sures were performed in a random order using a mercury sphygmomanometer by two of the investigators (KK, AK). The mean of two measurements in the sitting position was used.

The systolic blood pressure of the patients was 129.4 (SD 20.8) mmHg by using the diaphragm side and 129.5 (21.7) mmHg by using the bell side of the stethoscope (p=0.78). By amplifying the high frequency sounds it was 131.0 (22.2) mmHg and by amplifying low frequency sounds 130.7 (22.5) mmHg (p=0.46). Systolic pressure measured by the electronic stethoscope was significantly higher than systolic pressure measured by the ordinary acoustic stethoscope (p=-0.0001–0.008). The corresponding diastolic blood pressure values were 77.1 (12.0), 77.0 (12.0), 77.2 (12.3) and 76.4 (12.3) mmHg. Diastolic blood pressure measured by the electronic stethoscope by using low frequency amplification was lower compared to both high frequency amplification (p=0.005), diaphragm (p=0.01) or bell side (p=0.04) of the acoustic stethoscope.

Blood pressure can be measured reliably by using either the bell or the diaphragm side of the ordinary acoustic stethoscope. Electronic amplification of Korotkoff sounds results to slightly higher systolic blood pressure values whereas low frequency electronic amplification results to slightly lower diastolic blood pressure values. In everyday practice that difference has little clinical significance but should be taken into account in scientific research of large populations.

Key Words: Measurement of Hypertension, Stethoscope, Electronic Stethoscope

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A LARGE-SCALE AMBULATORY BLOOD PRESSURE MONITORING (ABPM) TRIAL IN THE PRACTICE SETTING: EFFICACY OF THE ANGIOTENSIN RECEPTOR BLOCKER, TELMISARTAN

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Both ABPM and office measurements were used by 518 practicing clinicians to assess the antihypertensive efficacy of telmisartan in 1,628 patients, 940 untreated and 675 previously on other drugs. After baseline ABPM, patients were started on (or switched to) telmisartan 40 mg qd, which was increased to 80 mg qd (unless patients were hypotensive) after 2 weeks; if office BP was > 140/85 mmHg after 4 further weeks, telmisartan 80 mg/hydrochlorothiazide 12.5 mg was given for a final 4 weeks. ABPM was performed at completion of treatment using an intention-to-treat analysis. Of the 1,628 patients, 1,557 (95%) successfully completed both ABPM procedures. Baseline BP by 24 h ABPM was 135/77 mmHg, and it fell by 10.7/6.5 mmHg with telmisartan or switching patients. ABPM was controlled (131.0/77.1 mmHg) in previously untreated patients, 115/70 in switched patients). All changes were highly significant.

Key Words: Ambulatory Blood Pressure Monitoring, Angiotensin Receptor Blocker, Hypertension

P-77

COMPARISON OF THE OMRON HEM-637 WRIST MONITOR TO THE AUSCULTATION METHOD WITH THE WRIST POSITION SENSOR ON OR DISABLED

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Purpose: To determine if the Omron HEM637 wrist model with the wrist positioning sensor turned on (Son) is more accurate relative to upper arm auscultation by trained professions than when the sensor was manually turned off (Soff).

Method: Forty-four subjects, at least 30 years old, had repeated, sequential dual-observer upper arm auscultatory measurements (5–6 each) and oscillometric Omron HEM637 wrist measurements (4 each). Nineteen subjects were assigned to the wrist sensor On group and 25 were assigned to the wrist sensor Off group. A total of 425 auscultatory and 164 wrist measurements were analyzed.

Result: The Omron HEM-637 measured the BP with equal accuracy to the observers using the auscultatory technique (difference −1.37±8.51/3.47±8.07 mmHg, p=0.71, 0.14) The wrist sensor did improve the accuracy of the measurements compared to the subjects that had the sensor deactivated. The sensor On group (Son) measured the SBP (2.32±5.59 mmHg) and DBP (2.56±5.36 mmHg) statistically the same as by auscultation (p=0.60 for SBP and p=0.44 for DBP). The sensor Off (Soff) group measured the SBP (3.03±7.12 mmHg) and DBP (5.56±6.68 mmHg) statistically different than auscultation (p=0.46 for SBP and p=0.02 for DBP). The higher (negative) measurement for both the SBP and DBP suggests that the average position of the wrist was 1.75 inches (4.4cm) below the heart level in this group with the sensor off.

Conclusion: This study demonstrated that the Omron HEM-637 monitor with a wrist sensor more accurately measured blood pressure compared to the same model with the sensor turned off, which was statistically different for DBP.

Key Words: Wrist Blood Pressure Measurement, Accuracy of Measurement, Blood Pressure Determination

P-78

BLOOD PRESSURE MEASUREMENTS IN A COMMUNITY PHARMACY COMPARED TO HOME BLOOD PRESSURES

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Clinic blood pressure (CBP) measurement has been the standard for diagnosis and treatment of hypertension. Limitations of CBP such as observer bias, white coat and placebo effects have been identified. In recognition of these limitations, some physicians suggest that patients obtain BP readings outside of their office. The objective of this study is to compare home blood pressure (HBP) measurements with pharmacy
blood pressure (PBP) measurements. The hypothesis to be tested is that PBP measurements will be higher than HBP measurements.

Adult patients with hypertension were recruited as part of a larger randomized study from 6 community pharmacies. For study inclusion, patients were receiving 1–3 BP medications with no change in regimen or dose within the past four weeks, and non-diabetic with average PBP values between 145–179 mm Hg systolic (SBP) or 95–109 mm Hg diastolic (DBP), or diabetic with average PBP values between 135–179 systolic or 90-109 diastolic. PBP readings were taken on 2 separate visits at baseline (BL) and at a 1 month (1M) follow-up. The PBP measurements were taken by trained pharmacists according to American Heart Association guidelines using a fully automated device (Omron model HEM-737A). Patients were given the same automated device for HBP measurements. The pharmacists educated patients on the proper use of the device. Patients were given a HBP log and asked to record 2 BP readings each morning separated by 5 minutes for 1 month. HBP readings were averaged for each patient. Student’s paired t-test was used to compare HBP with PBP readings at BL and 1M. A p-value <0.05 was considered statistically significant.

Fifty-four patients provided both PBP and HBP readings. Patients were 98% Caucasian, 57% female with an average age of 63.9 ± 10.6 years. The mean number of recorded HBP was 63±22. The BP results are in Table 1. HBP were significantly lower than PBP at baseline but not at 1 month. There was a significant decline in PBP from baseline to 1 month. The results indicate that HBP are similar to follow-up BP in the pharmacy. Additional comparisons between HBP and PBP are needed to ascertain if a white coat effect occurs with BP measured in a pharmacy.

Table 1. Blood Pressure Results

<table>
<thead>
<tr>
<th>Measurement</th>
<th>SBP ± SD (mmHg)</th>
<th>DBP ± SD (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PBP-BL</td>
<td>152.5 ± 15.1</td>
<td>85.6 ± 11.0</td>
</tr>
<tr>
<td>HBP</td>
<td>142.2 ± 14.8ab</td>
<td>80.7 ± 9.0ab</td>
</tr>
<tr>
<td>PBP-1M</td>
<td>145.7 ± 16.6a</td>
<td>82.0 ± 11.0p</td>
</tr>
</tbody>
</table>

* p < 0.001 for comparison with PBP-BL, * p = NS for comparison with PBP-1M

Key Words: Home Blood Pressure Monitoring, Community Pharmacy,