West Birmingham Malignant Hypertension register, who lived within the catchment population of our city centre teaching hospital. MHT was defined as the presence of raised blood pressures in association with bilateral retinal haemorrhages and/or exudates ≥ papilloedema.

**Results:** 168 patients were alive at followup (99 white Caucasian, 36 Afro-Caribbean, 33 Indo-Asian), 117 were dead and 15 patients needed chronic renal dialysis. Mean blood pressure at presentation was 229.2/142.3mmHg (s.d.30.0/18.9). The overall 5 year survival was 69.6% (median survival 24.3 years). The overall 5 year survival and freedom from dialysis was 67.7%. Afro-Caribbean patients had the lowest 5 year survival (60%, Log rank test, p=0.0171), when compared to whites (68%) and Indo-Asians (85%), but this was reflected by the higher mean blood pressures and greater renal impairment at presentation amongst the Afro-Caribbean patients. Using a multivariate Cox regression survival analysis, proteinuria and renal function (serum urea creatinine levels) were independent determinants of survival. When patients presenting before 1970, 1970-79, 1980-89 and after 1990 were compared, there was a significant improvement in 5 year survival, being 40%, 75%, 85% and >95% respectively (Log rank test, p<0.01).

**Conclusion:** MHT is still evident in the west Birmingham population, with an overall 5 year survival of 69.6%. However the 5 year survival rates are improving with better management of these patients. The high mortality in Afro-Caribbeans is likely to be related to their worse renal function at presentation, which remains an independent prognostic factor.

Key Words: Malignant phase hypertension, Multiethnic, Survival

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**P-482**

**INCIDENCE OF MALIGANT PHASE HYPERTENSION IN A MULTIETHNIC POPULATION: THE WEST BIRMINGHAM MALIGNANT HYPERTENSION REGISTER**

Gregory VH Lip, Vyomex Lane, Shamik Agashi, Andrew Elliot, Michelle Beever, D Gareth Beever. University Department of Medicine, City Hospital, Birmingham, United Kingdom.

To describe the clinical epidemiology of malignant phase hypertension (MHT) in west Birmingham, we reviewed clinical data on 359 patients (240 male; mean age 48.8 (s.d.13.0) years) on the West Birmingham Malignant Hypertension register, who lived within the catchment population of our city centre teaching hospital. MHT was defined as the presence of raised blood pressures in association with bilateral retinal haemorrhages and/or exudates ≥ papilloedema.

**Result:** Mean blood pressure at presentation was 229.2/142.3mmHg (s.d.30.0/18.9), with mean blood pressures being 231.6/141.5mmHg in white caucasians, 233.0/146.2mmHg in Afro-Caribbeans, and 221.9/140.9mmHg in Indo-Asians. Of the 359 patients, 89 cases (45 whites, 23 Afro-Caribbean, 21 Indo-Asian) were first seen between 1980 and 1989 in the west Birmingham population of 152,000 adults aged >16 years (Census 1991), giving an approximate overall incidence of 5-6 patients per 100,000 per year. Within the respective ethnic population groups, the incidence for whites was 5-6 patients per 100,000 per year, for Afro-Caribbeans 13-14 per 100,000 per year, and for Indo-Asians 5-6 patients per 100,000 population per year.

**Conclusion:** MHT is still very evident in the west Birmingham population, with an overall incidence of 5-6 per 100,000 population per year. The highest incidence was seen in Afro-Caribbean patients, who have the highest mean blood pressures at presentation.

Key Words: Malignant hypertension, Multiethnic, Afro-Caribbean

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**P-483**

**DIFFERENCES ON BP CONTROL BETWEEN BP READINGS IN THE OFFICE BY THE PHYSICIAN VS SELF-MEASUREMENT AT HOME (HBPM). PRELIMINARY RESULTS OF ZANYCONTROL STUDY**

Jose L Ilustresi, Jaime Merino, Abellan Jose, Vicente F Gil Guillen, Carlos Sanchez, Angel Navarro, Zanycontrol Study Group. Atencion Primaria, C. Salud, Alagunas, Valencia, Spain; Clinical Medicine Department, Miguel Hernandez University, Elche, Alicante, Spain; Atencion Primaria, C. Salud San Andres, Murcia, Spain; Atencion Primaria, C. Salud, Algemesi, Valencia, Spain; Medical Dept., Recordati Spain, San Sebastian de los Reyes, Madrid, Spain; Centros de Salud y Unidades de Hipertension, Spain.

To analyse the differences in blood pressure (BP) readings taken in the MD’s office and self-measurement at home (HBPM) by patients with HBP.

An open, multicentric, prospective, observational, descriptive and transversal study reported to the Spanish Medicines Agency, conducted in the Primary Care, setting on 1562 patients with HBP (SBP >140 and <180 mm Hg, DBP >90 and <110 mm Hg). Measurements were made following international criteria. Treatment was started with Lercanidipine -L- and if BP was not controlled after 1 month Enalapril -E- 20 mg was added. During the study, patients underwent 4 controls in which BP, heart rate (HR), tolerability and compliance were recorded. BP readings were taken with an OMRON M4 by HBPM, by the nurse and the doctor in the health center, in a counterbalanced manner, and in the pharmacy with both the usual sphygmomanometer and an OMRON M4. Patients were evaluated after 6 months. The statistical tests applied were: Student’s t test and Pearson’s Correlation Coefficient. All data recorded were processed using the statistical package SPSS 8.0 for Windows.

The group of this substudy included 1100 patients, 553 women (50.3%) and 547 men (49.7%) with a mean age of 60 years (±10 years). The BP measurements obtained in the doctor’s office were significantly higher than those obtained at home (See Table above) with mean differences ≥ SD of 3.67 ± 9.8 for systolic BP (SBP) and 1.68 ± 6.4 mm Hg for diastolic BP (DBP) (p<0.0001 in both). The differences were greater in women, in diabetics and in obese patients. Pearson’s linear correlation between both methods was for SBP r=0.70 (p<0.001) and for DBP r=0.68 (p<0.001).

The mean differences between BP readings in the MD’s office and the home are relevant, especially for SBP readings. These differences are notably greater in women, diabetics and in obese patients. On the basis of these findings, the universal recommendation of self-monitoring of blood pressure (HBPM), in HBP could be important for therapeutic decision-making.

**BP MD Office Readings Vs HBPM**

<table>
<thead>
<tr>
<th>BP</th>
<th>MD’s Office</th>
<th>HBPM</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP</td>
<td>160.4 ± 12.2</td>
<td>156.7 ± 13.6</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>DBP</td>
<td>94.1 ± 7.7</td>
<td>92.4 ± 8.3</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Key Words: BP Control, HBPM, Lercanidipino

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**P-484**

**COMPETING RISKS FOR FIRST CARDIOVASCULAR EVENTS AFTER HYPERTENSION ONSET: THE FRAMINGHAM HEART STUDY**

Donald M Lloyd-Jones, Eric P Leip, Martin G Larson, Ramachandran S Vasan, Daniel Levy. Framingham Heart Study, National Heart, Lung, and Blood Institute, Framingham, MA; Cardiology Division, Massachusetts General Hospital, Boston, MA.

Hypertension (HTN) is a risk factor for multiple cardiovascular disease (CVD) events, including coronary heart disease (CHD: defined as CHD death, myocardial infarction or coronary insufficiency), congestive heart...
failure (CHF), stroke, and other CVD death. However, the risks for these competing outcomes occurring as a first event after HTN onset, relative to each other and to non-CVD death, are unknown. All Framingham Heart Study subjects examined after 1977 were eligible. We included subjects who were free of CVD at onset of HTN, defined as blood pressure $\geq 160/100$ mmHg or new anti-HTN therapy at 1 exam, or blood pressure $\geq 140/90$ mmHg at 2 consecutive exams. We estimated the competing risks for a first CVD event or non-CVD death over 12 years after HTN onset, using proportional hazards models, separately for men and women. There were 650 men and 706 women with new-onset HTN (mean age at diagnosis 55±12 years in men, 59±12 years in women). In men, the incidence of any CVD as a first event was 19.6%, compared with 10.9% for non-CVD death (hazards ratio 1.8, 95% CI 1.3-2.5); in women the competing incidences were 12.7% vs. 10.9% (hazards ratio 1.2, 95% CI 0.8-1.6). The table shows competing incidences for each CVD event or non-CVD death occurring as the first event. CHD was the most common first CVD event in men, occurring in 10.6%, whereas stroke was the most common first CVD event in women (6.1%). First CVD events also differed somewhat by age and severity of HTN at onset. In conclusion, a CVD event is more likely than non-CVD death after onset of HTN. The types of first CVD events differ between men and women, and by age and severity of HTN at onset. These results may help target therapies for patients with new-onset HTN, in order to maximize prevention of CVD events.

### 12-Year Incidence for Competing First Events After Hypertension Onset

<table>
<thead>
<tr>
<th></th>
<th>CHD</th>
<th>Stroke</th>
<th>CHF</th>
<th>Other CVD Death</th>
<th>Non-CVD Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>10.6%</td>
<td>5.3%</td>
<td>3.1%</td>
<td>0.6%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Women</td>
<td>3.9%</td>
<td>6.1%</td>
<td>2.3%</td>
<td>0.4%</td>
<td>10.9%</td>
</tr>
</tbody>
</table>

Key Words: hypertension, epidemiology, outcomes

**P-485**

### HIGH PULSE PRESSURE DOES NOT PREDICT CARDIOVASCULAR MORTALITY IN A GENERAL POPULATION OF HYPERTENSIVES

Gordon T McNees, David J Hole, Anthony F Lever, Peter A Meredith, Lilian S Murray, Ross Morton, John L Reid. Division of Cardiovascular and Medical Sciences, University of Glasgow, Glasgow, Scotland, United Kingdom; Division of Community Based Sciences, University of Glasgow, Scotland, United Kingdom.

Pulse pressure (PP) has been claimed to be superior to systolic blood pressure (SBP) and diastolic blood pressure (DBP) as a predictor of cardiovascular (CV) risk.

In this study we assessed the hypothesis that high PP would predict CV mortality in a general population, and tested the predictive value of a novel expression of PP designed to overcome the confounding influence of the strong co-linearity between PP and SBP.

A cohort of 15,406 men and women aged 45 - 64 years from a general population were screened for BP and other cardiovascular risk factors in the 1970s and followed-up for dates and causes of death by linkage with the Registrar General (Scotland). A measure of PP not confounded by the strong relationship with SBP ($r^2 = 0.84$) was derived for each individual (conditional PP). Conditional PP = actual PP - expected PP (average PP in population with the same DBP, adjusted for age and gender). Conditional PP was tested for statistical independence from SBP and then included in a Cox proportional hazard model along with other BP measures and risk factors as a predictor of CV risk.

By 2001, 8,192 (53%) individuals were dead, 51% from CV causes: 32% coronary artery disease (CAD), 12% stroke. After adjustment for age, smoking and serum cholesterol, SBP, DBP and PP were each significant ($p < 0.001$) single predictors for CAD, stroke and all cause mortality, in males and in females. Except for stroke mortality in females where DBP was the best predictor, SBP was most strongly correlated with risk. In all cases, PP was by far the least informative variable. For CAD mortality, this rank order of risk prediction was consistent across the age range. After adjustment for confounding factors including SBP, conditional PP was inversely associated with risk; low conditional PP was associated with highest risk, while high conditional PP at entry predicted the lowest risk. The effect of the low conditional PP as a risk factor appeared to be consistent for different cause specific-outcomes and across the range of SBP, and to be independent of age.

In conclusion, a high PP in middle-aged individuals does not predict cardiovascular mortality and SBP is the most consistent and reliable predictor.

Key Words: Pulse Pressure, Systolic and Diastolic Pressure, Determinants of Outcome

**P-486**

### EVALUATION OF BLOOD PRESSURE AND OTHER CARDIOVASCULAR RISK FACTORS FROM CHILDHOOD TO ADULTHOOD: THE TEN YEARS LATER PROJECT

Franco Rabbia, Giannina Leotta, Adriana Bobbio, Alberto Milan, Renata Carra, Sara Del Colle, Mimma Caserta, Andrea Conterno, Chiara Calvo, Mirko Tredici, Tiziana Grosso, Franco Veglio. Dept of Internal Medicine-Hypertension Unit, University of Turin, Turin, Italy; Dept of Pediatrics, University of Turin, Turin, Italy.

Tracking is defined as the persistence over time of rank for a variable in an individual relative to peers. The concept of tracking has also been used in the sense of predicting future values of a variable from early measurements.

The purpose of the study was to quantify and to evaluate the factors that may influence the tracking of BP in order to identify better predictors of higher BP in adult life.

**Methods:** BP, HR, height, weight BMI, physical activity, smoking habits, family background of cardiovascular diseases, serum glicemia and cholesterol were evaluated respectively in adolescence (age range 13-15 ys.) and ten ys later (age range 13-15) in a prospective community based study conducted on 251 subjects. Moreover, the frequency of BP measurement was determined. BP values were converted in sex-age specific Zscores and then tertiles calculated in order to evaluate tracking. We compared a group of subjects persistently in the higher tertile (high trackers), a group persistently in the lower tertile (low trackers), a group of travellers from the lowest to the higher tertile (detrackers), and a control group including the remainders.

**Results:** Only 10% of the examined have never had their BP measured before during adolescence, ten ys later 26 % never measured BP since then and 38% measured,only occasionally, once. Percentage of smokers was 1% during first examination,35% ten ys later. The prevalence of High blood pressure was 8% in adolescence and 12% in adult age. Tracking coefficient was 0.38 ($p<0.001$) for SBP, 0.31 ($p<0.001$) for DBP. BP values were significantly correlated to pulse rate, height, weight at both examinations. Persistence in the high tertile was seen in 47% of examined. The high trackers were persistently heavier, sedentary, had an increased waist/hip ratio and had a more significant family history of cardiovascular diseases than the lower trackers and control group. At the same time those who travelled from the lower to the highest tertile showed a pattern quite similar to the high trackers at second observation. Moreover, the smokers were more represented in the high trackers.

**Conclusions:** Tracking at different BP levels is associated to weight gain in adolescence, family background for hypertension and higher pulse rate.

Key Words: blood pressure tracking, cardiovascular risk factors, hypertension prevention