with perfusion, echo, or ventriculography imaging (ST-IMAGE), CATH and REVASC during the first 60 days following MI. The median age was 76.6 yrs, 50.4% were women. Overall 22% had at least one NIST, 14% had ST-IMAGE, 35% had CATH and 21% had REVASC. Patterns of post-MI care by U.S. census region are displayed below:

Region (n)	NIST (%)	ST-IMAGE (%)	CATH (%)	REVASC (%)
New Engl (14,383)	30	21	23	14
Mid Atlant (37,019)	21	16	26	15
S Atlantic (33,019)	22	15	38	22
N Central (46,991)	22	13	37	23
S Central (29,762)	17	10	39	24
Mountain (8,340)	24	12	43	29
Pacific (20,218)	20	10	35	23

Conclusion: While considerable geographic variability existed in post-MI care, regions using high rates of non-invasive tests (e.g., New England) were generally less likely to use catheterization or revascularization procedures.

3:15

799-6 Can Clinical Variables Be Determined and Outcome Models Be Developed From a Claims Database?

W.S. Weintraub, C. Warner, D.C. Morris, C. Saunders, D. Canup, S. Connolly, S. Boccuzzi. *Emory University, Atlanta, GA, USA*

Claims databases are readily available and are being used to assess outcome and severity of illness. To determine the usefulness of the ub92 claims database at Emory University, 11 clinical descriptors were compared to a prospectively collected clinical database. Data were collected on 11,883 patients admitted for cardiac catheterization or coronary revascularization. The sensitivities (Sens) and specifities (Spec) of claims compared to clinical data were: diabetes 87% & 99%, insulin dependence 55% & 98%, hypertension 75% & 90%, angina 5% & 96%, congestive failure 54% & 92%, myocardial infarction 42% & 94%, peripheral vascular disease 20% & 99%, cerebrovascular disease 37% & 96%, chronic obstructive pulmonary disease 12% & 100%, hyperlipidemia 42% & 93%, and chronic renal failure 18% & 100%. Claims variables were consistently Spec, but variable Sens. While the results from this institution may not be generalizable, other institutions may have increased Sens at the expense of Spec. In addition there is no generally available database to audit against and definitions may vary. Outcome models for patients undergoing PTCA or CABG were also developed. Claims variables that could be complications, such as congestive failure predicted future events, but claims variables that were not related to complications such as hypertension or diabetes were either not predictive of events, or less predictive than data from the clinical database. The claims data lack descriptors of acuity and severity of illness such as ejection fraction and vessels diseased. Claims data offer little that is reliable to predict outcome except for age and sex. In the absence of audit and agreed to definitions, the use of claims data for severity assessment and adjustment and interinstitutional comparison may not be justifiable and outcome models from claims data may not be reliable.

800 MRI/CT/PET in Ischemic Cardiac Disease

Wednesday, March 19, 1997, 2:00 p.m.–3:30 p.m.
Anaheim Convention Center, Room A19

2:00

800-1 Stress FDG PET Imaging as a New Approach to the Diagnosis of Coronary Artery Disease in Women

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The diagnosis of CAD in women is a major clinical challenge. FDG (fluorine (F)-18 deoxyglucose) PET is the gold standard for detection of myocardial ischemia at rest. Thus far there has been little published experience with stress FDG imaging. Stress FDG imaging has not been studied specifically in women.

We performed stress FDG PET testing in 19 women (age = 59 ± 10, ht = 1.6 m ± 0.1, wt = 77 kg ± 14) referred for investigation of chest pain. Seventeen patients (pts) had had prior stress Tl-201 images which were positive or termed equivocal due to possible attenuation artifact. FDG and SestaMIBI were injected at peak stress (treadmill n = 8, dipyridamole n = 11), followed by PET and SPECT image acquisition. Myocardial regions of reduced MIBI uptake were identified. Increased FDG uptake in such regions defined ischemia. Coronary angiography was performed on all pts.

Nine of the 19 pts had significant CAD (stenosis ≥50%). Eight of 9 pts with CAD had FDG defined ischemia (sensitivity = 89%). One of the 10 pts without CAD had FDG defined ischemia (specificity = 90%). Results showed a Positive Predictive Accuracy of 89% (8/9), Negative Predictive Accuracy of 90% (9/10), and diagnostic accuracy of 89% (17/19). Nine pts without CAD had had positive or equivocal Tl-201 images (false positive rate = 53% (9/17)), but no FDG ischemia.

Stress FDG PET shows excellent sensitivity, specificity, and predictive accuracy in this group of patients. This novel approach may complement the diagnosis of CAD in women where the interpretation of Tl-201 SPECT images is often difficult.

2:15

800-2 The Severity of Coronary Artery Calcification by Ultrafast Computed Tomography Predicts Patients with Stress-Induced Myocardial Ischemia

Z.-X. He, N.M. Lakkis, T.D. Hedrick, C.J. England, M.S. Verani, R. Roberts, J.J. Mahmarian. *Baylor College of Medicine, Houston, TX, USA*

Cardiac ultrafast computed tomography (UFCT) is a new noninvasive technique which can accurately detect the presence of coronary atherosclerosis based on the extent of coronary calcification. The coronary artery calcium score (CACS) is derived from the calcium burden in each coronary artery and the severity score is based on the CACS and patient age. There are currently no data as to whether CACS severity predicts the presence of stress-induced myocardial ischemia. Accordingly, we studied 76 subjects (59 men, 17 women, mean age 58 ± 10 yrs) who were screened for CAD with UFCT and who had stress myocardial perfusion tomography (SPECT) within 22 ± 44 days. The CACS was severe in 37, moderate in 33 and mild in 6 pts. SPECT was abnormal in 20/76 pts (26%) and was significantly related to the CACS. Abnormal SPECT was observed in 41% with a severe, but only 15% with a moderate and 0% pts with a mild CACS ($p = 0.017$). The mean CACS was significantly higher in pts with abnormal vs a normal SPECT (1053 ± 1013 vs 371 ± 502, $p < 0.01$). Furthermore, only 4/45 (9%) pts with a CACS < 400 had abnormal SPECT vs 16/31 (52%) pts with a CACS ≥ 400 ($p < 0.001$). In pts with abnormal SPECT, the stress perfusion defect was also significantly smaller in pts with CACS < 400 vs those with CACS ≥ 400 (6.5 ± 3.7 vs 17.4 ± 11.5, $p < 0.001$). *Conclusion:* The CACS predicts pts with high risk for myocardial ischemia. Asymptomatic pts with CACS < 400 are at low risk for myocardial ischemia whereas those with CACS ≥ 400 should have further testing with SPECT.

2:30

800-3 Intravenous Three Dimensional Coronary Angiography Using Contrast Enhanced Electron Beam Computed Tomography

M.J. Budoff, R.J. Oudiz, C.P. Zalace, H. Bakhsheshi, S.L. Goldberg, T.G. Rami, B.H. Brundage. *Harbor-UCLA Medical Center and St John's Cardiovascular Research Center, Torrance, CA, USA*

Electron beam computed tomography (EBCT) has high resolution three dimensional capabilities. This emerging technology has the potential for essentially non-invasive coronary arteriograms after intravenous injection of contrast material.

Intravenous EBCT scanning was performed and the results compared to coronary angiography in 14 patients (64% male, mean age 53 ± 9 years). The two studies were performed within one month (mean 12 ± 9 days) of each other during the evaluation of coronary artery disease. After intravenous injection of 120–180 ml of non-ionic contrast, 40–45 ECG triggered images were obtained by EBCT, and reconstructed three-dimensionally. Blinded investigators evaluated stenoses present by EBCT and coronary angiography. Significant angiographic disease was defined as ≥50% luminal diameter stenosis in that vessel for both techniques.

Coronary stenoses were compared in 56 vessels (14 LM, 14 LAD, 14 LCX, 14 RCA). Of the 56 vessels, 52 (93%) could be evaluated by EBCT. Four RCA vessels were excluded from evaluation due to motion artifacts on the EBCT images. EBCT correctly identified 25/27 of the normal arteries and 20/25 of the significant lesions identified by coronary angiography. Intravenous EBCT angiography yielded two false positive and 5 false negative (underestimates) of coronary lesions when compared with contrast angiography (sensitivity = 80%, specificity = 93%).

Intravenous EBCT angiography is a safe and non-invasive technique with great potential impact for the diagnosis and treatment of coronary artery disease. The results of this prospective study are promising. Further evaluation of this technique is warranted.