the development of LVH in hypertensive patients, either directly or through the effects of BP.

**710-2** Association of DD Genotype of Angiotensin Converting Enzyme With Hypertension

Alan C. Wilson, Ziad A. Abbud, John B. Kostis from the UMDNJ-Robert Wood Johnson Medical School Clinical Center Based on the TONE Database. UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ

Angiotensin converting enzyme (ACE) gene polymorphism has been associated with increased levels of the enzyme as well as with acute myocardial infarction and other cardiovascular syndromes. However, the data on the association of DD genotype with hypertension are contradictory. This could be due to the multifactorial etiology of hypertension, sampling variation and incomplete adjustment for confounders.

To evaluate the relationship of ACE polymorphism to hypertension, we studied 209 patients with essential hypertension requiring drug therapy and 96 age matched normotensive controls.

Among the 209 patients with hypertension 78 (37.3%) had DD genotype, 102 (48.9%) ID and 29 (13.9%) II genotype. Among the 96 normotensive controls, the corresponding frequencies in the control group were 28 (29.2%) DD, 46 (47.9%) ID and 22 (22.9%) II (p = 0.035 for DD vs. II). The allele frequency of D was 0.62 in the hypertensive group and 0.53 in the control group. The unadjusted odds ratio for the association of DD with hypertension was 1.46 (95% C.I. 0.85-2.54).

Patients with hypertension were of similar age (65 ± 7 vs. 68 ± 4 years old) but had higher BMI (28.7 vs. 26.8, p < 0.001) than the normotensive controls.

Multiple logistic regression adjusting for sex, age and body mass index identifies DD genotype (vs. II) as independently associated with hypertension (logit co-var ratio 1.57, 95% confidence interval 1.06, 2.36, p = 0.02).

In conclusion, we observed a positive association of ACE DD genotype with hypertension in hypertensive patients. This association was independent of age, sex and body mass index in this population.

**710-3** Restoration of Flow-Dependent Coronary Dilatation by Converting-Enzyme Inhibition (Perindopril) in Hypertensive Patients Exposed Maximal Coronary Blood Flow Produced by Intracoronary Papaverine

Isabelle Antony, Guy Lenebraux, Alain Nitenbo. INSERM U.426, Hôpital Lariboisière, Paris, France

Maximal coronary blood flow (CBFmax) depends both on the maximal area of the coronary microcirculation and on the epicardial coronary artery (CA) dimensions. In hypertensive patients (HTP) flow-dependent CA dilatation is abolished. To assess the influence of CA dimensions on CBFmax and minimal coronary resistance (CRmin), proximal and distal left anterior descending (pLAD and dLAD) CA diameters were determined by quantitative angiography, and flow velocity (FV) was measured in LAD using intracoronary Doppler. Measures of CBFmax (r = 0.44 vs. FV [ml/min]) and of CRmin (mean aortic pressure/CBF [mmHg/ml/min]) following 10 mg papaverine (PAP) injection into dLAD were made before and after 1 mg i.v. perindopril (PER) in 10 untreated HTP with angiographically normal CA and no other risk factors.

Heart rate and aortic pressures were not modified by PER.

Results (mean ± SEM) show that after PER, CBFmax was increased and CRmin was reduced. Diameter of dLAD at peak flow was increased from 3.75 ± 0.19 before PER to 4.21 ± 0.22 mm after PER (p < 0.001) when dLAD diameter exposed to PAP did not vary significantly (3.02 ± 0.13 and 3.08 ± 0.15 mm).

Conclusion: This study demonstrates that the increase in epicardial CA diameters participates significantly to the CH. Thus, the restoration of flow-dependent CA dilatation by PER in HTP may improve the ability of coronary circulation to deliver its maximal myocardial blood flow.
decade. The prominence of the SP2 seen in women is likely to be related to their smaller stature resulting in early return of reflected waves. This new finding may help to explain the age related increase in LV mass and excess cardiac failure in women seen in other studies despite similar BP recordings.

710-6 Effects of Diabetes With or Without Hypertension in the Genesis of Left Ventricular Hypertrophy in the Rat


To determine whether diabetes contributes to the development of left ventricular hypertrophy (LVH), either independently or by potentiating the effects of hypertension (HTN), 65 Sprague Dawley male rats were studied. 31 rats were made diabetic (D) with IV streptozotocin (55 mg/kg). Severe HTN was produced by aortic banding (B); serial injections of deoxycorticosterone, 60 mg/kg (DOC), and 1% sodium diet used were administered for 8 weeks to produce a more mild hemodynamic stimulus. At 8 weeks, carotid systolic blood pressure (SBP) and blood glucose (Gl) were measured, the hearts were excised, and the LV to body weight index (LV/BWt) was determined as an index of LVH. D/DOC = Diabetes + DOC; D/B = Diabetes + banding; Data shown are mean ± SEM.

<table>
<thead>
<tr>
<th>Gl (mg/dl)</th>
<th>SBP (mm Hg)</th>
<th>LV/BWt</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 12)</td>
<td>(n = 19)</td>
<td>(n = 10)</td>
</tr>
<tr>
<td>158 ± 11</td>
<td>112 ± 6</td>
<td>0.87 ± 0.14</td>
</tr>
<tr>
<td>308 ± 6*</td>
<td>113 ± 10</td>
<td>2.0 ± 0.1</td>
</tr>
<tr>
<td>311 ± 28*</td>
<td>159 ± 17*</td>
<td>2.8 ± 0.1*</td>
</tr>
<tr>
<td>305 ± 36*</td>
<td>106 ± 11</td>
<td>2.9 ± 0.1*</td>
</tr>
<tr>
<td>p &lt; 0.001</td>
<td>vs control (C), p &lt; 0.001 vs DOC.</td>
<td></td>
</tr>
</tbody>
</table>

Diabetes alone was associated with LVH independent of SBP. In non-diabetic rats (C,B,DOC), there was a strong linear correlation between SBP and LVH/BWt (r = 0.72, p < 0.001). When diabetes was combined with B and DOC, this relation was no longer observed; instead there was a tendency for SBP to be lower and LVH/BWt to be higher in both D/DOC and D/B. Thus diabetes appears to have an independent effect on LVH; when combined with hemodynamic stimuli, diabetes appears to exert a potentiating effect on LVH.

711 Clinical Results Using New Stent Designs

Monday, March 25, 1996, 2:00 p.m.–3:30 p.m.
Orange County Convention Center, Room F3

711-1 Preliminary Experience of Act-One Coronary Stent Implantation

Shigeru Nakamura, Toshihiko Degawa, Takahiro Nashida, Hitoshi Anzai, Kazuhisa Mitsu, Hideo Sakatani, Toru Tsuchida, Katsuto Uti, So Yabuki, Tetsu Yamaguchi, Toho University Ohashi Hospital, Tokyo, Japan

Balloon expandable ACT-One (Advanced Coronary Technology, Inc.) stent is made from radio-opacity Nitinol which make easy for stent positioning. 20 coronary lesions with 19 patients were treated with ACT-One stent. Average age was 64 ± 8 years. The planned procedures were 19 and unplanned procedure was one. Successful stent implantation was defined as stent deployment at the lesion and less than 50% diameter stenosis (% DS). Successful stent implantation was achieved 18 (90%) lesions. Vessel distribution was 10 LAD, 6 RCA and 2 LCX. A total of 23 ACT-One stent and 6 Palmaz-Schatz stent were deployed. Average stent per lesion was 1.8 ± 0.8. Lesion length was 17.7 ± 3.9 mm. Balloon/proximal vessel ratio was 1.19 ± 0.16. Maximum inflation pressure was 16 ± 2 atmospheres. There were 5 incidents of stent slip off from the deflated balloon during procedure. Successful retrieval was achieved with 3 patients. All patients were received standard anticoagulation therapy. Computerized quantitative coronary analysis and intravascular ultrasound (IVUS) lumen cross sectional area (L-CSA) assessment was performed. Stent symmetry index was calculated from dividing the minimum stent lumen diameter by the maximum stent diameter from IVUS.

Baseline

<table>
<thead>
<tr>
<th>Proximal Lumen</th>
<th>Percent Stenosis</th>
<th>Stent Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.03 ± 0.48</td>
<td>106 ± 4.07</td>
<td>2.74 ± 0.44</td>
</tr>
<tr>
<td>3.11 ± 0.50</td>
<td>259 ± 4.06*</td>
<td>2.50 ± 0.58</td>
</tr>
<tr>
<td>8.1 ± 2.3</td>
<td>6.8 ± 1.7</td>
<td>8.5 ± 3.8</td>
</tr>
<tr>
<td>p &lt; 0.001 Baseline vs. post.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stent symmetry index was 0.97 ± 0.14. There was no stent thrombosis within 4 weeks by clinical follow up. Conclusion: ACT-One coronary stent implantation has shown feasible early results without stent thrombosis. Follow up angiogram will be required to assess the long term effect.

711-2 Initial Clinical Experience With the Freedom Flexible Coi l Intravascular Stent

Bernard Chevalier, Corrado V. Sassanelli, Thierry Royer, Bernard Glatt, Ivan De Scheider. Centre Cardiologique Du Nord, France

The FREEDOM stent (Global Therapeutics, Inc.) is a new balloon expandable coronary stent based on a high biocompatible 0.18 mm 316LVM stainless steel wire folded in bended concentric loops enabling better vessel alignment. Between November 1994 and August 1995, 164 pts with 174 lesions were treated with 100 stents. In 26 pts (23.8%) stents were implanted as a bail-out procedure, in 70 pts (42.7%) for optimization of a suboptimal PTCA results, in 12 pts (7.3%) for treatment of recurrent restenosis, and finally in 43 pts (26.2%) as an elective procedure.

Most of the pts (92%) had stable angora pectoris, however 59 pts (36%) were unstable and in 13 pts (8%) stents were placed during ongoing myocardial infarction. All pts were treated with tirofiban 500 mg started during the procedure and continued for 1 month and ASA 330 mg during 6 months. Angiographic success was obtained in 158 pts (98%). There was no in-hospital mortality in this pt group. One patient was sent for emergency CABG after failure to cross a third stent to cover a dissection. Three pts (all bail-out procedures) had a mild CK raise. One pt had an in-lab stent closure treated with re-PTCA and an additional stent implantation. Another pt had an acute closure within 24 hours after stent implantation. In-hospital complication rates were rare using a Tirofiban-Aspirin protocol; 6 month angiographic follow-up is pending.

711-3 Early Results With the AVE Microstent

Bernard Valeix, Marie C. Monce, Pierre Dumaz, Pierre Labrunie, Yves Louvard, Thierry Royer. UCV Masséville, IVC Paris Sud Antony, France

Description: The AVE Microstent is a stainless steel stent composed of 1 or several units of 4 mm length.

From September 1994 to April 1995, the implantation of a Microstent was attempted in 565 patients and successful in 522 patients (97.6%). The studied patients were 64.3% males and mean age was 64.6 ± 10.9 years.

PTCA indications were 51.3% unstable angina, 42.3% stable angina, 6.4% acute MI.

Reasons for stenting were first indication 45.5%, restenosis 12.1%, non occlusive dissection 26.7%, suboptimal PTCA result 14.6% and 0.7% of patients were stented in a bail out situation.

Results: 756 stents (1.42/stent) were implanted at 6 to 10 atms through 6F (1.7%), 7F (25.7%) and 8F (5.5%) guiding catheters.

Subacute thrombosis occurred in 10 patients (1.3%), 5 (0.9%) patients died (5 acute MI), 3 (0.5%) patients had emergent or elective surgery, 2 (0.4%) patients had an MI.

In conclusion: stenting with the Microstent can be performed safely with a high success rate. The subacute occlusion rate does not seem different from that of the other stents. The question of the prevention of restenosis with this stent remains to be answered.

711-4 Implantation of the Wallstent for Diffuse Lesions in Native Coronary Arteries and Venous Bypass Grafts Without Subsequent Anticoagulation

Antonio Coloritto, Akira Itoh, Patrick Hall, Luigi Malito, Carlo Di Mario, Simonetta Bengeri, Massimo Ferraro, Giovanni Marini, Lucia Chi Fracessetti, Leo Finzi, Columbus Hospital, Milan, Italy

We report our initial experience using the peripheral and coronary Wallstents to treat long lesions in native coronary arteries and in saphenous vein grafts. A total of 46 Wallstents (34 peripheral and 12 coronary) were implanted to treat 57 lesions in 39 patients. Although the mean lesion length was 11.0 ± 7.0 mm, there were diffuse lesions p proximal or distal to the critical lesion. After deployment, optimization of the strut was performed using a non-compliant balloon at high pressure (US-13). An intravascular ultrasound (IVUS) evaluation was performed to confirm the results after achieving a satisfactory angiographic result.