LETTER TO THE EDITOR

EFFECT OF ABANA AND METOPROLOL ON SERUM LIPID PROFILE IN RABBITS FED HYPERLIPIDEMIC DIET

Sir,

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In the last few years, there have been revolutionary changes in the therapy of cardiac diseases. The Beta blockers helped to improve the quality of life of many who suffered from heart diseases, but long term use of the Beta blockers may have many adverse side effects. Such as severe bradycardia, congestive distress especially in patients of bronchial asthma etc. Calcium antagonists like nifedipine need very careful adjustment of individual dosage.

In the above circumstances, the search for a harmless and clinically useful indigenous preparation for cardiovascular diseases was warranted which should decrease the LDL cholesterol and increase the HDL-cholesterol because low levels of HDL-cholesterol and high levels of LDL cholesterol have proved important predictors for the development of CHD (1, 2, 3).

One of such combination is Abana, manufactured by Himalaya Drug Company, India. It contains about thirtynine medicinal plants and mineral complexes reported to be useful in the treatment of cardiovascular diseases.

The present study, was therefore, planned to see the effect of Abana (herbal preparation) and Metoprolol (β-blocker) alone and in combination or serum lipid profile in albino rabbits made hypercholesterolemic by feeding a high fat diet.

The study was conducted in thirtytwo healthy normal adult albino rabbits (1.5-2.0 kg) maintained on Hindustan Gold Mohr’s (HGM) rabbit feed for a period of one month. Thereafter, experimental hyperlipidaemia was produced by giving 7 gm fat, 500 mg cholesterol and 13 gm wheat flour mixed with Hindustan Gold Mohr’s feed to each rabbit for a period of two weeks (4). These animals were divided into four groups. Group I animals were fed with hyperlipidaemic diet, Group II animals were fed with Abana (500 mg twice daily), Group III were fed with Metoprolol (10 mg twice daily) and Group IV were fed with Abana plus Metoprolol (500 mg + 10 mg twice daily) along with hyperlipidaemic diet. Fasting blood samples were drawn before and after 45 days of drug administration for estimation of serum total cholesterol (5a, 5b), Triglycerides (7) Phospholipids (8) HDL-cholesterol (9) LDL and VLDL cholesterol (10) and serum cholesterol binding reserve (11). Statistical evaluation was done by applying paired “t” test.

Group II, III and IV showed no significant change in body weight after 45 days when compared with control. However, Group II exhibited significant decrease in body weight in 45 days as compared to their initial levels. Oral administration of Abana also showed highly significant decrease in serum total cholesterol but significant decrease in Metoprolol and Abana plus Metoprolol treated group (Table I).

However, in case of HDL-cholesterol, a significant decrease was observed in the Metoprolol treated group. While Abana treatment caused a significant increase in HDL cholesterol levels (Group II & IV), indicating that Abana treatment could overcome the adverse effect of Metoprolol on HDL-C levels (Table II).

Oral administration of Abana, Metoprolol and Abana plus Metoprolol also decreased the LDL-C, VLDL-C, sTG and sPL but percent change in level was more with Abana as compared to Metoprolol and
Abana plus Metoprolol expect for serum triglycerides. Serum cholesterol binding reserve were also found to be increased in Group II, III and IV but increase was found more with Abana.

**TABLE I:** Effect of Abana, Metoprolol and Abana plus Metoprolol on body weight, serum total cholesterol, triglycerides and phospholipids in hyperlipidaemic albino rabbits.

<table>
<thead>
<tr>
<th>Group</th>
<th>Body wt(kg)</th>
<th>Serum cholesterol (mg/dl)</th>
<th>Serum triglycerides (STG) (mg/dl)</th>
<th>Serum phospholipids (SPL) (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial</td>
<td>Final (after 45 days)</td>
<td>Initial</td>
<td>Final (after 45 days)</td>
</tr>
<tr>
<td>I Control</td>
<td>1.71 ± 0.11</td>
<td>1.74 ± 0.12</td>
<td>1170 ± 12.6</td>
<td>1173 ± 12.3</td>
</tr>
<tr>
<td>II Abana</td>
<td>1.60 ± 0.13</td>
<td>1.56 ± 0.13</td>
<td>1156 ± 69.9</td>
<td>1131 ± 69.7^d</td>
</tr>
<tr>
<td>III Metoprolol</td>
<td>1.62 ± 0.11</td>
<td>1.65 ± 0.10</td>
<td>1279 ± 132</td>
<td>1269 ± 133^d</td>
</tr>
<tr>
<td>IV Abana + Metoprolol</td>
<td>1.66 ± 0.18</td>
<td>1.69 ± 0.18</td>
<td>1214 ± 102</td>
<td>1189 ± 111^d</td>
</tr>
</tbody>
</table>

Values are Mean ± S.D. of 8 animals in each group.
^P<.05; ^bP<.01; ^cP<.001: values are significantly different from control.
^dP<.05; ^'P<.01; ^''P<.001: values are significantly different from initial respective groups.

**TABLE II:** Effect of Abana, Metoprolol and Abana plus Metoprolol on HDL cholesterol, LDL cholesterol, VLDL cholesterol and serum cholesterol binding reserve in hyperlipidaemic albino rabbits.

<table>
<thead>
<tr>
<th>Group</th>
<th>HDL-C(mg/dl)</th>
<th>LDL-C(mg/dl)</th>
<th>VLDL-C(mg/dl)</th>
<th>SCBR (mg/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial</td>
<td>Final (after 45 days)</td>
<td>Initial</td>
<td>Final (after 45 days)</td>
</tr>
<tr>
<td>I Control</td>
<td>16.04 ± 1.6</td>
<td>15.07 ± 2.4</td>
<td>1036 ± 18.9</td>
<td>1039.5 ± 20.0</td>
</tr>
<tr>
<td>II Abana</td>
<td>16.40 ± 3.0</td>
<td>24.50 ± 2.2^d</td>
<td>1028 ± 70.0</td>
<td>996.5 ± 71.0^d</td>
</tr>
<tr>
<td>III Metoprolol</td>
<td>14.50 ± 2.2</td>
<td>10.80 ± 0.95^d</td>
<td>1152 ± 134</td>
<td>1147.0 ± 133^d</td>
</tr>
<tr>
<td>IV Abana + Metoprolol</td>
<td>16.90 ± 1.6</td>
<td>21.10 ± 2.3^d</td>
<td>1090 ± 101</td>
<td>1067.0 ± 109^d</td>
</tr>
</tbody>
</table>

Values are Mean ± of 8 animals in each group.
^P<.05; ^bP<.01; ^cP<.001: values are significantly different from control.
^dP<.05; ^'P<.01; ^''P<.001: values are significantly different from initial respective groups.

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REFERENCES


