INSULIN TREATMENT OF DIABETES IN PHTHISIS.

BY

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CONTINENTAL and American opinions on insulin treatment of diabetes in phthisis have been conflicting. The following cases are therefore of interest. The prognosis of progressive or ulcerative phthisis with diabetes mellitus is always very grave. Leyton recorded 5 cases, of whom 4 died without responding to controlled dietetic treatment. In two cases treated with ladder diet in a sanatorium in 1918 the urine was never freed of sugar or acetone; one died of coma and the other of extreme wasting. The cases since treated with insulin are briefly as follows.

CASE I.—A girl, aged 14, with active pulmonary tuberculosis, first diagnosed in 1922. When first seen she weighed 4 st. 10 lb., and had in the urine 9 per cent. sugar with diacetic acid and acetone. Polyuria and wasting continued with ketosis on Graham's diet. X rays showed consolidation of the left upper lobe, and enlargement of the peribronchial glands with fibrosis. Early in 1923 her condition was so much worse that one felt certain that to her the advent of insulin was a real boon. In May, 1923, the fasting blood sugar was 0.18. Insulin injections were started on July 9th, at first 5 to 10 units thrice weekly. Soon the necessity for more frequent injections was recognized and financial help for the cost of the remedy obtained. In August, 1923, the urine contained 2.8 per cent. sugar; on August 24th, with two doses of 60 and 30 units of insulin, she was sugar-free for the first time. About this period she could not tolerate 5 grams of greens, and 70 to 80 units were necessary to maintain the urine sugar-free. I was able slowly to increase the carbohydrate tolerance, and by October she had a diet of 400 calories with 10 grams of carbohydrate. Her weight was now over 5 st. The blood-sugar estimate was 0.074, though previously it was as high as 0.320. In April, 1923, the lenses were swollen and cataractous, and in October Mr. Whitehead of the Leeds General Infirmary found considerable opacity in both the lenses. Her sight has now considerably improved. The physical signs of the chest are quite quiescent and her general health is very satisfactory. Early during 1924 she had fifteen or sixteen injections monthly of 10 or 20 units and a diet of 700 calories containing 16 grams of carbohydrate. With any excess of blood sugar the dose was increased. Since April, 1924, her diet consisted of 4 oz. milk, 2 oz. fish, 4 oz. meat, 4 oz. greens, 2 eggs, 3/4 oz. olive oil, 2 oz. bacon, 1/2 oz. bread, 3/4 oz. butter, and beef-tea—total calories 911, proteins being 61 1/2 grams, carbohydrates 19 grams, fats 65 1/2 grams. At present only once or twice a week she gets about 5 units of insulin.

CASE II.—Male, aged 31, height 5 ft. 2 1/2 in., weight 9 st. 5 1/2 lb. before treatment, having previously lost a stone in weight. Tuberculosis of lung was suspected by his own doctor whilst the patient was undergoing dietetic treatment for diabetes. On examination there was clinical evidence of early infiltration; this was confirmed by x rays. He had 2 per cent. sugar in the urine with acetone and diacetic acid. The blood-sugar estimation in September, 1923, was 0.258. Diet failing, 20 to 30 units of insulin were injected twice daily. The dosage had to be doubled before the urine became sugar-free with a carbohydrate tolerance of 5 grams. Two weeks after the patient only needed 5 units two or three times weekly, and remained sugar-free on a carbohydrate diet of 20 grams with proteins and fats to make up 1,250 calories. The blood sugar varied about this period from 0.122 to 0.14. Later he needed only fortnightly injections, and was able to resume work early in 1924; he continues to maintain his health. For over six months he has received no injections. He is 10 st. in weight and his lung condition is quite quiescent. He has been on a diet of over 1,360 calories: cream 2 oz., greens 12 oz., 2 eggs, fish 4 oz., meat 4 oz., bacon 2 oz., bread 1 oz., olive oil 1 oz., butter 3/4 oz., and beef-tea.

CASE III.—Male, with incipient pulmonary tuberculosis; he had 1 per cent. sugar in the urine in October, 1923, with blood sugar 0.262. On controlled diet he remained sugar-free for a time, but he began to lose weight. Insulin was therefore given through the National Health Insurance scheme. With 5 or 10 units two or three times weekly he was able to have a diet of 1,200 calories with 30 grams of carbohydrate. His chest condition is now quiescent and he does not need insulin at present.

CASE IV.—Male, suffering from chronic phthisis, with diabetic history of over a year when first seen. In October, 1923, the urine contained 3 1/2 per cent. sugar with acetone and diacetic acid; blood sugar 0.624. He was subject to neuritis. The Wassermann reaction was negative. Injections of insulin twice daily of as high a dose as 70 to 80 units failed to free the urine from sugar with practically starvation diet. He admitted he felt better with the injections. He did not continue the treatment owing to the expense and apparent failure to become sugar-free, except on one occasion. He is one of the cases with a long-standing history of diabetes in phthisis in which insulin may not effect a cure.

CASE V.—The patient in this case was a myxoedematous type of woman with chronic pulmonary tuberculosis and blood sugar

0.624. She had kept her general health on controlled diet without insulin for a year.

CASE VI.—Another patient with primary phthisis, with later diabetic onset, has also kept sugar-free for a year on controlled diet.

These cases leave no doubt that insulin has a part to play in diabetic phthisis, especially when a satisfactory diet is necessary to maintain resistance. Failure may occur with long-standing diabetes. In others diet alone may suffice for a time, and insulin may be tried if diet fails.

TREATMENT OF EFFUSIONS IN ARTIFICIAL PNEUMOTHORAX.

BY

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EFFUSIONS in artificial pneumothorax may be grouped under three headings: (1) simple, (2) serous, and (3) purulent.

Simple Effusion.

Simple effusion into the pleura, without fever or pain, occurs in at least 50 per cent. of the cases. It is often to be recognized by x-ray examination only, and generally gives rise to no unpleasant signs or symptoms. The patient sometimes discovers it himself, on hearing a splashing noise when he moves.

Serous Effusion.

Serous effusion (serous pleurisy) is a frequent complication of artificial pneumothorax, and occurs in a large number of cases. It begins with pain in the side, and fever, the temperature perhaps rising to 103° or so, and the fluid gradually accumulating. In uncomplicated cases the fever generally lasts three or four weeks, falling gradually to normal, often being reabsorbed without the need for any interference. It should not be aspirated or interfered with if this can be avoided. If, however, it becomes very large and is causing discomfort, and is not being absorbed after a long period, it may sometimes be made to disappear by sweating. The patient is sweated for one hour thrice a week by means of aspirin, hot-water bottles, and so on. Should this fail, then it would be necessary to aspirate and replace the fluid with air. In any case, whether the fluid is absorbed naturally or removed, replacement should always be performed in order to prevent re-expansion of the lung and formation of adhesions which would render the continuance of a satisfactory pneumothorax impossible. It cannot be too strongly emphasized that repeated x-ray observation is necessary.

Purulent Effusions.

Purulent effusions may be divided into three classes.

(a) Those due to infection with the tubercle bacilli alone—in other words, a cold abscess of the pleura—are most frequently seen in cases of severe infection; they are ushered in with pain in the side and fever, which may last some weeks. The fluid is at first clear and serous-looking; it gradually becomes more turbid, and finally develops into thick pus. After some time the temperature comes down and the patient feels, and is, in good general health. It is better not to aspirate too soon, but to wait until all active symptoms have abated. The fluid should then be drawn off in small quantities at a time, at intervals of, say, a week, and replaced with air until the chest is emptied. The effusion will probably reaccumulate, and the procedure will have to be repeated perhaps many times, but in some cases it will eventually cease to reappear.

I have at present under observation three cases of cold abscess of the pleura which have been aspirated from time to time and in which the patients have remained in excellent health, and apparently are fit and strong. This fluid in each case has now become so thick that it is impossible to get it out even with the largest-sized needle. In two of the cases it extends up to the third rib, and in one case the chest is quite full. Curiously enough, these three patients are all women of about the same age (30). I am not