The following full text is a publisher's version.

For additional information about this publication click this link.
http://hdl.handle.net/2066/23569

Please be advised that this information was generated on 2020-06-25 and may be subject to change.
to PTCA (n=63) or CABG (n=64). The primary end point of this study was to compare freedom from combined coronary cardiac events (death, myocardial infarction repeat revascularization procedures and angina) and late cost between both groups of patients at 1.5 and 5 years follow up. Results: At five years freedom from combined cardiac events was significantly greater in CABG group (89±5 vs 80±10%, p<0.001) and higher lesion success (98 vs 96%, p<0.05) and the cumulative cost was significantly lower in CABG (2,095±1,201 vs 2,321±1,073, p<0.048). Degree of control assessed as venous hemoglobin (HbA1C) at the time of intervention, correlated with late outcome. The relative risk of the combined endpoint death, MI, or severe angina at 5 years compared with CABG was 2.7 times greater in the PTCA group (HbA1C 9.4± 11.1% vs 7.9± 9.9%, p<0.001). Cubal cumulative late cost at 5 years was greater for CABG than for PTCA group (US $320,000 vs $491,000, p<0.001). Conclusion: Patients with multiple vessel CAD treated with CABG were more frequently free from angina and need for new revascularization procedures than patients treated with PTCA. However, there were no differences in mortality, myocardial infarction and need for new revascularization procedures at long term follow up.

The results of this study are consistent with previous studies that have shown that CABG is more effective than PTCA for the treatment of multivessel coronary disease. CABG is associated with lower mortality and higher lesion success compared to PTCA. Therefore, CABG is the preferred treatment for patients with multivessel coronary disease.

The Role of Diabetes in Long-Term Survival After Coronary Bypass and Angioplasty

Nancy L Hassling, Diane E Grill, David R Holman, Jr., Mayo Clinic, Rochester MN USA

Diabetic patients (DPs) frequently present for revascularization and account for 12-25% of patients in published clinical trials. Mortality may be higher in DPs after PTCA than CABG as seen in subgroup analysis of randomized trials (death 71%, 95% confidence interval 65-78% vs 55%, 95% confidence interval 45-65%, p<0.001). As expected from prior trials, however, DPs had a higher incidence of CK-MB elevation 3 to 5 times normal (15± 13% vs 28±13%, p<0.001) in the setting of otherwise uncomplicated procedures. Six month angiographic follow-up was expected to be complete by July 1995 with 1 year clinical follow-up complete by November 1995. This will determine whether the acute results of larger lumens following atherectomy translates into reduced angiographic and/or clinical restenosis (measured as TR, clinically-driven repeat revascularizations of the target lesion, whether there is any increase in late mortality risk (as suggested by CAVEAT), and whether there are any late clinical consequences of post-procedural CK elevation in pts with otherwise successful DCA of conventional angioplasty. Full data on these end-points will be presented.

Outcomes and Their Predictors after PTCA in Patients with Type II Diabetes Mellitus

Nancy L Hassling, Diane E Grill, David R Holman, Jr., Mayo Clinic, Rochester MN USA

At the end of follow up of 1 year there was no significant difference between DPs and nonDPs for age, gender, degree of disease, and date of procedure. Results: DPs had a significantly higher prevalence of prior CABG (25± 14% vs 14± 11%, p<0.001), HTN (69 vs 46%), CHF (23 vs 8%), and had lower ejection fractions (59± 63%) compared to nonDPs; unstable angina and history of MI were not different. Technical success rates (99% vs 98%) and early (in hospital) complication rates (DS= 2.3% vs 3.9%, p<0.001). As reported from prior trials, however, DPs had a higher incidence of CK-MB elevation > 3 times normal (15± 13% vs 28±13%, p<0.001) in the setting of otherwise uncomplicated procedures. Six month angiographic follow-up was expected to be complete by July 1995 with 1 year clinical follow-up complete by November 1995. This will determine whether the acute results of larger lumens following atherectomy translates into reduced angiographic and/or clinical restenosis (measured as TR, clinically-driven repeat revascularizations of the target lesion, whether there is any increase in late mortality risk (as suggested by CAVEAT), and whether there are any late clinical consequences of post-procedural CK elevation in pts with otherwise successful DCA of conventional angioplasty. Full data on these end-points will be presented.

The Association between a History of Diabetes and Outcome in Patients Undergoing Percutaneous Interventions

P. David Anderson, Nancy W. Wildermann, Richard A. Harrington, Gregory W. Bannes, David P. Faxon, E. Magnus Ohman, Duke University, Durham NC USA

To study the relative importance of diabetes compared with other risk factors for adverse outcomes (death, Ml, or repeat revascularization) we pooled data from 7 multicenter trials. A total of 3338 pts with 6 to 9 mo clinical and angiographic follow-up were included. Diabetics were older (median age 62 vs 59, less often male (63 vs 78), smoked less (64 vs 74%), had more hypertension (63 vs 68%), 3-vessel disease (11 vs 6%), prior MI (49 vs 45%), or repeat PTCA (20 vs 19%), and prior CABG (23 vs 14%). Diabetics and non-diabetics had similar pre-procedure (baseline) and TIMI 3 flow (71 vs 75%). Angiographic success (95± 50%) and abrupt closure rates were similar between groups. Diabetics had higher 6 month restenosis rates (46 vs 44% p=0.04). Outcomes are shown in the table. Multivariable regression revealed that a history of diabetes was associated with higher 6 month composite outcomes after adjusting for baseline variables (x2=4.05 p=0.05) but prior MI, pre-procedure stenosis, and a diseased vessels were more predictive (x2=69 p<0.001). Conclusion: Intermediate outcomes after PCI are best predicted by # diseased vessels, prior MI, and pre-procedure stenosis. Although diabetes predicts composite outcomes, the effect is mild and mostly due to higher restenosis rates.

Clinical Cardiology: Coronary Angiography and Diagnostic Imaging

Tuesday Afternoon

Ballroom D2

Abstracts 2548–2557

After Successful Thrombolysis for Acute Myocardial Infarction Culprit Lesion Morphology does Not Predict Early and Long-Term Outcome

Gerrit Veen, Carlo C de Cock, Freek WA Verheugt, Free University Hospital, Amsterdam, The Netherlands

In the APRICOT study we performed coronary angiography in 294 patients (pts) within 48 (mean 24) hours after successful thrombolysis for acute myocardial infarction (AMI). Culpit lesion morphology was scored as complex or smooth. After 3 months a second angiogram was performed.
Assessment of Coronary Artery morphology by Three-Dimensional Echocardiography

Bernhard Kolesch, Susanne Mohr-Kaetky, Thomas Mezel, Stephan Wagner, Beate Kolthau, Thomas A. Fischer, Uwe Nindorf, Jorgewy Meyer. Johannes Gutenberg-Universitat, Mainz Germany

The aim of the study was the quantitative assessment of left main coronary artery (LMCA), left coronary artery (LCA) and left anterior descending coronary artery (LAD) morphology by three-dimensional echocardiography. Results were compared to quantitative angiography. Method: The

three-dimensional data set was acquired using a multiplane transesophageal echocardiography probe (Vingmed CFM 800 and multiplane probe, 5 MHz) by means of a TomTec 3D workstation. 24 patients were examined (mean age 66 years). Results: In all 24 cases (100%) the mean coronary structure could be reconstructed (intrithinal diameter of the ostium: 1.1 - 5.8mm, analysis of regression compared to angiography: r = 0.88). Visualization of LMCA was possible up to the point of bifurcation in 2 cases (length of LMCA was 2.5mm and 10.8mm, length of determined LAD 6.1mm and 7.7mm, CK 3.2mm and 6.3mm). In 21 cases LMCA was visualized partially (5.1mm to 23.9mm, mean 9.5mm). In one case we found by means of 3D echocardiography that CX and LAD were separate. Results were confirmed using angiography. CX could be reconstructed in 3 cases (length: 3.2mm - 8.0mm, mean 5.9mm, diameter 1.7 - 3.1mm, correlation to angiography r = 0.88). LAD could also be determined in 3 cases (length 9.0 - 7.9mm, mean 8.2mm, diameter 2.0 - 2.0mm, correlation to angiography r = 0.88). In one case we found a stenosis (lumen diameter 1.1mm) in the visible part of LMCA by means of 3D echocardiography whereas the angiographic examination showed a stenosis of 60% of this artery. In two cases with a blunted aortic valve it was possible to describe the exact origin of LMCA. In 5 cases a three-dimensional imaging of the aortic valve and its maximal part was possible to get an impression of the morphology of LMCA. Conclusions: 3D echocardiography provides data about the morphology and the course of the proximal left coronary artery, with dose correspondence results to obtained by angiography. It improves the non invasive assessment of proximal coronary artery.

Echocardiographic Comparison of Three-Dimensional Reconstruction of Coronary Arteries

Robert M Collette, Raj Shekhawat, D G Vince, J F Cambili. Cleveland Clinic Foundation, Cleveland OH USA, Ohio State University, Columbus OH USA

3D visualization of coronary morphology using intravascular ultrasound (IVUS) may aid in evaluating atheroma progression and treatment efficacy. A method for accurate reconstruction of coronary anatomy using IVUS and biplane fluoroscopy has been developed which depicts true arterial curvature and orientation. The IVUS transducer was tracked in time by back-projection of biplane fluoroscopy during unassisted pullback in perfused non-atherosclerotic LADs or. The luminal borders from simultaneously acquired IVUS images were placed perpendicularly to the transducer path at each time point. Retinal orientation was determined by minimizing the mismatch between vesse outlines in angiograms and the reconstruction projected into that plane. The result was subsequently rendered for visualization or planimetry. Vessel curvature, lumen shape, and branch ostia could be easily visualized. Simulated angiograms created by projecting 3D reconstructions to 2D planes compared well with actual angiograms, with up to 71% overlap in lumen area, indicative of the accuracy of the 3D representation. This technique does not depend upon automated pullback and constant/velocity transducer movement, and does not assume the catheter to be straight, torsion-free, or centered in the lumen. This project will be extended to visualize luminal and adventitial surfaces in atherosclerotic arteries, and gated to visualize the vessel during the full cardiac cycle.

Are Quantitative Angiographic Results After Coronary Intervention Affected by the Specific Analysis Algorithms? A Multicenter Trail on 2690 Patients

Alexander J Lansky, Teraza Y Conway, Yan Zhang, Cynthia Senerchia, Nicole B Burwell, Stephanie Ilo, Anthony B Piure, Lahalia F Halli. Washington University Hospital, Washington DC USA, Beth Israel Hospital, Boston MA USA, Harvard Medical Center, Boston MA USA

Binary angiographic restenosis rates after balloon angioplasty have varied substantially in new generation stenosis trials (CAYEAT: 57%; BENESTENT: 33%), possibly due to differences in the angiographic algorithms (QCA) used to analyze these trials. To assess the correlation between QCA algorithms (Artrek; CMS-non GFT), we performed blinded, identical frame QCA in 629 patients before, after, and late following coronary intervention, Pearson correlation (P Corr) is reported (see Table). Between system differences in pre-MLD were highest for irregular lesions (0.12 mm in smooth lesions; p < 0.003), acute loss (Artrek: 1.54 mm; CMS: 1.53 mm) and late loss (Artrek: 0.80 mm; CMS: 0.85 mm) were similar. No differences in restenosis rates (≥50% follow-up stenosis) were identified (Artrek: 30% vs. CMS: 36%). We found that between-system QCA differences (1) are highest for pre-MLD, relating, in part, to lesion contour, but 2) do not appear to influence final angiographic results or late restenosis rates using these two systems.

IMA- AND VEIN GRAFT PATENCY CONTROL BY ECHOCARDIOGRAPHY VERSUS THORAL CORONARY ANGIOGRAPHY AS COMPARED DURING CORONARY BYPASS SURGERY

James Likungu, Winfried Ritzl, Paul G Kirchhoff. Department of Cardiovascular Surgery, Bonn Germany

The values of thoral coronary angiography (TCA) and echocardiography (E) for intraoperative assessment of coronary calcification, graft patency and flow in vein- and internal mammary artery

Abstracts From the 69th Scientific Sessions

I - 437

2545

IMA- AND VEIN GRAFT PATENCY CONTROL BY ECHOCARDIOGRAPHY VERSUS THORAL CORONARY ANGIOGRAPHY AS COMPARED DURING CORONARY BYPASS SURGERY

James Likungu, Winfried Ritzl, Paul G Kirchhoff. Department of Cardiovascular Surgery, Bonn Germany

The values of thoral coronary angiography (TCA) and echocardiography (E) for intraoperative assessment of coronary calcification, graft patency and flow in vein- and internal mammary artery

2545