

In regard to the protein content of the blood immediately after the removal of large quantities of blood plasma and in regard to the length of time required for the blood to attain again its normal composition in every way we have at the moment no data to offer, although work on these points is in progress.¹⁴ The excellent condition of our animals in the days and weeks immediately following the removal of plasma forces us to believe that a large factor of safety obtains here as elsewhere in the animal economy and we are confident that we have not yet reached the danger point in plasmapheresis. The experiments of Morawitz¹⁵ on the regeneration of the blood proteins in starving dogs, after extensive haemorrhage (with simultaneous infusion of washed corpuscles taken from other dogs) show that the blood can nearly recover its normal protein content of 6 per cent in three days, after having fallen as low as 2 per cent. Our method gives a greater opportunity for interchange between the contents of the vascular apparatus and of the tissue spaces of the organs and it is hence probable that a dangerously low protein content of the blood will not be so quickly obtained as in the experiments of Morawitz.

In this connection it is interesting to recall how rapidly fibrinogen is regenerated when a small animal is transfused with a large quantity of defibrinated blood from another animal of the same species, as shown by Whipple and Goodpasture.¹⁶

SUMMARY

1. It is shown that quantities of blood plasma may be withdrawn from an animal without apparent injury that exceed several times the maximum quantity of blood that can be safely drawn by the usual method of venesection provided that the corpuscular elements of the blood suspended in Locke's solution (0.6 per cent NaCl) be returned to the vascular system after each bleeding.

2. This procedure, which we have ventured to call plasmapheresis (from ἀφαίρεσις a withdrawal) has been applied by us in

¹⁴ Extensive and careful researches on blood regeneration after venesection have been made by C. Inagaki. *Zeitschr. f. Biologie*, xxxi, pp. 77 to 198 (1907).

¹⁵ *Loc. cit.*

¹⁶ *Amer. Journ. of Physiol.*, xxxiii, pp. 50 and 70 (1914).