Self-measured blood pressure vs ABPM in the diagnosis of hypertension

Holm, D

DOI: https://doi.org/10.1016/0895-7061(95)97678-k

Posted at the Zurich Open Repository and Archive, University of Zurich
ZORA URL: https://doi.org/10.5167/uzh-154719
Journal Article
Published Version

Originally published at:
DOI: https://doi.org/10.1016/0895-7061(95)97678-k
G13

SELF-MEASURED BLOOD PRESSURE vs ABPM IN THE DIAGNOSIS OF HYPERTENSION
D. Holm, E. Steurer, J. Steurer, W. Vetter*, Department of Internal Medicine, University Hospital, Zurich, Switzerland.

Both, ambulatory blood pressure (ABPM) and blood pressure self-measurement are used in the diagnostic work-up of hypertension. In the present study the validity of SM was compared with ABPM. 79 patients with mild hypertension were included. ABPM was performed by using a Space-Labs device (90 207), SM with a semiautomatic oscillometric device (OMRON, model 705). In group 1 single morning SM (6 a.m.-8 a.m.) and in group 2 (n=31) 2 SM in the morning (6 a.m.-8 a.m.) and 2 in the evening (6 p.m.-8 p.m.). In each group SM values of day 1 to 4 and 4-7 were pooled. ABPM was performed at day 1 and day 7. dipping was defined as the mean decrease in mean night systolic and/or diastolic blood pressure of $\geq 10\%$. In group 1 mean SM blood pressure values were 143±14 in the first and 142±15 mmHg systolic in the second period and 92±11 and 90±11 mmHg diastolic, in group 2 142±10 and 139±11 mmHg systolic and 92±12 and 89±12 mmHg diastolic. Respective values for ABPM-day were in group 141±11 at day 1 and 142±12 mmHg systolic at day 7 and 91±8 and 91±8 mmHg diastolic. Only 3 of the 71 (4.2%) cases showed a non-dipping pattern. The small subgroup who were not predicted by office BP, ambulatory BP, or age. The relationship is shown in the figure.

Key Words: Hypertension, self-measurement, ABPM

G15

LONG-TERM FOLLOWUP OF UNTREATED WHITE-COAT HYPERTENSION
William B. White, Wendy Sturer, Ellen J. McCabe, and George A. Mansoor, Section of Hypertension and Vascular Diseases, University of Connecticut Health Center, Farmington, CT

Recent cross-sectional and prospective studies of white-coat hypertension (WCH) have suggested that an office BP > 140/90 mmHg is not predictive of hypertensive morbidity when the awake ambulatory BP is < 135/85 mmHg. To evaluate the long-term changes in office and ambulatory BP, and the white-coat effect (office-awake BP), we restudied untreated WCH patients (office BP 140/90 mmHg with awake BP < 135/85 mmHg and white-coat effect $> 20$ mmHg systolic or 10 mmHg diastolic) who had their first ambulatory BP recording $> 12$ months previously and had not been treated with antihypertensive drug therapy. Records were performed with either Accuthrak or QuietTrak recorders under the same environmental conditions. Patients with substantial changes in employment status (e.g., retirement), weight change (>10 kg), or drugs that might affect BP were excluded. Studies were performed 37±26 months (range, 15-119 months) apart.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Study 1</th>
<th>Study 2</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office SBP (mmHg)</td>
<td>148±13</td>
<td>149±12</td>
<td>1.0</td>
</tr>
<tr>
<td>Office DBP (mmHg)</td>
<td>99±6</td>
<td>96±7</td>
<td>0.115</td>
</tr>
<tr>
<td>24-h SBP (mmHg)</td>
<td>120±5</td>
<td>123±7</td>
<td>0.045</td>
</tr>
<tr>
<td>24-h DBP (mmHg)</td>
<td>72±5</td>
<td>77±7</td>
<td>0.009</td>
</tr>
<tr>
<td>Awake SBP (mmHg)</td>
<td>126±6</td>
<td>128±9</td>
<td>0.336</td>
</tr>
<tr>
<td>Awake DBP (mmHg)</td>
<td>8±8</td>
<td>9±8</td>
<td>0.521</td>
</tr>
<tr>
<td>Sleep SBP (mmHg)</td>
<td>104±7</td>
<td>106±7</td>
<td>0.20</td>
</tr>
<tr>
<td>Sleep DBP (mmHg)</td>
<td>62±6</td>
<td>66±7</td>
<td>0.004</td>
</tr>
<tr>
<td>White-coat effect (office-awake BP)</td>
<td>20±4 mmHg (SBP) or 10 mmHg (DBP)</td>
<td>0.099</td>
<td></td>
</tr>
</tbody>
</table>

Only five (12.5%) of the WCH patients developed one or more criteria of ambulatory hypertension (SBP > 135/85 mmHg or BP load > 30%). Age, duration of hypertension, body mass index, baseline office and ambulatory BPs, and time lapsed between studies did not predict the change in ambulatory BP over time. The patients with WCH remain in WCH over time and 95% continue to display a white-coat effect. The small subgroup who did become hypertensive over time were not predicted by office BP, ambulatory BP, or age.

Key Words: white-coat hypertension, ambulatory BP, white-coat effect, outcomes

G14

MICROALBUMINURIA, LEFT VENTRICULAR MASS AND AMBULATORY BLOOD PRESSURE IN ESSENTIAL HYPERTENSION
J. Redd, E. Baille, V. Bertolin, J.V. Lozano, A. Miralles, J.M. Pascual, Hypertension Clinic Department of Medicine, Hospital de Segovia, Spain.

Microalbuminuria (MALB) was performed (n=215) in a population of 240 hypertensive patients to determine the prevalence of this marker of renal risk in essential hypertension. Prevalence was described in independent of office BP values. Objective: To assess if the relationship between MALB and LVMI is independent of a more representative BP values such as the ambulatory BP. Design and methods: Patients with essential hypertension, aged 25-75 years old, were treated with antihypertensive drugs, were included in the study. The inclusion criteria was a) absence of diabetes, renal disease or urinary tract infection; b) echocardiography suitable for measurement of LVMI; c) urinary albumin excretion (UAE) was estimated in urine of 24 hour in two separate days and d) good quality ambulatory blood pressure monitoring during 24 hours. LVMI was calculated by the Devereaux formula corrected to 90th percentile. UAE was measured using an immunonephelometric assay (Behring Institute). MALB was considered when UAE200mg/l in the two days. ABMP was performed using an oscillometric device (SpaceLabs 90202 or 90207) during a regular working day. Readings were programmed every 20 min between 6 am to midnight and thereafter every 30 min. Mean of 24 hours, awake and sleep periods for systolic and diastolic BPs were calculated. One hundred and fifty-one patients (96 male, mean age 37±8 yr, BMI 27.7±5.7 cm²) were included. The mean values of UAE were 30±15±7±24 mg/24h and the LVMI 10±4±1 g/m². The prevalence of MALB was 28% and the prevalence of LV hypertension 34%. A significant relationship between UAE and LVMI was observed independent of ambulatory diabetics in the same population, or age. The relationship is shown in the figure.

Key Words: Microalbuminuria, left ventricular hypertrophy, ambulatory blood pressure, essential hypertension

G16

INAPPROPRIATE PHYSICIAN PRESCRIBING HABITS OF ORAL NIFEDIPINE CAPSULES IN HOSPITALIZED PATIENTS. Fai. Rehmian, George A. Mansoor, and William B. White, Section of Hypertension and Vascular Diseases, University of Connecticut School of Medicine, Farmington, Connecticut

Despite the absence of an approved FDA indication, the use of oral/sublingual nifedipine for 'acute' hypertension has become a widespread practice among physicians. To assess the clinical circumstances for which the drug was being prescribed, dosing of oral nifedipine capsules was studied prospectively in three central Connecticut hospitals (private-non-teaching, university, and community-teaching). Through evaluation of computerized pharmacy and medical records, data were collected on diagnostic reasons for ordering nifedipine, pre- and post-treatment BPs, dosing frequency, clinical documentation associated with drug prescription, and adverse events. Physicians and nurses at the respective hospitals were unaware of the conduct of the study. The prevalence of nifedipine capsule administration for all 3 hospitals was 3.4% (152 dosings/4498 hospitalized patients/2 months). Practice habits and BP changes did not differ among hospitals. Ten mg was the most common dose prescribed (96%), however, multiple doses were given in 63% of cases. Sixty-three per cent of nifedipine orders were given over the phone for arbitrary and symptomatic BP elevations and 95% of orders lacked bedside patient evaluation. Followup of BP was performed within 1 hour in 51% of patients, 24% in 2 hours while in 25%, there was no documentation of followup until 2-6 hours after nifedipine dosing. Mean pretreatment BP was 186±22/94±16 mm Hg (range, 92-300 to 48/28 mmHg) and was related to the level of pretreatment BP (r = 0.53, p < 0.001) for systolic BP, and r = 0.49, p < 0.0001 for diastolic BP. Large symptomatic reductions were common (prevalence > 30/15 mmHg). One hypertensive patient with angina experienced severe hypotension accompanied by myocardial infarction. These data demonstrate inappropriate prescribing habits of oral nifedipine in hospitalized patients characterized by lack of proper assessment prior to drug dosing, highly arbitrary treatment parameters that were written without regard for symptoms, and slow followup for evaluation of clinical response.

Key Words: nifedipine capsules, hypertensive urgency, physician practice habits, hospitalized patients