onset of severe chest pain (8 anterior, 6 inferior AMI) and restudied (4 hrs. & 5 days) after coronary artery revascularization therapy (acute PTCA or rtPA-thrombolysis). IB (dB) was measured frame by frame within regions of interest (21 × 21 pixel) in normal and ischemic myocardium and CVIB (= IB enddiastole-IB endsystole/IB enddiastole in %) was calculated. Success of revascularization therapy was determined by coronary angiography, regional wall thickening and follow-up of myocardial enzymes.

Results: CVIB was significantly decreased in acute infarcted myocardium in comparison to normal regions (8.9 ± 7.6% vs. 20.9 ± 7.8%, $p \leq 0.001$) before reperfusion. CVIB increased significantly to 24.3 ± 12.1% and 22.5 ± 11.3% (4 hrs. & 5 days respectively) vs. normal values (21.8 ± 9.1%, n.s. and 23.3 ± 7.5%, n.s.) after successful reperfusion (8 pts.). CVIB did not recover in 6 pts. with 12.3 ± 2.9% (4 hrs., $p \leq 0.01$) and 13.7 ± 9.4% (5 days, $p \leq 0.05$) in whom reperfusion therapy was unsuccessful.

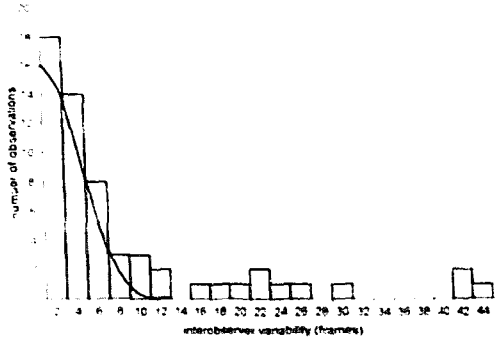
Conclusion: CVIB detects immediately acute myocardial infarction and delineates early beneficial effects of coronary artery revascularization therapy.

1058-150 TIMI Frame Count, a Reproducible Quantitative Index of Coronary Flow?

A. Huizenga, W.R.M. Aengevaeren, T. van der Wert, F.W.A. Verheugt.
Department of Cardiology, University Hospital, Nijmegen, The Netherlands

TIMI frame count (TFC) has been introduced as a simple, reproducible quantitative index of coronary flow in acute myocardial infarction. TFC is based on the time interval, expressed in frames, between initial appearance of contrast in the proximal artery and its arrival at certain prespecified distal landmarks.

To analyze interobserver variability, three independent experienced angiographers assessed TFC's of 30 coronary arteriograms (10 LAD, 10 RCX, 10 RCA) giving 60 duplo determinations. When presented in a histogram we noted that in about 80% of the cases Gaussian distribution with a standard deviation of about 3 frames was appropriate. In 20%, however, considerable disagreement between observers existed, caused by different interpretation of the distal landmark. The Bland-Altman presentation showed that their differences were arbitrarily distributed (see below).



Conclusion: In 80% of observations TFC was a reproducible quantitative index of coronary flow with a standard deviation of 3 frames. In about 20%, however, considerable discrepancies occurred, caused by uncertainty about distal landmark identification for which a better definition is needed.

1058-151 Prehospital Ambulance 12-Lead Electrocardiograms Reduce Door to Needle Time for Thrombolysis in the Emergency Room

P. DiLorenzo, L. Martin, III, T. Mayer, M. Burke, E. Rubino, M. Sheridan.
Institute of Research and Education, Inova Fairfax Hospital, Fairfax, Virginia, USA

Background: Rapid administration of fibrinolytic therapy in eligible acute myocardial infarction patients confers a survival improvement. Prehospital 12-lead EKGs should result in quicker diagnosis of acute myocardial infarction. Fairfax County Emergency Medical Services began installing 12-lead EKG machines in their complement of ambulances beginning May 1996. We compare door-to-needle times (DTNT) in contemporaneous fibrinolytic treated patients in one center.

Methods: Beginning December 1995, we prospectively analyzed 240 consecutive fibrinolytic treated patients at Fairfax Emergency Room. This group was comprised of 35 walk-in patients, 165 ambulance patients without prehospital 12-lead EKGs (AM - EKG), and 40 ambulance patients with prehospital 12-lead EKGs (AM + EKG). There were no significant baseline differences between the groups.

Results:

	WALK-INS	AM - EKG	AM + EKG
Door to needle time (min)	63.13	45.24	28.86

The Walk-in group DTNT was significantly longer than the AM - EKG group ($p < 0.01$) and the AM + EKG group ($p < 0.001$). Walk-in patients have the longest DTNTs. The AM - EKG group DTNT was significantly longer than the AM + EKG group ($p < 0.01$). Prehospital 12-lead EKG performance hastened fibrinolytic treatment by 16 minutes.

Conclusion: Ambulances equipped with 12-lead EKG machines result in more rapid fibrinolytic treatment. Fibrinolytic treated walk-in patients have significantly longer DTNTs than similar ambulance patients.

1058-152 Body Surface Mapping and the 12-LeadECG for Non-Invasive Assessment of Reperfusion Following Thrombolytic Therapy in Acute Myocardial Infarction

I.B.A. Menown, S.R. McMechan, J. Allen, J. Anderson, A.A.J. Adgey.
Regional Medical Cardiology Centre, Royal Victoria Hospital & University of Ulster, Belfast, UK

Background: Early reperfusion is associated with good prognosis after acute myocardial infarction (AMI) but assessment using 12-lead ECG and/or biochemical markers has produced sub-optimal results. Body surface mapping (BSM) utilizes a much larger area of sampling with spatial and temporal resolution.

Methods: Serial 64-lead anterior BSMs were recorded from 67 patients (pts) with AMI having coronary angiography 90 mins after thrombolytic therapy. BSM1 was taken prior to, or up to 85 mins after therapy (mean 18 mins ± SD30), and BSM2 at 90–220 mins (mean 124 mins ± SD25). A difference map (BSM1–BSM2) was constructed. From the 12-lead ECG at the time of BSM1, the maximum ST elevation (STEmax) was noted. ≥50% ST resolution in the same lead on ECG2 represented reperfusion. The 67 pts were randomly divided into a training (T) set (34 pts) and validation (V) set (33 pts). Isointegral (area) and isopotential ST-T variables from difference maps of Tset pts were compared with TIMI flow using a discriminant function to identify which variables (24) best classified reperfusion. A model containing these variables was then tested prospectively in the Vset.

Results: Reperfusion occurred in 32/34 Tset pts (27 TIMI3, 5 TIMI2) and 29/33 Vset pts (25 TIMI3, 4 TIMI2). In the Tset, use of STEmax resolution correctly classified 24/32 pts (sensitivity 75%) who reperfused and 1/2 occluded pts (specificity 50%). In the Vset, STEmax resolution classified 16/29 pts (sensitivity 55%) who reperfused and 2/4 occluded pts (specificity 50%). In comparison, using BSMs, in the Tset the model correctly classified all pts. When tested in the Vset the model classified 28/29 pts who reperfused (sensitivity 97%) and all 4 occluded pts (specificity 100%).

Conclusion: BSM is a much more useful non-invasive tool than the 12 lead ECG in the assessment of reperfusion after thrombolytic therapy for AMI.

1058-153 Myocardial Viability and Left Ventricular Function Recovery After Direct PTCA: Comparison to Front-loaded rTPA

G. Pizzetti, C. Lu, I. Sheiban, A. Margonato, G. Vicedomini, S.L. Chierchia.
IRCCS H San Raffaele, Milano, Italy

Background: Compared to thrombolysis (TL) direct coronary angioplasty (dPTCA) affords significant improvement in acute patency rate, mortality and post-MI ischemic events. Aim of our study was to compare the effects of dPTCA and TL on residual viability and regional function recovery.

Methods: We studied 96 consecutive patients (pts) admitted within 4 hours from the onset of symptoms for AMI. We excluded 20 pts with no clear-cut ST segment elevation and 6 with cardiogenic shock. Of the remaining 70 pts, 32 underwent dPTCA (gr. 1) and 38 received front-loaded rTPA (gr.2). All underwent echocardiograms on admission, after 4 days during dobutamine infusion (5–10–20 mcg/kg/min) and at discharge. For each patient, we calculated the dysfunction score on admission (hypokinesia = 1, akinesia = 2, diskinesia = 3) and its percent reduction after dobutamine (viability) and at discharge (recovery). Gr.2 patients underwent elective PTCA within 7 days, if the infarct-related artery had more than 60% residual stenosis.

Results: On admission, there were no differences in age, sex, site of MI, time from onset of symptoms, ST-segment elevation (gr.1: 20 ± 11, gr.2: 18 ± 8), dysfunction score (18 ± 5 vs 16 ± 6) and EF (47 ± 10 vs 49 ± 9%). The delay from onset of symptoms and treatment was significantly greater in gr.1 (144 ± 96 vs 108 ± 64 min, $p < 0.05$). Results were as follows:

MONDAY POSTER