

These experiments clearly indicate that the temporary hypertension produced by ischemia of a single kidney may reappear or be further increased and protracted when the remaining normal kidney is removed. Experiments such as ours are difficult to reconcile with a neurogenic origin of renal hypertension but fit better with the current view of a humoral origin. It is noteworthy that removal of a normal kidney not only permits the development of hypertension, but sometimes of uremia as well. Hypertension of renal origin depends, our results suggest, on the ratio of ischemic to normal kidney tissue rather than on the amount of ischemic renal tissue alone. Decreasing the former will tend to have an effect similar to increasing the latter.

*Summary.* Six dogs had ischemia produced in one kidney by a Goldblatt clamp applied to one renal artery, and after a varying time interval, the normal kidney was removed. This latter procedure caused a noticeable rise in blood pressure in 5 out of the 6 animals, and 4 of the animals died in uremia.

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#### Treatment of Hepatomegaly in Juvenile Diabetes Mellitus with a Pancreatic Extract.

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Hepatic enlargement is not a common complication of diabetes mellitus. Its incidence is much higher during the first 2 decades of life than later.<sup>1</sup> Excluding cirrhosis of the liver, the most frequent pathological finding in cases of this type is a fatty infiltration and degeneration of the liver.

As a rule the condition occurs in severe and uncontrolled diabetes.<sup>1, 2</sup> In most cases, adequate management of the diabetes with diet and insulin, and more recently with protamine-zinc-insulin<sup>1, 2</sup> results in hepatic recession. However, there are instances where careful dietary management coupled with adequate insulin therapy

<sup>1</sup> Hanssen, P., *J. A. M. A.*, 1936, **106**, 914.

<sup>2</sup> White, P., *Diabetes in Childhood and Adolescence*, Philadelphia, Lea and Febiger, 1932, p. 169.

fails to accomplish a return of the liver to its normal size. We have in our own clinic 4 patients whose livers have enlarged progressively in spite of such treatment.

In animal experimentation, similar experiences have been encountered. It has been observed that completely depancreatized dogs, even though they were treated with insulin, showed extensive fatty infiltration and degeneration of the liver. The changes did not occur, however, if the dietetic and insulin therapy were supplemented by the feeding of raw whole pancreas.<sup>3, 4</sup>

The administration of adequate amounts of lecithin or choline to the animals' diet also succeeded in preventing the development of these pathological changes.<sup>5-9</sup> However, Ralli, *et al.*,<sup>10</sup> have demonstrated that the feeding of raw pancreas is more effective in accomplishing this end than is the addition of lecithin or choline. Van Prohaska, *et al.*,<sup>11</sup> showed that the fatty infiltration and degeneration in the liver is not due to the absence of pancreatic juice from the alimentary tract, and that lecithin or choline are probably not the active principles in raw pancreas which are concerned in preventing these changes. The same workers<sup>4</sup> have produced an alcoholic extract of beef pancreas, the administration of which to depancreatized dogs succeeded in preventing the appearance of fatty changes in the liver or in causing their disappearance where already present. Upon the basis of their work in animals, we undertook a determination of the efficacy of such an extract in 3 of our diabetic patients with hepatomegaly.

Three diabetic children, who for a number of years had suffered with extensive enlargement of the liver, were selected. Previous efforts to cause a reduction in the size of their livers had all been unsuccessful. They were now treated with a pancreatic extract prepared according to the method of Dragstedt, *et al.*<sup>4</sup> During the course of the investigation, blood lipid studies were performed at intervals. At first the pancreatic extract in saline solution was ad-

<sup>3</sup> Allan, F. N., Bowie, J. J., Macleod, J. J. R., and Robinson, W. L., *Brit. J. Exp. Path.*, 1934, **5**, 75.

<sup>4</sup> Dragstedt, L. R., Van Prohaska, J., and Harms, H. P., *Am. J. Physiol.*, 1936, **117**, 175.

<sup>5</sup> Hershey, J. M., and Soskin, S., *Am. J. Physiol.*, 1931, **98**, 74.

<sup>6</sup> Best, C. H., and Hershey, J. M., *J. Physiol.*, 1932, **75**, 49.

<sup>7</sup> Best, C. H., and Huntsman, M. E., *J. Physiol.*, 1932, **75**, 405.

<sup>8</sup> Best, C. H., Ferguson, G. C., and Hershey, J. N., *J. Physiol.*, 1933, **79**, 94.

<sup>9</sup> Best, C. H., and Channon, H. J., *Biochem. J.*, 1935, **29**, 2651.

<sup>10</sup> Ralli, E. P., Flaum, G., and Banta, R. J., *Am. J. Physiol.*, 1936, **110**, 545.

<sup>11</sup> Van Prohaska, J., Dragstedt, L. R., and Harms, H. P., *Am. J. Physiol.*, 1936, **117**, 166.

ministered to the 3 subjects. Because it was not palatable in this form, and its ingestion caused nausea, it was discontinued. It was subsequently desiccated and given again in salol coated capsules.

Where the extract was taken regularly, there was effected a reduction in the size of the liver to normal within from 3 to 5 months. Upon discontinuing the medication the enlargement of the liver recurred in 1-2 months. In each case the decrease in the size of the liver was accompanied by a significant lowering of the total serum lipids and lipid phosphorus.

One can reasonably assume that the introduction of the specially prepared pancreatic extract given in addition to diet and insulin was responsible for the recession of the liver in these 3 juvenile diabetics, where careful control of diet and adequate insulin treatment had been unsuccessful.

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### Suitability of Inulin for Intravenous Administration to Man.

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Attention has been called to the fact that, while some samples of inulin are physiologically innocuous, others, apparently of the highest chemical purity, may induce febrile reactions, accompanied in the more severe forms by chills, nausea and lumbar pain.<sup>1</sup> According to Co Tui, *et al.*,<sup>2, 3, 4</sup> the pyrogenic activity can be removed by passing the solution through a Seitz serum filter or EK filter, a fact which we have confirmed for the EK filter. Treatment with filter material (asbestos) in bulk is ineffective. Originally we removed the pyrogenic activity as follows: 750 gm. of dry inulin (8% water) are dissolved in 1500 cc. of hot distilled water and boiled for 5 minutes with 50 gm. of Norit A; the solution is filtered hot

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<sup>1</sup> Goldring, W., and Smith, H. W., *PROC. SOC. EXP. BIOL. AND MED.*, 1936, **34**, 67.

<sup>2</sup> Co Tui, McCloskey, K. L., Schrift, M. H., and Yates, A. L., *PROC. SOC. EXP. BIOL. AND MED.*, 1936, **35**, 297.

<sup>3</sup> Co Tui, Schrift, M. H., McCloskey, K. L., and Yates, A. L., *PROC. SOC. EXP. BIOL. AND MED.*, 1937, **36**, 227.

<sup>4</sup> Co Tui, McCloskey, K. L., Schrift, M., and Yates, A. L., *J. Am. Med. Assn.*, 1937, **109**, 250.