurrence of total coronary occlusion in the 2 groups may be the result of different mechanisms.

-14- REGRESSION OF CORONARY ATHEROSCLEROSIS

Sokei Mioka, Akira Miura, Hideyuki Nosaka, Hitoshi Hibino, Makoto Sato, Takeshi Kimura, Yoshitomi Kurosawa, Masao Arakawa, Shinichi Otsuka, Hiroatsu Yokoi, Hiroaki Hosokawa, Hitoshi Yasumoto, Mitsugu Kida, Hiroshi Morishita, Masakiyo Nobuyoshi

Dept. of Cardiology, Kokura Memorial Hosp. Kokurakita-ku, Kitakyushu, 802, Japan

In an attempt to explore the true nature of regression (Reg) of coronary atherosclerosis, we reviewed serial coronary cineangiograms and clinical data of 338 pts (M/F 252/86, mean age $60.6(29-81)$, mean follow up interval $33.8\text{mo}(2-123)$; OMI 123, angina pectoris 167, other disease in 48). Rigorous attention was paid on measurements of magnification ratio of vessel diameters obtained at various intervals to exclude the possibility of spasm at the initial study. Lysis or recanalization at the site of previous infarcts were not considered as Reg.

Angiographic Reg (unrelated to MI) were observed in 5.3% (18/338) of pts and 0.4% (20/4741) of the total observed seg. Female sex (M 7 vs. F 11), pts with rest angina (EA 1 vs ERA 6, RA 6), and the stenoses with the morphology of tubular regular type (11 seg) were more prone to show

angiographic Reg. Focal spasm at the sites of Reg was documented in 10 seg during spontaneous angina attack and/or during ergonovine provocation tests. Simultaneous progression of atherosclerosis in other seg were observed in 16 seg of 11 pts with Reg. Only 4 of these pts exhibited no evidence of spasm nor progression of studied seg.

Despite sufficient dose of nitrate to fully release spasm, the possibility of focal spasm could not be totally excluded. Spasticity and/or possibility of Reg must be ruled out prior to undertaking aggressive interventional therapy such as CABG or PTCA.

-15- EFFECT OF COLLATERAL CIRCULATION ON RESERVATION OF LEFT VENTRICULAR CONTRACTILITY

Hiroshi Yoshimura, Toshiyuki Degawa, Hideki Nomura, Mitsuo Kashida, Hironori Hirai, So Yabuki, Kiyoshi Machii

The 3rd Division, Department of Internal medicine, Toho University School of Medicine, Tokyo, Japan

To evaluate the effect of the coronary collateral circulation on the left ventricular contraction, coronary angiography and left ventricular graphy were performed on 41 ± 20.7 days after the onset of acute transmural myocardial infarction in 62 patients with single vessel disease of left anterior descending artery (LAD-MI) or right coronary artery (RCA-MI). Collaterals were recognized in 31 patients (50%) of them and were more frequent in LAD-MI (79%) than in RCA-MI (27%). The 48 patients with LAD-MI were divided into four groups, Group-I (n = 14): 100% occlusion with collaterals, Group-IIa (n = 13): 99% occlusion with collaterals, Group-IIb (n = 7): 99% occlusion without collateral, Group-III (n = 14): 90-95% narrowing without collateral.

Among these four groups, the ejection fraction was different only between Group-IIa (0.62) and Group-IIb (0.48) ($p < 0.05$), and no difference for cardiac index.

Evaluation of the left ventricular contraction by 25 radial hemiaxis method in RAO view revealed that percent fractional area change for apical wall segments was significantly different between Group-IIb (21.3%) and Group-IIa (38.7%) or Group-III (41.3%) ($p < 0.05$). However, percent fractional area change for total left ventricular wall segments was not different among the four groups. The myocardial reperfusion by Thallium-201 myocardial scintigraphy after exercise was recognized in Group-I (75%), Group-IIa (91%) and Group-III (80%), but not in Group-IIb.

It is concluded that in the presence of collaterals, regional left ventricular contraction related to the coronary artery affected with 99-100% narrowing is similar to that in cases with 90-95% narrowing.

-16- CORONARY HEMODYNAMICS DURING UPRIGHT EXERCISE IN PATIENT WITH ANGINA PECTORIS