

TUESDAY, APRIL 27, 1982

PM

REPERFUSION IN ACUTE MYOCARDIAL INFARCTION

I AND II

2:00-3:30

PRELIMINARY REPORT OF THE STREPTOKINASE REGISTRY FROM THE SOCIETY FOR CARDIAC ANGIOGRAPHY. James M. Schmitt, MD; J. Ward Kennedy, MD, FACC; and the Registry Committee. University of Washington, Seattle, Washington.

The Society for Cardiac Angiography maintains a large catheterization laboratory registry. Baseline clinical, and angiographic data and the technique and results of intracoronary streptokinase infusion for the treatment of acute myocardial infarction (AMI) are being compiled. Data collection was initiated 7/1/81. Nine laboratories reported 44 cases by 9/10/81.

Time from onset of symptoms to hospitalization was 78±142 minutes and to streptokinase treatment (SKT), 254±183 minutes. There were 26 anterior and 18 inferior AMI, 42/44 with thrombotic occlusion, and 42 with ongoing chest pain at onset of SKT. Intracoronary nitroglycerin opened 3/43 vessels and 29/42 (69%) opened with a mean dose of 173,000 units of streptokinase. Two patients had reocclusion within 1 hour and 7 were known to reocclude late (6-15 days). With reperfusion, mean ejection fraction (EF) increased from 42% before to 52% 8-60 days after lysis (p<.001). In patients without thrombolysis EF was unchanged (pre 41%, post 38%). Nine of 29 patients with lysis had CABG surgery, and 1 patient without lysis had surgery; 37/44 patients evolved a Q-wave infarct. There were no deaths, and 7 (16%) major complications (4 V fib, 2 hemorrhage, 1 shock). The angiographer judged SKT of benefit in 50%, no benefit in 30% and of uncertain benefit in 20%.

Successful thrombolysis appears to limit AMI size as judged by improved late EF. Benefit occurs in approximately half of treated patients. This may increase with earlier treatment and/or improved infusion techniques. An ongoing registry of data from many laboratories will help provide a realistic assessment of this new and evolving treatment of acute myocardial infarction.

INTRACORONARY FIBRINOLYTIC THERAPY IN ACUTE MYOCARDIAL INFARCTION: PRELIMINARY REPORT OF A RANDOMIZED TRIAL;

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Seventeen patients (pts) with acute myocardial infarction were randomized after informed consent to receive Gp A - intracoronary Streptokinase (SK) or Gp B - 5% Dextrose (D) within 6 hours of chest pain. The mean age was 59.4 yrs and there were 13 males and four females. EKG consistent with Q-waves and ST elevations unresponsive to nitroglycerin were present in all pts. Intracoronary SK was given at 4,000 u/min (1 ml) up to a total dose of 250,000 u, and D at 1 ml/min up to 50 ml. Of 10 Gp A pts six had antero-septal and four inferior infarction. Of 7 pts in Gp B one had antero-septal and six inferior infarctions. There was no difference in age, duration of symptoms to infusion, highest CPK value or clinical class of Gp A vs Gp B pts. Total occlusion of the coronary artery supplying the infarct area was present in all pts. Re-establishment of antegrade flow judged by angiography was seen after SK in 7/10 pts in Gp A compared to 2/7 pts of Gp B receiving D (p<.05). Reperfusion arrhythmias were seen only in three Gp A pts one of them required cardioversion. None of the pts suffered any hemorrhagic or other complications.

Our preliminary data indicates that Streptokinase infusion re-establishes coronary flow in 70% of acute myocardial infarction patients with occluded coronary arteries. Although Dextrose was also noted to re-establish flow in 28% of patients the mechanism and implication of this needs further study.

IMPROVED LEFT VENTRICULAR FUNCTION AND REDUCED HOSPITAL MORTALITY FOLLOWING INTRACORONARY THROMBOLYSIS IN MYOCARDIAL INFARCTION WITH DIMINISHED EJECTION FRACTION Jerome Weinstein, MD, FACC; Edmund H. Sonnenblick, MD, FACC; Michael J. Cowley, MD, FACC; Garrett Lee, MD, FACC; Wolfgang Merx, MD; Hiltrud S. Mueller, MD, FACC; Lawrence A. Reduto, MD, FACC; Peter Rentrop, MD, FACC; Wolfgang Rutsch, MD, Department of Cardiovascular Clinical Research Hoechst-Roussel Pharmaceuticals Inc., Somerville, NJ

Hospital mortality and prognosis following myocardial infarction (MI) relate to the extent of loss of functioning myocardium. Beyond arrhythmia control, C.C.U. care, including interventions to control myocardial oxygen demand, have had little influence on improving ventricular function and mortality. Coronary reperfusion during evolving MI can be accomplished with intracoronary streptokinase thrombolysis. To determine whether benefits accrue by increasing myocardial oxygen supply, 23 patients with evolving transmural MI and baseline ejection fractions (EF) < 35% (mean 28.8%) who demonstrated successful coronary reperfusion following intracoronary streptokinase infusion were compared with 28 similar patients (mean EF 24.2%) treated with standard C.C.U. management. The streptokinase patients represent a subset with the lowest baseline EF among 176 reperfused patients. EF improved in 18, mean follow-up EF increased to 38.0%. Hospital mortality was only 1/23 (4.3%). In the controls, hospital mortality was 11/28 (39.3%) and EF decreased in 7/12 with available follow-up. The results indicate that increasing myocardial blood flow and oxygen supply during evolving MI limits the loss of functioning myocardium and substantially reduces the inhospital mortality in low EF patients.

SERIAL HEMODYNAMIC AND LEFT VENTRICULAR FUNCTION CHANGES FOLLOWING INTRACORONARY THROMBOLYSIS IN ACUTE MYOCARDIAL INFARCTION. Michael J. Cowley, MD, FACC; George W. Vetrovec, MD, FACC; Andrea Hastillo, MD, FACC. Medical College of Virginia, Richmond, Va.

Intracoronary thrombolysis (IT) is associated with improved LV function but the time course for improvement is unclear. Ten patients with acute myocardial infarction (8 inferior, 2 anterior) had right heart pressures (RHP) and LV angiographic parameters [ejection fraction (EF), stroke volume (SV), stroke work index (SWI) and CI] measured pre-IT, immed post-IT and late (13 ± 1 days) after successful IT.

	pre-IT	immed post	late
RA	10 ± 2 (SEM)	13 ± 2	3 ± 0.3
mean PA	21 ± 2	27 ± 2	16 ± 1
PA wedge	15 ± 2	20 ± 2	9 ± 1
LVEF	44 ± 4	53 ± 4	53 ± 4
CI	2.5 ± 0.3	3.3 ± 0.3	3.1 ± 0.3
SV	57 ± 4	81 ± 6	81 ± 5
SWI	29 ± 2	43 ± 3	41 ± 3

Comparison of RHP pre- and immed post-IT showed significant increases in RA (p< 0.05), PA (p< 0.01), and wedge (p< 0.05). LV function improved immed post-IT with ↑ EF (p< 0.02), CI (p< 0.05), SV (p< 0.001), and SWI (p< 0.001) compared with pre-IT. Late RA, PA, and wedge were each significantly improved (p< 0.01) compared to both pre- and immed post-IT. Compared with pre-IT, late LV function was significantly improved for EF (p< 0.02), CI (p< 0.05), SV (p< 0.001) and SWI (p< 0.001) and unchanged compared with immed post-IT. Thus, successful IT is associated with immed improvement in LV function despite immed ↑ in RHP. At late study, RHP have significantly improved and LV function remains improved without further change from immed post-IT values.