A NOTE ON NORMAL BLOOD COAGULATION VALUES IN INDIAN RABBITS

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It was observed, during a study of the effect of certain drugs on blood coagulation in rabbits, that the values of bleeding time, coagulation time and prothrombin time were much lower here than those reported from other countries. A search of literature revealed scanty data on Indian rabbits (1,7). It was thought important, therefore, to establish the normal values for Indian rabbits before studying drug effect on them. These values are being reported in this communication.

MATERIALS AND METHODS

Healthy inbred Indian albino rabbits of either sex and with a mean weight of 1.3±0.23 (S.D.) were employed in the study. They were maintained on a standard diet and fasted overnight before use. No animal was used more than once in a week. The bleeding time was determined by the method of Duke (4), coagulation time by the capillary tube method of Wright and Cole-brook (9) and prothrombin time by the micro method of Montigel (6) using Thrombostin tablets (Geigy). All values were obtained correct up to 0.1 sec. The blood for coagulation time and prothrombin time determinations was collected from the marginal ear vein. A capillary tube of 0.75 mm. internal diameter was used in all the experiments. Duplicate determinations were carried out with each sample and if they differed by more than 0.2 seconds, the observation was rejected. In case the two values were within 0.2 seconds, the mean was obtained. Three such sets of observations were generally obtained for each rabbit at weekly interval.

RESULTS

The values obtained from 93 rabbits were analysed and a summary of results is presented in Table I and Fig. 1-3. The mean values ± standard error of the bleeding, coagulation time and prothrombin time have been found to be 9.5±0.6, 103±0.8 and 7.3±0.03 seconds respectively. The histograms in Fig. 1-3 show the frequency distribution of the various values obtained for bleeding time, coagulation time and prothrombin time respectively.

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TABLE I

Showing the mean values of bleeding time, coagulation time and prothrombin time in Indian rabbits. The standard deviation, standard error as well as the % of observation lying within ±2 S.D. from the mean are also shown in each case.

<table>
<thead>
<tr>
<th>Value</th>
<th>Bleeding Time</th>
<th>Coagulation Time</th>
<th>Prothrombin Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of observations</td>
<td>288</td>
<td>288</td>
<td>254</td>
</tr>
<tr>
<td>Mean</td>
<td>95 sec.</td>
<td>103 sec.</td>
<td>7.3 sec.</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>10.4</td>
<td>13.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.6</td>
<td>0.8</td>
<td>0.03</td>
</tr>
<tr>
<td>% observations lying within ±2 S.D.</td>
<td>95.9%</td>
<td>92.5%</td>
<td>77%</td>
</tr>
</tbody>
</table>

Fig. 1

Histogram showing the frequency distribution of the 288 values of bleeding time. The thick bar represents the values lying within ±2 S.D. of the mean.
Blood Coagulation Values in Indian Rabbits

<table>
<thead>
<tr>
<th>Blood Coagulation Values in Indian Rabbits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prothrombin Time</td>
</tr>
<tr>
<td>Bleeding Time</td>
</tr>
<tr>
<td>92.5%</td>
</tr>
</tbody>
</table>

**DISCUSSION**

The values of coagulation time and prothrombin time vary within certain limits with the technique of blood collection (e.g. capillary blood, venous blood or arterial blood) and the technique used for determination. The techniques employed in the present investigation have the advantage of requiring only a small amount of blood making repeated determinations possible in every animal. Further, the end point employed is quite sharp in both the cases and results are reproducible.

The frequency histogram is slightly skewed to the right in the case of bleeding time (Fig. 1) while in the case of coagulation time and prothrombin time the curve is skewed to the left (Fig. 2 and 3). According to Bancroft (2) in the case of a normal distribution 95.45% observations lie between the mean and within 2 times the standard deviation from the mean. The observations lying in this range are 95.90 and 95.77% respectively in the case of bleeding time and prothrombin time (Table 1). These values, therefore, show a normal distribution and can be taken to represent normal values for Indian rabbits. In the case of coagulation time...
92.5% observations lie within this limit (Table I). As this is quite close to 95.45%, it may be taken to indicate an almost normal distribution.

These values are considerably lower than those reported from other countries, the usual values reported being: bleeding time, 278 seconds (5); coagulation time, 150-180 seconds (1) and prothrombin time, 10 seconds (8). It is difficult to explain the cause of this difference, though it could be due to a strain variation.

**SUMMARY**

1. Bleeding time, coagulation time and prothrombin time values have been determined in 93 inbred Indian rabbits.
2. The mean values (±S.E.) were found to be 95 (±0.6), 103 (±0.8) and 7.3 (±0.03) seconds respectively.

3. The observations have a normal frequency distribution and can be taken to represent normal values for Indian rabbits.

REFERENCES


