9:15

EXERCISE-INDUCED ISCHEMIA MAY REMAIN "SILENT" BECAUSE IT INVOLVES A SMALLER MASS OF THE LEFT VENTRICLE: TOMOGRAPHIC THALLIUM STUDIES IN DOGS AND HUMANS.

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Hypothesis: myocardial ischemia (ISCH) might remain "silent" (SL) because the ISCH zone involves a smaller mass (%) of the LV than in "painful" (PN) ISCH. For validation we first studied dogs having isoproterenol stress tomographic (SPECT) Tl-201 imaging with partial coronary stenosis (n=9). The Bullseye showed that the % LV pixels defined as abnormal by objective criteria was related to the IZ/LV measured by dye injection postmortem (r=0.65). The severity (SEV) of the Tl-201 defects (standard deviations, SD, below the normal file) related closely to the % reduction in peak coronary blood flow (r=0.88). From a large group of pts, we selected all 32 who had coronary disease on angiography with redistribution of a SPECT Tl-201 defect on exercise testing (ETT) to define ISCH. Only 50% of these pts had chest discomfort during ETT to define PN-ISCH,

	n	ExT	% LV	SEV	MVD
SL-ISCH	16	6 ± 1	14 ± 11	4.3 ± 0.6	4
PN-ISCH	16	5 ± 1	23 ± 10*	4.2 ± 0.8	9**

ExT = Exercise time in min; % LV = % LV pixels in defect on Bullseye; SEV = SD below normal in defect; MVD = multivessel disease on angiography; * = $p < 0.03$, ** = $p < 0.06$, PN vs. SL. Consistent with the Tl-201 data, multivessel disease (MVD) was more common in PN than SL-ISCH ($p < 0.06$). In conclusion, when ISCH was defined by Tl-201 redistribution, (1) ISCH was "silent" in 50% of the pts and (2) "silent" ISCH was associated with Tl-201 defects that were substantially smaller than in pts with "painful" ISCH during ETT.

9:30

LIMITATIONS OF CURRENT METHODS FOR EVALUATING PATIENTS PRESENTING TO THE EMERGENCY ROOM WITH CHEST PAIN.

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Currently, the history, physical examination, and ECG are used to evaluate patients presenting to the emergency room (ER) with chest pain suggestive of a cardiac etiology. These variables have been previously applied to stratify such patients into high- or low-risk for acute cardiovascular events. Whether the routine ER evaluation for chest pain can predict long-term cardiovascular outcome, however, is not known. Accordingly, we analyzed data from 266 consecutive patients (mean age = 61 ± 14 yrs) evaluated in the ER for symptoms suggestive of a cardiac etiology. Eighty-five adverse events occurred during a 2-yr followup: 54 AMI, 15 deaths, 4 life-threatening arrhythmias, 5 strokes, 5 revascularization procedures, and 2 valve surgeries. The significant predictors of events by multivariate Cox regression analysis for all patients were ($X^2 = 135$, $p < 0.0001$): age; family history of coronary disease; presence of S3; and, presence of an abnormal ECG. ST elevation, Q waves, and a paced rhythm were also significant risk factors. These variables remained significant for the 68 events that occurred in the 166 patients admitted to the hospital. They failed, however, to predict the 17 events (including 6 deaths, 4 AMI, and 4 strokes) that occurred in the 106 discharged patients. Except for age, no other variable was identified as a risk factor for the 16% event rate in this group.

We conclude that the long-term cardiac event rate is high (8%/yr) in patients with chest pain who are discharged from the ER. Current methods for predicting events in these patients are inadequate. Other approaches are, therefore, needed to better risk-stratify such patients in the ER so that appropriate interventions can be planned.

9:45

TRANSIENT MYOCARDIAL ISCHEMIA DURING DAILY LIFE IN PATIENTS WITH MIXED ANGINA PECTORIS.

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We studied 65 pts with history of angina at rest and during exercise (mixed angina: MA) by means of a questionnaire based on visual analogue scales(VAS), an exercise test(ET), and an ambulatory Holter monitoring(H). According to the VAS the proportion of episodes on effort ranged from 1 to 99%; rate pressure product (RPP) at ischemia during ET ranged from 11000 to 35000. On H, 45% of the pts revealed myocardial ischemia, and 71% of the episodes were asymptomatic. Ischemia on H was more frequent ($p<.05$) in pts with ≥50% anginal episodes on effort (72%), with ischemic threshold ≤20000(77%) and with multivessel coronary disease (92%). The effects on H ischemia of metoprolol (M) or nifedipine (N) were then evaluated in a double-blind parallel group study, for 6 weeks. With M a significant reduction in the number of ischemic episodes was observed throughout the 24 hours (-70%; $p<.05$), independently from the VAS and ischemic threshold on ET. N did not reduced ischemia on H but increased it (+77%) in pts with angina predominantly on effort and particularly during daytime. Thus, in mixed angina ischemia on H mostly occurs in pts with poor coronary reserve and is effectively prevented by betablockade.

Tuesday, March 5, 1991
8:30AM–10:00AM, Room 264, West Concourse
Ventricular Tachycardia: Sudden Cardiac Death

8:30

RADIOFREQUENCY CATHETER ABLATION OF VENTRICULAR TACHYCARDIA IN PATIENTS WITHOUT STRUCTURAL HEART DISEASE

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Catheter ablation techniques eliminate ventricular tachycardia (VT) (without antiarrhythmic drugs) in only 15-35% of pts. We hypothesized that VT pts without structural heart disease (SHD) would be best suited for catheter ablation because of the absence of endocardial scar tissue. We therefore attempted radiofrequency energy (RF) catheter ablation of VT in 4 pts (2 males) aged 28-43 (mean 37) yrs without SHD who had symptomatic recurrent sustained or incessant VT for 2-20 (mean 10.5) yrs and had failed therapy with 4-10 (mean 6) antiarrhythmic agents. The morphology of VT was LBBB/inferior axis (3 pts; mean VT cycle length 373 msec) and consistently mapped to the RV outflow tract, and was RBBB/superior axis (1 pt; VT cycle length 380 msec) that mapped to the mid posteroseptal LV. Pts received 1-13 (mean 7) RF pulses. Endocardial activation preceded the QRS by 30-55 (mean 41) msec at successful RF ablation sites at which 52-68 (mean 60.3) volts and 530-660 (mean 595) mA of RF energy was delivered. Termination of VT during delivery of RF predicted successful ablation. VT could no longer be induced immediately, 30 minutes, or 3 days later in any pt and all pts remain free of recurrent VT for a followup period of 1-3 (mean 1.5) months. There were no complications and followup echocardiograms were normal in all 4 pts. We conclude that if early endocardial activation can be found during VT, RF catheter ablation of VT in pts without SHD is safe and effective and should be considered as an early therapeutic option.