0.05, and from 110 ± 2 to 101 ± 2 mm Hg, p < 0.05, respectively). These reductions were mainly due to the effects of CPAP on nocturnal systolic and diastolic BP (from 138 ± 4 to 124 ± 4, p < 0.05, and from 80 ± 2 to 72 ± 2 mm Hg, p < 0.05, respectively). Chronic reductions in 24 hr systolic BP were of the same magnitude as acute nocturnal reductions in peak systolic BP. Our results provide the first evidence that in patients with RH and OSA, abolition of OSA by CPAP at night reduces peak systolic BP acutely, and chronically reduces both 24 hr systolic and mean BP. Since HT refractory to medical therapy and elevated nocturnal systolic BP carries the highest risk of cardiovascular events in patients with HT, lowering of nocturnal systolic BP by CPAP can potentially improve prognosis in these patients.

Key Words: Refractory hypertension; obstructive sleep apnea; CPAP

B027

IS THE SAFETY OF VERAPAMIL FOR PATIENTS WITH HYPERTENSION AND ANGINA AFFECTED BY AGE? RESULTS FROM 1415 PATIENTS ON COER-VERAPAMIL


Older patients may experience enhanced effects of antihypertensive drugs due to alterations in pharmacokinetics. Thus, we compared the incidence of adverse events in older patients (≥65 years) vs younger patients (<65 years) in 6 placebo-controlled trials of COER-verapamil. Data were pooled from 1415 patients in hypertension and angina trials that used 180 to 540 mg dosed once nightly for up to 8 weeks. Statistical analyses of subgroup effects accounted for dose, baseline hemodynamic values, and treatment by age interaction using ANCOVA. Mean doses were similar in the 2 age groups.

<table>
<thead>
<tr>
<th>Adverse events</th>
<th>Younger (&lt;65 years)</th>
<th>Older (≥65 years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Placebo n = 248</td>
<td>Verapamil n = 712</td>
</tr>
<tr>
<td>Bradycardia</td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Constipation</td>
<td>2.4</td>
<td>11.8</td>
</tr>
<tr>
<td>Dizziness</td>
<td>2.0</td>
<td>4.8</td>
</tr>
<tr>
<td>Dysepsia</td>
<td>0.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Fatigue</td>
<td>2.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Headache</td>
<td>7.3</td>
<td>11.9</td>
</tr>
</tbody>
</table>

*p < 0.05; **p < 0.01 between age subgroups for COER-verapamil

There were no serious laboratory or ECG conduction abnormalities observed. Thus, the data show several age-related differences where the side effect on COER-verapamil was either increased or decreased compared to placebo. These findings demonstrate the importance of evaluating the effects of age on antihypertensive drug safety and tolerability during clinical development.

Key Words: Drug safety; antihypertensives; adverse events; COER-verapamil; age effects

B028

STUDY ON COGNITION AND PROGNOSIS IN THE ELDERLY (SCOPE). EVALUATION OF RISK FACTORS L. Hansson on behalf of the SCOPE Study Group. University of Uppsala, Public Health and Caring Sciences, Clinical Hypertension Research, Uppsala, Sweden

The goal of treatment of the hypertensive patient is to achieve a maximum reduction in the total cardiovascular risk, necessitating identification of all important risk factors.

The Study on Cognition and Prognosis in the Elderly (SCOPE) is a multinational placebo-controlled study to assess the effect of candesartan cilexetil on major cardiovascular events and cognitive function in elderly patients (70–89 years) with a SBP of 160–179 mm Hg and/or a DBP of 90–99 mm Hg. The randomisation of patients was stopped in January 1999, when 4964 patients had been recruited in the 15 participating countries. The results are expected to be available in 2001.

In the baseline data, information regarding the following risk factors (according to WHO/ISH guidelines) is available: BP, age and gender, smoking habit, total cholesterol, diabetes mellitus, obesity, serum creatinine, and previous cardiovascular diseases. Thus, all patients in the study have at least one risk factor (age ≥65 years), and Grade 1 (SBP 140–159 mm Hg or DBP 90–99 mm Hg) or Grade 2 (SBP 160–179 mm Hg or DBP 100–109 mm Hg) hypertension. According to WHO/ISH, ≥3 risk factors including age, diabetes or target organ damage in combination with Grade 1 or Grade 2 hypertension indicates high risk, and a history of e.g. stroke, or heart or kidney disease indicates very high risk.

It can be concluded that patients recruited in the SCOPE Study are of medium, high, or very high risk according to the WHO/ISH guidelines. By mid 2000 follow-up data on other continuously monitored variables will be available.

Key Words: Hypertension; cardiovascular; mortality; cognitive function; elderly

B029

EFFECT OF PHYSICAL ACTIVITY ON DOPPLER EVALUATION OF LEFT VENTRICULAR FILLING IN NORMOTENSIVES SUBJECTS WITH DIFFERENT FAMILIAL HISTORY OF HYPERTENSION: A LONGITUDINAL STUDY

V. Di Legge*, M. Simi**, D. Faraggiana*, C. Graci*, A. Salvestrini*. °Institute of Sport Medicine–Pisa, *University of Pisa, °Cardiologist ANCE–Pisa, Italy

To test the hypothesis that regular physical activity (p.a.) would improve late left ventricular diastolic filling (LVDF) in normotensives with familial history of hypertension (F+) and reduce the risk of a shift toward the pattern of LVDF observed in hypertensive patients (Di Legge et al. AJH May 1993), clinical and echocardiographic follow-up data were obtained in 79 F+ and in a control group of 71 subjects; mean follow-up was 4.8 (range 2–7) years. Results are shown in the following table (mean ± SEM):
**E/A rate** was significantly reduced in comparison with pretreatment values and remained significantly lower through the follow-up.

These results suggest that in F+ regular p.a. is helpful for improving LV diastolic pattern and that this effect is long-lasting; whether this effect is due to a change of wall composition in favour of more distensible tissue elements or contribute to a cardioprotection, it will be matter for further studies.

Key Words: Physical activity; hypertension; echocardiography

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**B030**

**REGULAR PHYSICAL ACTIVITY IN THE MANAGEMENT OF HYPERTENSIVE PATIENTS**

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Regular physical activity (p.a.) has been reported to lower blood pressure in subjects with essential hypertension (EH), but many studies have shown that the prevalence of sedentary lifestyle is very important. To assess the applicability of p.a. as first-line treatment in EH, in terms of patient’s adherence, a study was performed on 125 consecutive subjects who showed borderline hypertension during a medical examination from 1994 to 1999; all subjects were EH at the first OMS stage. Only 59 subjects (45 M, 14 F), age range 30–52 years, undertook a regular p.a. for a period of six months; training sessions (3 times a week) consisted of one hour of exercise, 6,5% vs NR p < 0.05). Step-wise multiple regression analysis with statistical significant percents decrements (−d%) in clinical diastolic blood pressure (cDBP) was obtained in 6 subjects (responder group or R), while no significant reduction was achieved in the other 7 (non responder group or NR) (−d% cDBP R = −6,5% vs NR −1,8% p < 0.05). Step-wise multiple regression analysis with percent modifications of cDBP as dependent variable and body mass index, age and cigarette smoking as independent variables showed that smoking was the variable carrying the greatest weight in inducing a negative prediction concerning the anti-hypertensive effect of p.a. In conclusion: 1) the use of p.a. as the first measure to treat borderline EH is largely unsatisfactory, mainly due to low patient’s acceptance; in particular gender influences the applicability: 2) the effect of p.a. on blood pressure seems more evident in no-smokers as compared to smokers.

Key Words: Physical activity; hypertension; non pharmacological treatment

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**B031**

**ABPM ROUNDTABLE DISCUSSION: A REVIEW OF AMBULATORY BLOOD PRESSURE MONITORING IN THE CLINICAL TRIALS RESEARCH FIELD**

J. Heilbraun*, K. Klischer. Medifacts, Ltd, Rockville, MD

The purpose of the presentation is to review and discuss present issues in the collection and analysis of 24 hour Ambulatory Blood Pressure Monitoring (ABPM). The focus is to standardize the general format for using ABPM in clinical trials.

ABPM has become a recognized means of evaluating the safety and efficacy of medications which may effect blood pressure response. Areas of research have included the fields of hypertension CNS, women’s health and psychological/behavioral research.

Points of discussion will focus on:

A) A review of technology, auscultatory, oscillometry and combined devices with ECG

B) The use of the Mean Daytime Diastolic BP (MDDBP) vs the Mean 24 Diastolic BP (M24DBP) as an inclusion criteria for hypertension trials.

C) Defining Daytime and Nighttime evaluation parameters including a look at the issue of Dippers vs non-dippers as well as the Siesta effect. This will be reviewed on global perspect. Attendees will walk away with a greater understanding of how to best incorporate ABPM technology into their trials as well as how best to review the data. There is a difference between using ABPM in clinical practice versus the incorporation of ABPM in a clinical trials program. There are a number of different models, our goal is to help review and clarify study design aspects of ABPM within clinical research.

Key Words: ABPM; inclusion criteria; evaluation parameters

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**B032**

**RATE–PRESSURE PRODUCT CHANGE IN HYPERTENSIVE PATIENTS DURING THE THREAT OF BOMBARDEMENT**


The severe bomb attack had been expected in Belgrade in October 1998. The aim of the study was to evaluate the threat with bombardement as psychological stress effect on rate-pressure product in treated out-hypertensive patients during October 1998 in Belgrade. We evaluated 33 patients (16 male and 17 female; mean age 54,7 years) who had been treated with antihypertensive drugs for at least 2 years before threat of force. Rate–pressure product (RPP) evaluated during their regular control at cardiology department in a few “hot” days (period A). We compared RPP mean value with value which had been measured 2–3 months before (period B) Means systolic blood pressure (SBP), heart rate (HR) and rate–pressure product (RPP) elevated significantly during threat of bombardement.

We concluded that the threat of bombardement as psychological stress caused significantly rate–pressure product in treated out-hypertensive patients.