

and traverses the kidney through the by-pass circuit.

As soon as completed, our detailed work will be published.

We wish to express our gratitude to the Hungarian Chinoin Co. for synthesizing p-amino hippuric acid as well as to the Hoffmann-La Roche Co. for their gift of Narconumal, and to the Ciba and Richter Co. for supplying us with mannitol.

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Zusammenfassung

Bei Nierenrindenschämie (hervorgerufen nach TRUETA und Mitarbeitern durch Faradisation des Nierenhilus) wurde die Nierenfunktion geprüft. Die Glomerulusfiltration, die effektive Blutdurchströmung und die maximale PAH-Ausscheidung, sanken bedeutend ab. Auch die maximale Zuckerresorption wurde erheblich reduziert, aber erheblich weniger als die „Clearance“ die Zuckerresorption im juxtamedullären Tubulus scheint demnach zu steigen. Die PAH-Konzentration des Blutes in der Vena renalis stieg nach der Faradisation sehr stark an; die Extraktion war also herabgesetzt.

The Absence of the Effect of Percorten in Alloxan-Diabetic Dogs

Recently we published our experiments¹ performed on normal dogs; as an introduction to the present work we have to summarize our previous results.

If the kidneys are loaded with glucose by means of intravenous infusion, the amount of glucose filtered in a unit of time steadily increases at an unchanged glomerular filtration rate; tubular reabsorption increases for a time, but after reaching its maximal value the amount of sugar reabsorbed remains constant, even if glucose filtration is further enhanced. This number, the Tmg² is a stationary, reproducible, individual value. If the tubuli are forced to maximal effort, glucose reabsorption diminishes after a while³.

We could prove in our previous work that Tmg can be greatly elevated by the administration of synthetic adrenal cortex hormone (Percorten Ciba, Desoxycorticosterone acetateglucoside). We could draw the conclusion that the absolute value of Tmg depends, first of all, on the intensity of phosphorylation processes.

According to LASZT⁴ phosphorylation processes are abnormally increased in diabetes; so we thought it would be of interest to investigate the effect of Percorten on Tmg in diabetes.

Our experiments were performed on alloxan-diabetic dogs. The day before the experiment the dogs were given 100 mg/kg bodyweight alloxan intravenously and thereafter a large glucose infusion to prevent hypoglycaemia. Next day the dogs were diabetic, their blood sugar was between 180–350 mg %. In such state we performed the glucose infusion and, after reaching the Tmg, we administered Percorten. As can be seen from the table, Percorten was wholly ineffective in these cases.

Further experiments for the interpretation of our results are in progress. Perhaps they can be explained according to LASZT: it is possible that the effect of

Before Percorten				
Dog No.	Clearance	Fg	Eg	Rg (Tmg)
1	4	60	34	26
2	20	276	21	255
3	11	168	104	64
4	12	120	42	78
After Percorten				
Clearance	Fg	Eg	Rg (Tmg)	
3.3	73	48	25	
19.5	312	20	292	
10.0	174	124	50	
11.0	134	57	77	

Fg = Filtered glucose mg/min. Eg = Excreted glucose mg/min.
Rg = Reabsorbed glucose mg/min.

Percorten is missing in these cases because phosphorylation processes are already increased in diabetes. LASZT was able to prove that the cells of the intestinal villi show increased glucose reabsorption in diabetes.

Blood sugar was determined by the method of FUJITA-IWATAKE. Glomerular filtration rate was calculated by means of the mannitol and creatinine clearances.

The other possibility that the effect of Percorten is missing may be because a severe tubular lesion is produced by alloxan.

We have to express our gratitude to the firm Richter, to the Ciba AG., and the firm La Roche for supplying us with mannitol, Percorten, Narconumal, and Alloxan.

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Zusammenfassung

Es wurde in früheren Arbeiten mitgeteilt, daß die maximale tubuläre Zuckerresorption (Tmg) durch Percorten bedeutend erhöht wird. In der vorliegenden Untersuchung wird gezeigt, daß das Percorten im alloxan-diabetischen Organismus keine Wirkung auf die Tmg hat.

Statistical Investigations on the Relation between the Ultra-violet Rays of the Sun and Spasmophilic Convulsions

While it is certain that tetany is a seasonal disease, the meteorological factors responsible for its acute manifestations have not been identified up to now, according to the view of those who speak of "tetanic weather". MORO¹ (Föhn) and MOURIQUAND² (Vent du midi) attach importance to the barometrical falling, but they do not report any cases, neither does GYÖRGY³, who studied the effects of sunlight following bad weather.

BAAR⁴ on the contrary observed an increased excitability by galvanic current during the days rich in sunlight and GERSTENBERGER *et al.*⁵ have seen tetany develop in

¹ E. MORO, *Klin. Wschr.* 5, 925 (1926).

² G. MOURIQUAND, *Presse méd.* 40, 1400 (1932).

³ P. GYÖRGY in: W. STEPP and P. GYÖRGY, *Avitaminosen und verwandte Krankheitszustände* (J. Springer, Berlin 1927).

⁴ H. BAAR, *Z. Kinderheilkunde* 46, 52 (1928).

⁵ H. Y. GERSTENBERGER, J. J. HARTMANN, G. R. RUSSEL, and T. S. WILDER, *J. Am. Med. Ass.* 94, 523 (1936).

¹ I. RUSZNYÁK, M. FÖLDI, and G. SZABÓ, *Exper.* 3, 420 (1947).

² J. A. SHANNON and S. FISHER, *Am. J. Physiology* 122, 765 (1938).

³ H. W. SMITH, *Lectures on the Kidney* (Kansas, 1943).

⁴ L. LASZT, *Ärztliche Monatshefte* 3, 373 (1947).