breathing techniques (CMBT) on stress and exercise induced high blood pressure (BP). CMBT was performed according to the christian tradition.

Methods: 52 patients (age 30-70 y, 18 female) with mild to moderate primary hypertension (JNC7 criteria) were randomized into two groups. Group I (n=26) practised intensive CMBT (30 minutes, twice a day) for 8 weeks whereas group II (n=26) served as control. At baseline and follow-up, resting BP (mean of 3 recordings), a standardized computerized 30 min mental stress test, bicycle ergometry, and ambulatory blood pressure measurement (ABPM) was performed.

Results: In group I, resting systolic BP fell from 151 to 136 mmHg after CMBT ($p<.0001$). There was a 11 % decrease in systolic BP in group I compared to 0 % in group II ($p<.0001$). Mean systolic BP during mental stress decreased from 170 to 143 mmHg ($p<.001$) in group I, but remained constant in controls, 163 vs.157 mmHg; ($p<.0001$ for comparison between groups). Maximal systolic BP during exercise fell from 218 mmHg to 199 mmHg after CMBT in group I, $p<.0001$, but remained constant in group 2, 211 vs. 209 mmHg, (p=n.s. for comparison between groups). Mean systolic and diastolic BP during ABPM fell from 137 to 133 mmHg ($p<.001$) and 85 to 80 mmHg ($p<.001$)($p<.001$ for comparison between groups).

Conclusion: This is the first randomized study showing that CMBT effectively reduces basal and stress induced high BP in subjects with mild to moderate essential hypertension. Further studies will investigate the persistence of CBMT mediated effects and its use as complementary add-on to drug therapy for a holistic approach to the patient with arterial hypertension.

Key Words: Contemplative Mindful Meditation, Preventive Clinical Trial, Stress Induced Hypertension

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A RANDOMISED CONTROLLED TRIAL OF PATIENT HELD TARGETS AND SELF MONITORING IN THE CONTROL OF HYPERTENSION

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Introduction: Most patients with hypertension, in most countries, remain poorly controlled despite high health care costs. One intervention which may improve blood pressure control at minimal cost is greater patient involvement in their own care. The Targets and Self Monitoring in Hypertension (TASMINH) study was the first UK randomised controlled trial of patient self monitoring in hypertension and the first anywhere to evaluate self monitoring in a community clinic setting.

Method: 441 people receiving treatment in primary care for high blood pressure but not controlled below target (>139/84 mmHg) were randomised between intervention and usual care. Patients in the intervention group received treatment targets along with facilities to measure their blood pressure in the practice waiting room. They were asked to vary follow up with the Primary Care Physician / Practice Nurse depending on whether or not their blood pressure was below target. The primary outcome was change in systolic blood pressure (SBP) at six months and one year and the study was powered to detect a 5 mmHg difference. Cost data were collected in parallel to trial outcome data.

Results: 400 (91%) of patients attended follow up at 1 year. There was a significant reduction in systolic blood pressure in the intervention group compared to usual care after six months (mean difference in SBP 4.3 mmHg (95% CI 0.8, 7.9)) but not one year (mean difference in SBP 2.7 mmHg (95% CI –1.2, 6.6)). No difference was seen in diastolic blood pressure, anxiety, explanatory health behaviours or number of prescribed medication. Patients who self monitored lost more weight than control, rated self monitoring above professional monitoring and attended professionals less often. Self monitoring did not cost significantly more than standard care: incremental cost effectiveness ratio $9.76 /mmHg (95% CI –13.78, 36.55).

Conclusion: Practice based self monitoring resulted in small but significant improvements of blood pressure at six months which were not sustained after a year. Self monitoring was well received by patients, there was no increase in anxiety and no additional cost. Practice based self monitoring is feasible, cost effective and results in equivalent control to usual care.

Key Words: Hypertension, Primary Care / Family Practice, Self Management

P-234

WEIGHT CHANGES AND INSULIN SENSITIVITY-NOT ALL BETA-BLOCKERS ARE CREATED EQUAL

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Being overweight is a common complication of hypertensive cardiovascular disease and diabetes (DM). Drugs that promote weight gain or make it difficult to lose weight are a concern in susceptible patients (pts). Beta-blocker therapy causes a systematic weight gain of over 1 kilogram on average (Sharma et al. Hypertension 2001;37:50).

In the prospective double-blind, randomized GEMINI study, pts with DM and SBP >130 to <179 mmHg and DBP >80 to <109 mmHg on ACE/ARB, were randomized to carvedilol (C) 6.25-25 mg bid (n=498) or metoprolol tartrate (M) 50-200 mg bid (n=737), and followed for 5 months. 456 C and 650 M pts had weight values at both baseline (BL) and endpoint. BL weights were (mean [kg], SD) for C 97.5, 20.1 and for M 96.6, 20.1. Treatment difference in mean weight change (Δ)from BL (C vs M±se) was -1.02±0.21 kg, $p<0.0001$, 95%CI (-1.43, -0.60). Pts on M had significant weight gain (mean±se 1.19±0.16; $p<.0001$) vs no Δ on C (mean±se; 0.17±0.19; p=0.36). Pairwise correlation analyses of weight Δ vs Δ HbA1c, HOMA-IR, SBP, and DBP are shown below.

No significant associations were seen between change from BL in HbA1c, HOMA-IR, SBP, or DBP and weight change. We previously reported improvements in insulin sensitivity and glycemic control with C, but not with M (Bakris et al. JAMA 2004;292:2227). Weight changes in pts taking C vs M may, at least to some extent, account for the beneficial effects on glycemic control. The changes in insulin sensitivity may be independent of weight and due to inherent drug effect.

Change	Carvedilol			Metoprolol		
	CC	P Value	95% CI	CC	P Value	95% CI
Weight vs. Δ HbA1c	0.07	0.15	−0.02, 0.16	0.08	0.06	−0.002, 0.15
Weight vs. Δ HOMA-IR	0.05	0.35	−0.05, 0.15	−0.04	0.40	−0.13, 0.05
Weight vs. Δ SBP	0.01	0.78	−0.08, 0.11	0.06	0.12	−0.02, 0.14
Weight vs. Δ DBP	0.04	0.38	−0.05, 0.13	0.06	0.15	−0.02, 0.14

CC = correlation coefficient

Key Words: Beta-Blockers, Insulin Sensitivity, Weight Change

P-235 MP-28

TELMISARTAN + HYDROCHLOROTHIAZIDE VERSUS AMLODIPINE + HYDROCHLOROTHIAZIDE IN OLDER PATIENTS WITH PREDOMINANTLY SYSTOLIC HYPERTENSION

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Background: Sustained blood pressure control is important to reduce cardiovascular and cerebrovascular risk in the elderly.

Methods: A prospective, randomized, open-label, blinded-endpoint, multicenter, parallel-group study was performed in older patients (≥60 years) with systolic blood pressure (SBP) >140 mg, diastolic blood pressure (DBP) ≤95 mmHg, and 24-h mean ambulatory SBP >125 mmHg. After a 2- to 4-week placebo run-in, patients were randomized to treatment with telmisartan (T) 40 mg for 2 weeks, with uptitration to T 80 mg for 6 weeks and then to T 80 mg + hydrochlorothiazide (H) 12.5 mg for 6 weeks or amlodipine (A) 5 mg, with uptitration to A 10 mg for 6 weeks and then to A 10 mg + H 12.5 mg for 6 weeks. Efficacy was determined using 24-h ambulatory blood pressure monitoring. Adverse events (AEs) were monitored.

Results: The reduction from baseline adjusted last 6-h mean SBP (primary endpoint) was 18.8±0.6 mmHg for T+H (n=354) and 17.7±0.6 mmHg for A+H (n=329). The difference in favor of T+H versus A+H of -1.1 mmHg (95% CI -2.7, 0.5 mmHg) confirmed that T+H was at least as effective as A+H. Reductions in 24-h mean SBP (p=0.0010), daytime SBP (p=0.0002), and morning mean SBP (p=0.0105) were greater with T+H than with A+H. T+H was also superior to A+H for DBP endpoints. Drug-related AEs occurred in 40 (8.0%) T-group patients and in 168 (33.4%) A-group patients (p<0.0001). The most common AE was peripheral edema, observed in 6 (1.2%) T-group patients and 122 (24.3%) A-group patients (p<0.0001).

Conclusions: T 80 mg + H 12.5 mg is statistically superior to A 10 mg + H 12.5 mg during the 24-h dosing interval for both SBP and DBP; with both groups being comparable in the last 6 h, the time of heightened cardiovascular risk. The safety profile of T+H is superior to that of A+H.

Key Words: Hypertension

P-237 MP-29

COMBINATION OF TOPROL-XL AND HYDROCHLOROTHIAZIDE: RESULTS OF A FACTORIAL CLINICAL TRIAL

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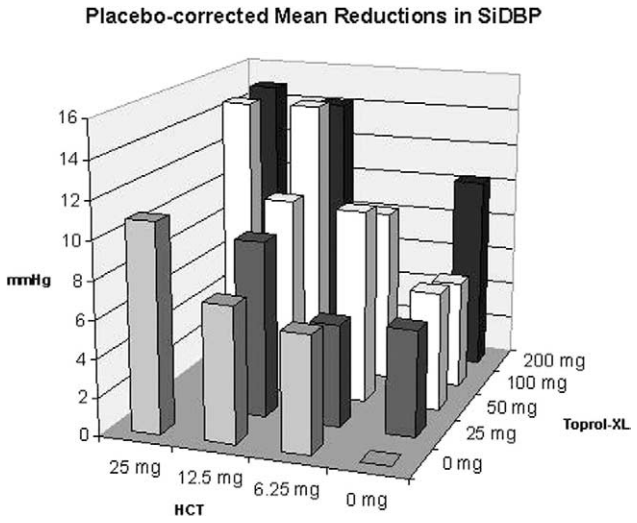
Most hypertensive patients require 2 or more drugs to achieve target blood pressure. Results of the ALLHAT trial indicate that diuretic-based antihypertensive regimens are effective in reducing cardiovascular morbidity and mortality.

The ATTACH trial evaluated 3 dose levels of hydrochlorothiazide (HCT) (6.25 mg, 12.5 mg and 25 mg), 4 levels of metoprolol succinate extended release (Toprol-XL) (25 mg, 50 mg, 100 mg and 200 mg), 9 of the possible combinations and placebo in an 8 week, multicenter, randomized, double-blind unbalanced factorial trial in patients with essential hypertension (DBP > 95, ≤ 114 mm Hg; SBP<180 mm Hg).



The investigators randomized 1571 patients; 51% were male, 16% were > 65 years of age and 25% were black. Mean baseline blood pressure was 151/100 mm Hg.

Blood pressure declined significantly relative to placebo (p<0.05) with all combinations (placebo-subtracted range SBP/DBP= 6.1/3.9 to 15.9/12.2 mm Hg) (Figure). Each component contributed to the effect of the combination for both DBP (T-AVE p = 0.0015) and SBP (T-AVE p=0.0006).

Forty-six (2.9%) patients discontinued for adverse events but there was no clustering of events in any one treatment group. Serum potassium declined with HCT and was related to dose.

Toprol-XL-HCT is an effective antihypertensive combination agent over the range of doses (HCT 6.25 mg to 25 mg; Toprol-XL 25 mg to 200 mg).

Key Words: Clinical Trials, Combination Treatment, Hypertension

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HEART RATE VARIABILITY AND ECG CHANGES IN 148 DANISH PATIENTS AFTER TWO YEARS IN THE VALUE TRIAL

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Background: Modulation of the autonomic nervous system through an increase in heart rate variability (HRV) with potential benefits in reducing the risk of ventricular arrhythmias has been demonstrated earlier in ischaemic heart disease with drugs affecting the renin-angiotensin system. The VALUE-trial explored the possible cardiac benefits of a valsartan-based (VAL) regimen compared to treatment with amlodipine (AML) in high-risk hypertensive patients. The purpose of the present substudy was to evaluate the treatment effects on the ECG and HRV calculated from ambulatory electrocardiographic recordings obtained by Holter technique during 24 hours.

Methods: Nine Danish VALUE-centres with a total of 148 patients participated in this substudy. Holter-recordings (2-channel Tracker, Reynolds Pathfinder analysis) were obtained after two years of maintained randomized therapy. From Holter data ventricular arrhythmias were classified according to severity and from 2-hours periods during day and night, time domain HRV measures were derived.

Results: The demographics showed two well-balanced groups with equal blood pressure reduction to 140/80 mmHg. Potassium levels were equal (VAL 4.1 ±0.4 vs. 3.9 ±0.4 mmol/L, ns). Beta-blockers were given as add-on to 37% in both groups. After 2 years the measured ECG criteria for left ventricular hypertrophy and the levels of QTc (VAL 406 ±25 vs. 413 ±27 msec, ns) and QT-dispersion (VAL 35 ±17 vs. 38 ±15 msec, ns) were equal.in the two groups. The long term HRV measured as the standard deviation of the average normal to normal intervals (SDANN) was significantly higher in VAL compared with AML during the night (38 ±17 vs. 32 ±13 msec, P=0.019), whereas the SDANN did not differ between the two groups in the daytime. The 24 hour triangular index was significantly higher in VAL compared with AML (32 ±11 vs. 28 ±9, P=0.02). The prevalence of all categories of ventricular arrhythmia as well as the prevalence of atrial fibrillation was equal in the two groups.

Conclusion: Two indices of long-term HRV showed differences in favour of the VAL regimen. Although baseline HRV data were not obtained, the findings in this study substantiate correlation between a treatment regimen based on valsartan and alteration of the autonomic cardiovascular control through an increase of HRV.

Key Words: Amlodipine, Heart Rate Variability, Valsartan