Circadian Changes in Blood Pressure in Mild Hypertension and The Effect of Abana

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ABSTRACT
Circadian blood pressure recordings were taken in 18 male cases to diagnose borderline hypertension. In the present series, the maximum systolic and diastolic blood pressures were recorded in the evening and the minimum ones, early morning. After determination of borderline hypertension Abana was given at a dose of two tablets t.i.d. for 6 weeks. After careful monitoring significant reductions in systolic and diastolic blood pressures were recorded at the end of 6 weeks of Abana therapy. On the basis of our observations it can be concluded that Abana may be advocated as a single drug therapy for the management of borderline hypertension. Hence, continuous oral administration of Abana may prevent or delay the future occurrence of persistent hypertension in likely victims.

INTRODUCTION
Several guidelines have been provided to define high blood pressure in an individual suffering from borderline hypertension. Multiple readings are required to ascertain borderline or labile hypertension. Drayer et al\(^1\) introduced non-invasive ambulatory circadian blood pressure as a technique to determine borderline hypertension. Clement\(^2\) and Horan et al\(^3\) used circadian blood pressure to assess the effects of antihypertensive therapy. Richardson\(^4\) had studied variations in arterial blood pressure throughout the day and night. According to them blood pressure is lower during the night and higher during the day. Circadian hypertension is a good predictor for future development of hypertension. A careful monitoring of circadian blood pressure and its adequate management may be helpful in the prevention of coronary heart disease.

The causal elevation of blood pressure and heart rate are poor predictors of hypertension. In case of borderline hypertension the multiple readings may provide definite guidelines for clinical diagnosis and therapy. A relatively small elevation in systolic and diastolic blood pressure may be associated with significant mortality and morbidity. The Framingham study has shown that systolic elevation is as equally risky as diastolic elevation. In the present paper, an attempt has been made to isolate borderline hypertension cases by recording the circadian blood pressure. The role of Abana in the prevention of future development of persistent hypertension has been studied.

MATERIAL AND METHODS
Eighteen male adults with evidence of sympathetic hyperstimulation were selected for circadian monitoring of blood pressure. These cases showed elevated mild blood pressure recordings occasionally. All the cases were ambulatory and were advised repeated blood pressure recordings at intervals of 8 hours. The average systolic and diastolic blood pressure readings were calculated and included for clinical trial with Abana. Abana was given at a dose of 2 tabs. t.i.d. for six weeks and the circadian blood pressures were recorded at the end of 2 weeks. The initial and final recordings were compared after six weeks of therapy. Out of 18 cases, 7 cases were given a placebo in order to compare the results.
RESULTS

The study emphasizes the circadian variability in blood pressure. The morning blood pressure measurements in these patients would show only borderline elevation but by noon, and definitely in the evening, the blood pressure is clearly in the hypertensive range. Abana treatment lowers both systolic and diastolic blood pressures in these subjects and brings them in the normotensive range without altering the normal circadian rhythm.

DISCUSSION

More precautions should be taken in handling cases of labile or borderline hypertension having evidence of occasional high blood pressure recordings. In many cases the initial diastolic blood pressure may be below 90 mm Hg, but subsequent recordings taken at different times may be above this range. Carey et al pointed out that such cases, even after careful handling, developed persistent hypertension. Levy and his associates proved that in cases of labile hypertension the risk for development of coronary heart disease is six times more than in the normal population. In spite of restriction in salt intake, reduction in body weight and regulation in dietary habits, the development of persistent hypertension could not be prevented. Julius pointed out that even after careful handling of such patients, the frequency of development of persistent hypertension could not be reduced.

Keeping the above facts in view a comprehensive study has been done to provide a suitable remedy which could prevent or delay the development of persistent hypertension in borderline hypertension cases. The herbomineral drug Abana has shown its efficacy in prehypertension cases. In another study Tiwari et al noticed that Abana has the capacity to reduce blood pressure in prehypertension cases as determined by the cold pressor test.

It is evident from our results that circadian blood pressure readings showed maximum systolic and diastolic blood pressure levels in the evening. This finding is in conformity with those of Drayer. It has been observed that after 6 weeks of Abana therapy the circadian variations in blood pressure were considerably reduced in comparison to the initial findings. In contrast, the placebo group could not show any such reductions. Gore also reported the beneficial effect of Abana in cases of hypertension. He noticed significant reduction in systolic and diastolic blood pressures at the end of six weeks of Abana therapy. The present observations also reveal that Abana reduces the circadian systolic and diastolic blood pressures in borderline hypertension cases. Circadian blood pressure is a better predictor of borderline hypertension. Abana, which contains several herbs and minerals, reduces the circadian hypertension after twelve weeks of therapy. So Abana may be advocated as a single drug therapy for the prevention and development of persistent hypertension in cases showing borderline values of blood pressure in the morning, as these patients would show blood pressure recordings in the afternoon and evening clearly in the hypertensive range.

<table>
<thead>
<tr>
<th>Time</th>
<th>Systolic Blood Pressure (mm Hg)</th>
<th>Diastolic Blood Pressure (mm Hg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before therapy</td>
<td>After Placebo</td>
</tr>
<tr>
<td>7 a.m.</td>
<td>132.00 ± 8.75</td>
<td>136.8 ± 4.28</td>
</tr>
<tr>
<td>12 noon</td>
<td>136.5 ± 7.82</td>
<td>143.8 ± 6.85</td>
</tr>
<tr>
<td>6 p.m.</td>
<td>146.5 ± 8.33</td>
<td>150.5 ± 4.28</td>
</tr>
<tr>
<td>11 p.m.</td>
<td>138.7 ± 8.42</td>
<td>143.2 ± 5.72</td>
</tr>
</tbody>
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