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EXPERIMENTAL STUDIES ON TRANSFUSION OF DOGS: CLINICAL AND HEMATOLOGICAL FINDINGS ON ERYTHROCYTE TRANSFUSION IN DOGS AFTER BLEEDING

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In this study, twenty per cent of the circulating blood volume was bled in dogs. The animals were then treated with a 40 % suspension of red cells using lactated Ringer's solution (R blood group) or 6 % Destran Ringer's solution (D blood group) as the solvate or treated with whole blood (W blood group). The volume of the transfused blood equaled the volume of the bled blood. The recovery and maintenance of arterial blood pressure and the hematological findings were evaluated.

The following results were obtained:

1) After 20 % of the circulating blood volume of healthy dogs was bled, the dogs were listless and arterial blood pressure and arterial and venous pH, HCO_3^- decreased.

2) For recovery to normal condition and to sustained arterial blood pressure, transfusion was effective in the following order: W blood group, D blood group, R blood group.

3) Judging from the changes in RBC, Ht and Hb, the D blood group was superior to the other groups in its capability to increase the plasma volume.

4) No significant changes in plasma electrolytes were observed in the D and W blood groups, but the R blood group showed remarkable changes.

5) The initial value of TP was maintained in the W blood group, but it decreased immediately after transfusion in the R and D blood groups.

6) The arterial and venous pH were restored within 3 hours after the transfusion in the D and W blood groups; however, it took 1 day for the venous pH to be restored in the R blood group.

The above data suggested that 6 % Dextran Ringer's solution was the most preferable solvate for erythrocyte transfusion treatment in acute hemorrhages.