

in atherosclerotic lesions may cleave structural proteoglycans, which could induce potential separation of caps and shoulders from lipid cores. Because ML exhibits limited inhibition by tissue inhibitors of metalloproteinases as compared with collagenase or gelatinase, it is a likely candidate for lesion destabilization.

### 1006-21 Cytokine Profiles of T Cell Clones From Human Atherosclerotic Plaques

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T cells can be divided into three subpopulations:  $T_H1$  cells, which produce IL-2 and IFN- $\gamma$ ,  $T_H2$  cells which produce IL-4, IL-5 and IL-10, and  $T_H0$  cells which produce both IFN- $\gamma$  and IL-4. Atherosclerotic lesions are characterized by the presence of an inflammatory infiltrate. Besides activated (HLA-DR<sup>+</sup>) macrophages, activated memory T lymphocytes are also present in such lesions. The role of these T lymphocytes in relation to the pathogenesis of atherosclerosis is unknown. The purpose of the present investigation is to analyse the cytokine profiles of T cells in atherosclerotic plaques.

Aortas were collected at autopsy within 5 hours postmortem. The lesional intima was removed, T lymphocytes were isolated, and polyclonally expanded using PHA. After approximately one week the obtained cell lines were cloned using limiting dilution. Cytokine profiles of the obtained T cell clones were analyzed. Therefore, supernatants were collected after 24 hours of culture with coated OKT-3 and PMA, and the production of IL-4, IFN- $\gamma$  and IL-2 was analyzed using a sandwich ELISA.

From four donors, a total of 81 T cell clones were generated, 72 of them were CD4<sup>+</sup>, and 9 were CD8<sup>+</sup>. Most CD4<sup>+</sup> clones ( $\pm 90\%$ ) produced both IFN- $\gamma$  and IL-4 ( $T_H0$  type). However, 10% of the CD4<sup>+</sup> clones showed a  $T_H1$ -like cytokine profile.

Our results indicate that the T cell population in plaques is heterogeneous and both IL-4 and IFN- $\gamma$  may participate in regulating local inflammatory responses.

### 1007 Hypertension

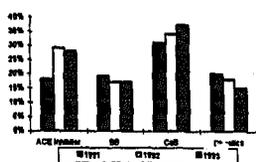
Wednesday, March 27, 1996, 9:00 a.m.—11:00 a.m.  
Orange County Convention Center, Hall E  
Presentation Hour: 9:00 a.m.—10:00 a.m.

### 1007-85 Recent Trends in Antihypertension Therapy

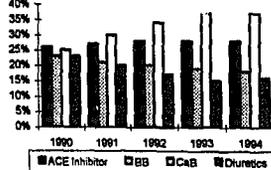
Nicholas A. Hanchak, Stephen J. Boccuzzi, Shawn MacPherson, Fred Zeller, James F. Murray, Neil Schlackman. *U.S. Quality Algorithms, Inc., Blue Bell, PA; Merck & Co., Inc. West Point, PA*

Administrative data were used to evaluate the effects of JNC V on treatment patterns of hypertension (HTN) in a 2 million member independent practice HMO with an open formulary. Newly diagnosed members with HTN were defined on the date of their first claim/encounter with HTN-specific ICD-9 criteria, preceded by at least a 12 month interval without HTN criteria, and corroborated by a second criterion (drug claim within  $\pm 6$  months or a second ICD-9 encounter/claim within  $\pm 12$  months). As shown below, calcium blockers (CaB) were preferentially chosen for new starts 1991 to 1993 with a concomitant decline in diuretics and beta blockers (BBs). This correlated with an increasing penetration of CaB in point prevalence of treatment patterns for all members with HTN (new and previously diagnosed) at year end 1994 to 1994.

First Drug Used for New HTN



Drugs for HTN by Year



Thus, despite JNC V's emphasis on BBs and diuretics as preferred first-line agents, CaBs continue to show increased penetration for both new starts and overall treatment of HTN.

### 1007-86 Significantly Increased Left Ventricular Mass Is Detected by 3D Echo in Clinically Normotensive Patients With Exercise Induced Hypertension

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One-third of clinically normotensive patients with exercise induced hypertension (ExHBP) will develop overt hypertension within 5 years. The presence of increased LV mass in these patients remains controversial. We hypothesize that previous failures to detect increased mass by 1D and 2D echo have been due to their large measurement variability which has masked a relatively small difference of LV mass compared to normal subjects. The purpose of this study was to compare the 3D, 2D and 1D echo methods in a group of 20 patients with atypical chest pain, negative treadmill test and ExHBP (increase of SBP > 85 mmHg in males, increase of SBP > 60 mmHg in females) to 20 age and sex matched normal subjects. LV mass was calculated for 3D echo by ventricular surface reconstruction using a real-time scanner to acquire 8–10 short axis cross-sections, an acoustic spatial locator, a personal computer and the line of intersection display for operator guidance. LV mass was calculated by 2D echo (ASE truncated ellipsoid method) and for 1D echo (Penn method). Mass was indexed to height<sup>2.7</sup>. Data were analyzed by the unpaired T test.

	Mass Index Mean $\pm$ SD	T	p
3D-ExHBP	54.6 $\pm$ 7.9 g/m <sup>2</sup>	4.44	0.0001*
3D-Normal	43.7 $\pm$ 6.0 g/m <sup>2</sup>		
2D-ExHBP	51.5 $\pm$ 14.5 g/m <sup>2</sup>	0.13	0.90
2D-Normal	50.8 $\pm$ 20.2 g/m <sup>2</sup>		
1D-ExHBP	69.5 $\pm$ 33.5 g/m <sup>2</sup>	0.41	0.68
1D-Normal	65.7 $\pm$ 23.3 g/m <sup>2</sup>		

**Conclusion:** LV mass in clinically normotensive patients with exercise induced hypertension is significantly increased compared to normal subjects. 3D echo but not 2D or 1D echo detects this change due to its smaller measurement variability (standard deviation).

### 1007-87 Reliability in Patient-Reported Ambulatory Blood Pressure Monitoring

Usman Alam, John R. Meyers, Lawrence Van Egeren, Raymond H. Murray. *Michigan State University, East Lansing, Michigan*

Blood pressure (BP) recordings taken by patients are used with increasing frequency to establish the diagnosis of hypertension (HTN) and judge the adequacy of treatment. It is important for physicians to be confident of the reliability of these recordings. Thirty-eight subjects (14 with high BP, 12 borderline high BP and 12 normotensives) were a 24-hour ambulatory BP monitor with a memory chip capable of storing all measurements made during the testing period. Subjects were instructed to record their BP on diary cards when it was displayed by the monitor. They were not told of the memory chip until after the testing period. Of all valid BP measurements made on 14 hypertensive subjects, 21.5% involved significant errors: the subject neglected to record any BP value or the recorded value was incorrect. The normotensives' error rate was 18.6% (12 subjects) and borderline hypertensives' error rate 27.4% (12 subjects). Subject reported mean arterial pressure differed significantly from machine reported mean arterial pressure ( $t = 2.16$ ,  $df = 37$ ,  $p = 0.38$ ). Hypertensives made a disproportionately larger number of misreporting errors which were above the true BP ( $f = 6.54$ ,  $df = 1$ ,  $p = 0.18$ ). This pilot study suggests that home BP measurements reported by patients may not be as reliable as is generally thought.

### 1007-88 DD Genotype of the Angiotensin-Converting Enzyme (ACE) Gene Is Associated With Abnormal Diastolic Function in Essential Hypertension

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An insertion/deletion polymorphism in the ACE gene accounts for 50% of the variation in serum ACE activity. ACE is responsible for the generation of angiotensin II which has not only pressor and mitogenic activity but also impairs active myocardial relaxation. We investigated the contribution of genetic polymorphisms at the ACE gene to the development of diastolic functional abnormalities in 100 patients with essential hypertension. All patients underwent echocardiographic assessment of left ventricular mass index (LVMI) and diastolic function ratios of peak and integrals of early to late filling (E/A<sub>1</sub> and E/A<sub>2</sub> respectively), and determination of ACE genotype from leukocyte DNA. There was no significant difference in age, sex blood pressure or LVMI among genotypic groups. Analysis of covariance (ANCOVA) modelled for indices of diastolic function, adjusting for age, sex, heart rate and LVMI demonstrated the E/A<sub>1</sub> interacted with age ( $p < 0.0001$ ), heart rate ( $p <$