

Evaluation of Effects on Circulating Blood Volume Estimated Using Radioisotope

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In the cases, which needs blood transfusion because of massive bleeding during or after operation there are encountered some cases, the true circulatory state of which cannot be presented by circulating blood volume estimated using radioisotope. The purpose of the experiment is to demonstrate what factors effect on this phenomen.

The experiment was performed with the use of adult dogs, femoral artery and vein was exposed, and the former was used for blood sampling and latter for infusion of blood, expander and radioisotope. Circulating blood volume was estimated by volemetron utilizing RIHSA.

The results was as follows:

1) Direct estimation of whole blood volume using Volemetron showed almost right

condition, while, when it was calculated by plamsa volume measured using Volemetron, we fail to estimate right state of circulation.

2) Hemolysis had no effect, but, when erythrocytes show some change in character, whole blood is more reasonable for sampling than plasma.

3) As bleeding during mixing time cause maked over estimation, this fact should be kept in mind clinically.

4) Postoperatively there are lots of factors which cause over or under estimation of circulating blood volume, so it is very important that the circulatory condition should be decided by the findings of other test as well as the circulating blood volume measured by Volemetron.

Studies on Lymphography

—Body Distribution of ^{131}I -popyodol following Lymphagiography—

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The Pedal Lymphangiography with ^{131}I -tagged popyodol was performed in 25 dogs, ranging weight from 8 to 16 Kg.

25 dogs were separated to 5 groups as follow:

Group 1 (5 dogs): Dogs were sacrificed 24 hours after the injection.

Group 2 (5 dogs): Dogs were sacrificed 48 hours after the injection.

Group 3 (5 dogs): Dogs were sacrificed 72 hours after the injection.

Group 4 (5 dogs): Dogs were sacrificed 1 week after the injection.

Group 5 (5 dogs): Thoracic duct was drained and the dogs were sacrificed 24

hours after the injection.

The conclusions are as follow:

1. ^{131}I -popyodol per gram was highest in Lymphnode.

2. Following the Lymphnode, the lung activity was high and the activity decreased fairly rapidly with the time after the injection.

3. The Thyroid plesented relatively high activity and gradually increased up to the 3 days. It will be necessary to block the thyroid prior to these studies, especially RI is used.

4. The Bone and Bonemarrow schowed not so high activity, but attempts to be made by using a large amount of RI.