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Relationship between Gastric Juice Volume and Erythropoiesis in Patients with Untreated Pernicious Anemia.

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Qualitative studies of gastric secretion of patients with pernicious anemia suggest that the so-called "intrinsic factor" of Castle is present, but in amounts less than normal.[1] These observations can explain why patients with pernicious anemia are able to mature some red blood cells, but does not answer the question of why various patients with pernicious anemia in relapse have different red blood cell levels. The present data show the relationship between the total amount of gastric secretion and the number of red

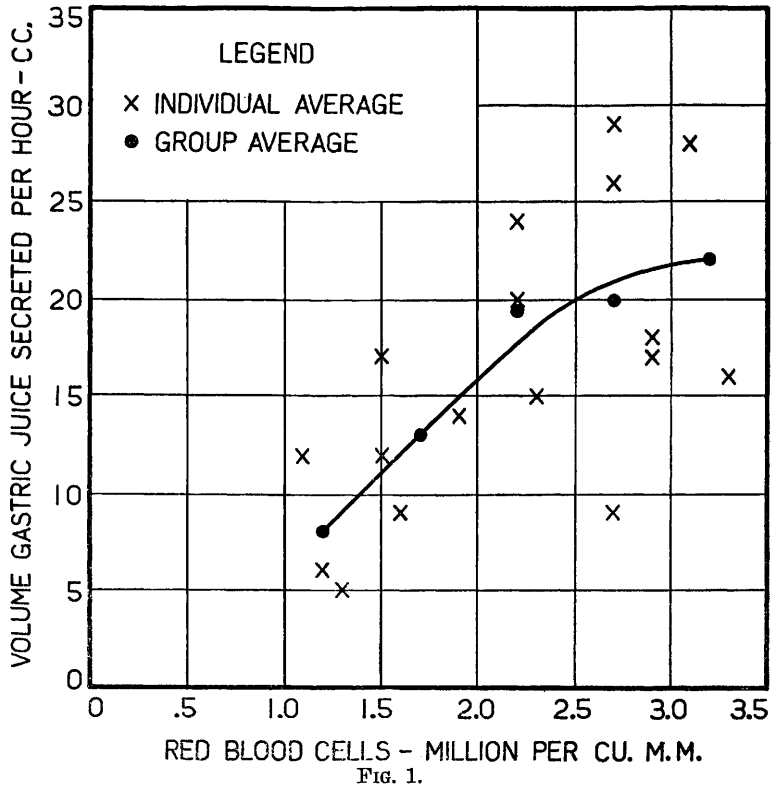

FIG. 1.

[1] Isaacs, R., and Goldhamer, S. M., PROC. SOC. EXP. BIOL. AND MED., 1934, **31**, 706.

blood cells which can mature beyond the megaloblast stage and assume the adult characteristics in untreated patients.

The volume of gastric juice* secreted per hour and the red blood cell counts were determined in 17 patients with pernicious anemia in relapse. A total of 117 observations were made. Whereas the average gastric secretion for normal individuals is approximately 150 cc. per hour, the gastric secretion in patients with pernicious anemia was found to vary between 5 and 29 cc. per hour. If the average red blood cell count (ordinate) Fig. 1, is compared to the volume of gastric secretion per hour (abscissa), a direct relationship becomes apparent. That is, the greater the gastric secretion, the higher the red blood cell level. Apparently erythropoiesis depends in part, at least, upon the action of the intrinsic factor and the rate of red blood cell formation is related to the amount of the intrinsic factor produced.

Furthermore, there was suggestive evidence that as the gastric secretion was depleted by constant drainage, in each patient there was a decrease in the red blood cell count of the peripheral blood. These experiments are being repeated and amplified with various modifications to verify the conclusions.

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Creatine Mobilization in Myocardial Damage.

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In our clinical studies[1] the discovery of a hypercreatinemia and creatinuria following coronary thrombosis with cardiac infarction and in acute myocardial insufficiency with congestive failure prompted us to attempt to establish a curve of creatine excretion.

Old male dogs that showed no creatinuria, on a diet of 150 gm. of dried bread and 200 cc. of evaporated milk with chopped cabbage

* Gastric juice was obtained by continuous suction for 3-hour periods. Histamine hydrochloride injections did not influence the volume of secretion, and, therefore, was not used routinely. All specimens were obtained at least 6 hours after the ingestion of food.

[1] Herrmann, G., Decherd, G., Erhard, P., and Klippel, P., *J. Lab. and Clin. Med.*, in press.