FATAL COMPLICATION FOLLOWING INSULIN THERAPY IN RHEUMATOID ARTHRITIS

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In this hospital, over fifty cases of rheumatoid arthritis have been treated with insulin, as first reported by Kersley and others (1950). In their series, the occurrence of spontaneous hypoglycaemia in two cases shortly after cessation of treatment was the only complication reported (Kersley and others, 1951). Our series has also been free of all major complications with the exception of the one case here described.

Case Report

A fishmonger, aged 71, was first seen in July, 1951, when he complained of pain and stiffness of all the limb joints and the neck for the past 8 weeks. He had also lost 1 st. in weight.

History.—He had suffered from haematemesis in 1949, with recovery on medical treatment. Examination showed the changes typical of rheumatoid arthritis, and the erythrocyte sedimentation rate was 19 mm./hr (Wintrobe). Symptomatic physiotherapy was given, but after 6 weeks he became worse and was admitted to hospital.

On admission, moderate rheumatoid arthritic changes were found in all limb joints, with pain and limitation of movement. The loss of weight was now 2 st. Other systems appeared normal and the urine was clear at all times.

Blood count (September 11, 1951): Hb 59 per cent., R.B.C. 3.2 million/c.mm.; erythrocyte sedimentation rate 47 mm./hr (Wintrobe).

Therapy.—Soluble insulin, 60 units daily, increased after 3 days to 70 units daily, was administered for 5 days in each week for a total of 3 weeks. Hypoglycaemia was stopped after 2½ hrs by oral glucose and a normal breakfast. On no occasion did intravenous glucose prove necessary. Full physiotherapy was also given during this stay in hospital. He showed considerable improvement and was discharged after a further 2 weeks' physiotherapy, walking well.

Relapse.—Two months later his condition had relapsed,

and, on December 19, 1951, the erythrocyte sedimentation rate was 54 mm./hr (Wintrobe), and Hb 69 per cent.

Re-admission.—He was re-admitted to hospital on January 14, 1952, and, by this time, was unable to walk, all joints being severely affected. Erythrocyte sedimentation rate was 49 mm./hr (Wintrobe), Hb 59 per cent. Urine normal on routine examination.

Therapy.—A course of soluble insulin was given, as before, for 2 weeks. Again, on no occasion was intravenous glucose necessary. Full physiotherapy was also given during this time. On January 19, 1952, he had a manipulation of shoulders, neck and knees under pentothal anaesthesia. Insulin treatment was stopped on January 25 for the usual weekly interval of 2 days without treatment.

Further Developments.—Thirty-six hours after this last dose of insulin, the patient told his wife he was thirsty but did not inform us. He had never before complained of excessive thirst. The following noon, twenty hours later, he felt unwell, but no abnormal signs were found. He started to vomit at 8 p.m. on January 27, 1952; at 10 p.m. he was drowsy, the smell of acetone was noticeable in his breath, and no urine had been passed since the vomiting started. At 11.30 p.m. he was catheterized, and the urine was found to contain sugar +++ and acetone +++. A diagnosis of diabetic coma was then made, and treatment started.

Intravenous soluble insulin 300 units, and subcutaneous soluble insulin 280 units was given immediately, and a saline transfusion commenced; 6 hrs later (6 a.m.) another 200 units insulin were given, and 4 hrs later (10 a.m.) another 200 units. The urine test remained orange with Benedict's.

From 12 noon on January 28 further intensive treatment was given (see Table), but the patient died at 5.20 a.m. the following day.

Post-mortem Examination.—Marked cerebral oedema was found, together with oedema of all connective tissues, with moderate pulmonary oedema. Apart from this, no abnormality was detected. Histology of the pancreas, adrenals, and pituitary proved normal.

TABLE
INTENSIVE TREATMENT IN THE LAST HOURS OF LIFE

Time	Soluble Insulin (units)	Other Treatment	Urine Tests	
			Sugar	Acetone
12 noon	400 subcutaneous	2nd litre saline started	Orange	
2 p.m.	400 subcutaneous		Orange	+
3 p.m.	400 subcutaneous	Blood sugar 1.1,000 mg. per cent.	Red	+++
5 p.m.	400 intravenous		Red	+++
6 p.m.	400 intravenous		Red	+++
11 p.m.	1.1,000 intravenous	Saline completed	Orange	+++
12 midnight	1.1,000 intravenous	5 per cent. dextrose started	Red	Insufficient urine
1 a.m.	1.1,000 intravenous		Red	
2 a.m.	1.1,000 intravenous		Orange	
3 a.m.	1.1,000 intravenous		Orange	
4 a.m.		Serum urea 200 mg. per cent.	Orange	
5 a.m.		2nd litre dextrose started		
5.20 a.m.	Patient died			

Comment

This patient appeared to die in an insulin resistant diabetic coma, 8,000 units of insulin in 30 hrs having had no effect. It would appear unlikely that a diabetes of this type would be due to the production of ACTH by insulin therapy, and coma due to depression of endogenous insulin production should have reacted to the large doses of insulin administered.

We cannot find any record of a similar case in the literature, although such a complication might be expected to have occurred in view of the large number of psychiatric patients who have been given insulin therapy.

Summary

A case is reported of a patient who died in an insulin resistant diabetic coma after two courses of insulin therapy for rheumatoid arthritis. Cerebral and pulmonary oedema and oedema of the connective tissue were found *post mortem*.

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Complication mortelle de la thérapie insulínique de l'arthrite rhumatoïdale

RÉSUMÉ

On relate le cas d'un malade mort d'un coma diabétique résistant à l'insuline, survenu après deux séries de thérapie insulínique instituée pour traiter son arthrite rhumatoïdale. A l'autopsie on trouva de l'oedème du cerveau, du poumon et des tissus conjonctifs.

Complicación letal de la terapia insulínica de la artritis reumatoide

SUMARIO

Se relata el caso de un enfermo muerto de coma diabético resistente a la insulina; el coma sobrevino después de dos curas de insulina al tratar su artritis reumatoide. La necropsia reveló un edema cerebral, pulmonar y de los tejidos conjuntivos.