Clinical Study of a Modified Fluid Gelatin


Glyco-Algin as a Transfusion Solution

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Abstract

By transfusing an amount of Glyco-Algin equal to that of blood lost in bleeding, lowered blood pressure is restored to 95 % of normal. In addition Glyco-Algin holds the blood pressure at 80 % of normal even after a 90 minute lapse. This is due to the mechanism which inhibits the increase of extracellular fluid and greatly increases the plasma volume of circulating blood. In accordance with the above, plasma volume and corpuscle count is restored by the aforesaid transfusion to conditions prior to bleeding. Moreover, when drop infusion is administered to study clinical application, the above characteristics of Glyco-Algin appear more strongly, with 10 drops per kilogram of body weight per minute the lowered blood pressure induced by bleeding begins to ascend from the time of infusion. A well ordered upward curve results. Even in rapid infusion (40 drops per minute) the results are approximately the same.

Studies on kidney functions revealed the following. Slow drop intravenous transfusion increases circulating blood volume in kidney and heightens blood velocity in the same and expedites diuretic action. Moreover, Glyco-Algin inhibits
the transudation from the cardiovascular system to tissues while, on the other hand, it promotes the process of filtration and excretion of glomerulus without reverse influences on the tubular reabsorption.

Studies on the correlation of blood sugar increase and operative invasions were conducted to determine influences on the metabolism of carbohydrates. As compared with glucose solution, the rise of blood sugar induced by Glyco-Algin transfusion is a mere 50% of that of the former. When operations are not performed, glycosuria does not appear and the increase of blood sugar is slight.

Mechanism of the Decreased Capillary Resistance
Following Plasma Expander Infusion

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Abstract

A decreased capillary resistance, associated with hypoprothrombinemia, hypofibrinogenemia and thrombocytopenia, has been observed after infusions of dextran, PVP, pectin esters and methyl cellulose; whereas normal findings were seen after isotonic saline or gelatin injections. Studies on intact dogs, splenectomized dogs and splenectomized animals with RES block after massive infusions (40 cc/kg) are reported. Animals given daily infusions (10-22 cc/kg) for 21 days show the cumulative effects of these plasma expanders. Evidence is presented which emphasizes that reticuloendothelial system deposition, depression in platelet formation, and liver retention are important factors related to the altered capillary permeability.