

Case Reports

HEREDITARY DIABETES INSIPIDUS

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The following case of diabetes insipidus is of interest because the disease can be traced through five generations.

Case history.—Mr. D.W.S., age thirty-six, white, single, on June 21, 1925, complained of being run down and tired.

Personal history.—Born near Lindsay, Ont., had worked in northern Ontario hunting and prospecting; was a conductor on the Canadian National Railways for a number of years. When seen was driving a bakery wagon; this necessitated rising at 4.30 a.m.

Present illness.—Had excessive thirst and frequency all his life, but this did not trouble him until 1923 when he was knocked off a car injuring his leg. While he was in hospital at this time diabetes insipidus was diagnosed; since then he had been getting gradually worse. He drank about four gallons a day. His tongue got dry and thick if he went without water. He complained of never getting a good night's rest owing to thirst and frequency. He had lost about six pounds in the last month. Complained of sour regurgitation; had five or six bowel movements daily.

Past illnesses.—Tonsillitis twice a year for the last ten years. Swollen knees three years ago. Injury through fall two years ago.

Physical examination.—Weight 164 pounds; height five feet eight inches. Patient was fairly well nourished, pale, lips bluish, eyes reacted to light and accommodation; eye grounds slightly pale, otherwise normal. Teeth in poor condition; many filled. X-ray showed focal infection at several of the apices. Tonsils hypertrophied. Posterior cervical glands palpable. Thyroid not enlarged. Cardio-vascular system, both margins of the heart exceeded normal limit, the left was 16 cm. from midline in fifth interspace, rate 48, inspiratory irregularity. Blood pressure 100 systolic, 70 diastolic. Lungs normal. Liver palpable four

inches below costal margin. Spleen not palpable. Bowels distended, no fluid in abdomen. Reflexes easily elicited. Secondary sex characteristics all present.

X-ray of head.—(Dr. C. M. Henry). Lateral view: cranial cavity appears clear. No evidence of mass tumour. Sella turcica appears normal in size and shape.

Laboratory.—Amount of urine in twenty-four hours 12,000 c.c. sp.g. 1.002. Albumen negative. Fasting blood sugar .095 per cent. Blood urea 18.6 mgs. per 100 c.c. Blood enumeration, white blood cells 12,000; polymorphonuclears 45 per cent; lymphocytes 45 per cent; transitionals 7 per cent; eosinophils 2 per cent; basophils 1 per cent.

Treatment.—Pituitrin was given to check the thirst and heavy powders for the regurgitation, but he was not a faithful patient. He reported for only six hypodermics of pituitrin in July and six in August. Early in September he gave up his work of driving the bread wagon. On September 9th he complained of swelling about the internal border of the patella, without heat or redness. This disappeared after short rest in hospital, pituitrin and diathermy.

Progress.—On discharge from hospital he undertook the duties of night clerk in a hotel, but found the work too heavy, gave it up and went to northern Ontario. The winter of 1925 he spent hunting. The summer of 1926 he ran a motor boat on Lake Abitibi. As soon as he began to live a more outdoor life he began to improve. He took pituitrin occasionally. On August 31, 1926, he wrote that he was feeling well and weighed 173 pounds, that is, a gain of nine pounds in a year. His last dose of pituitrin had been five months previously in March, 1926.

Fig. 1 shows influence of pituitrin on the output and sp.g. of urine. Fig. 2 shows the influence of pituitrin on blood pressure and pulse rate. These observations were taken a number of times after the injection of pituitrin and without exception there was a transitory rise in blood pressure and pulse rate. This is

Montreal General Hospital by Mills,¹ who got contrary to the finding reported from the a lowering of the blood pressure in diabetes insipidus after injection of pituitrin. Fig. 3

shows the influence of pituitrin on the daily output of urine.

Family history.—The facts known are: the patient inherited the disease from his paternal great grandmother. His great grandmother and great grandfather are designated as generation I, it is not known how many there were in generation II, nor how many were affected.

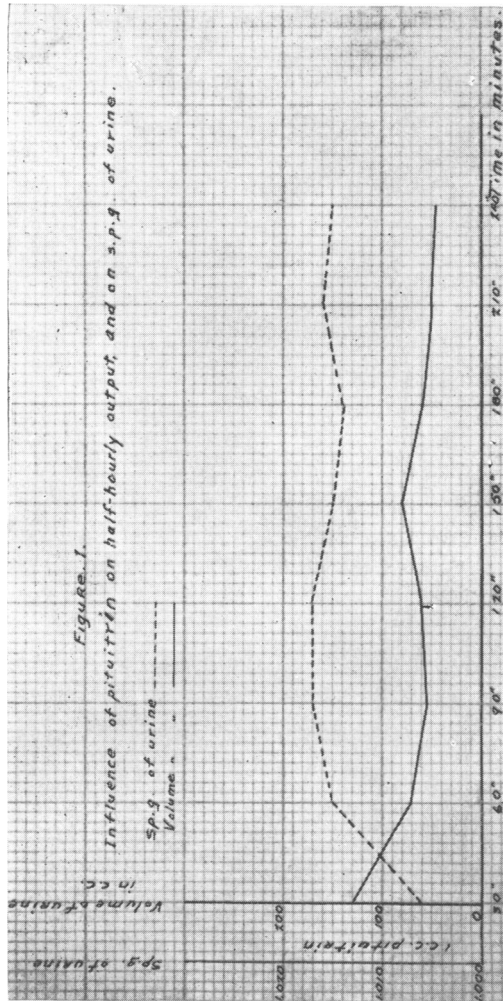


FIG. 1.—Influence of pituitrin on half-hourly output, and on s.p.g. of urine.

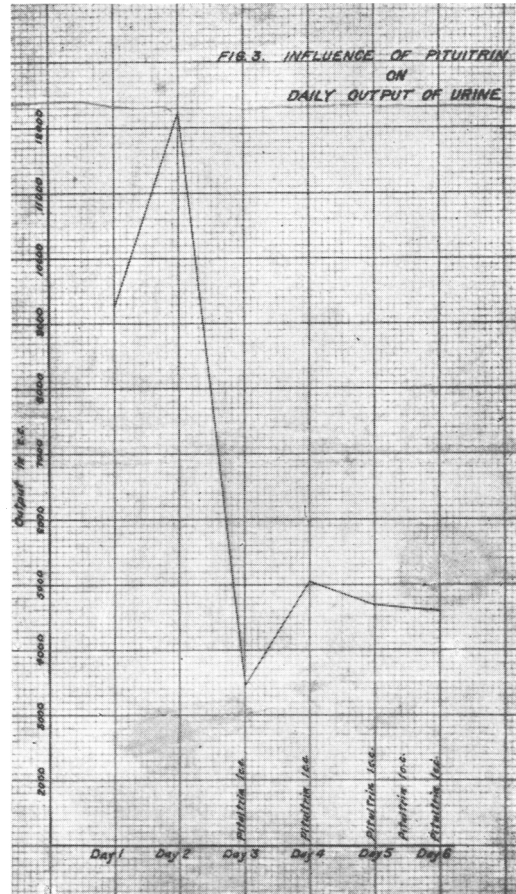


FIG. 3.—Influence of pituitrin on daily output of urine.

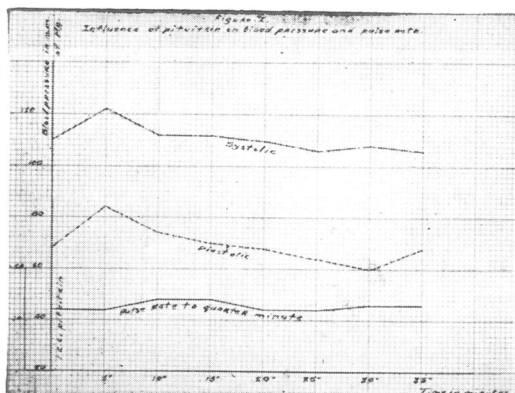
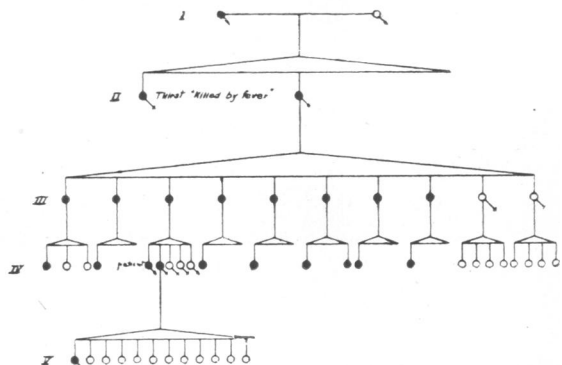


FIG. 2.—Influence of pituitrin on blood pressure and pulse rate.



Genealogical table showing inheritance of trait through five generations.

In generation III there were ten members. Of these, one male and one female were not affected, nor were any of their children. In generation IV it is known that there are at least ten out of twenty-three children affected; probably more, as it is not known how many are not affected. The patient has one brother and two sisters not affected, and one sister affected. This sister has twelve children, and of these one is affected.

The following is a letter received from the patient's uncle now living in British Columbia. "The drinking of large quantities of water is inherited from grandmother on my father's side. My father was a very heavy drinker, also one of his sisters, until she had a fever that seemed to have killed the thirst. There were ten in our family; all drank large quantities of water, but myself and one sister. None of my family or that of my sister has the habit. Out of twenty-three in the next generation there are twelve water drinkers that I know of, and there may be more, as we are scattered over the world. I never knew any of them to have any trouble set in from drinking large quantities of water. Father would drink a gallon without taking the pail from his lips, he was a strong, healthy man until a short time before his death in his eighty-fifth year. I am surprised that my nephew has had to have treatment for his condition. You speak of a case near Montreal that may have been a relative as father's people came from that province."

The disease can be passed on by either father or mother to either daughters or sons, therefore, it is not sex-linked. Since unaffected parents do not pass it to their offspring the disease is not recessive, therefore, the disease in this family is dominant and not sex-linked.

Summary

A case of diabetes insipidus is described which showed satisfactory improvement, possibly due to the action of pituitrin, more probably to an outdoor life.

The disease, traced through five generations, is shown to be dominant and not sex-linked.

REFERENCE

- (1) MILLS, E. S., *Canad. M. Ass. J.*, xv, No. 4.

DIABETES IN A CHILD THREE YEARS OF AGE*

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The prognosis in juvenile diabetes up to a few years ago was always very grave. Van Noorden was extremely pessimistic but the outlook was somewhat better when Allen elaborated and presented his work. One's vision became much better after Banting discovered insulin in 1922. The previous editions of text-books on pædiatrics accorded very brief space to this disease. Today volumes are written, so much so that the current medical literature, as well as the latest editions of text-books, contain many references to different phases of the condition, the deductions being the outcome of observations resulting from the discovery of insulin. The presentation of this case report and the problems that arose during the illness of this particular patient has been simplified to a great extent by knowledge gleaned from two papers by Dr. Gladys Boyd of Toronto, both of which are recorded in the transactions of this society. One is impressed by many immature conclusions of diabetic therapists contained in great masses of current literature as compared with the sane deductions of those who really have studied the disease. This is especially true in speaking of adult cases and one is further impressed by the apparent paucity of articles with reference to juvenile diabetes. Today those of us working outside larger centres on a much smaller scale must obtain our information from reports and observations as recorded in the literature and therefore one is greatly impressed with the two papers mentioned above.

This girl, D.D. came under observation in September, 1925, as the result of a request for consultation on a patient suffering from pyelitis. No history at that time brought out these facts. She was apparently well up to the third week in August at which time the parents noticed she was very irritable and the nocturnal enuresis which had been present for some considerable time became worse. Then she began drinking great quantities of water and at the same time diurnal enuresis developed. She was then confined to bed with fever and also for the preceding two weeks before admission to hospital. She had apparently lost a great deal of weight. Pus was

*Presented at Canadian Society for study of Diseases of Children, Gananoque, June, 1926.