MEDICINE

Help for Diabetics

An improved insulin treatment which combines two previous treatments simplifies the use of insulin and gives better control of blood sugar.

➤ A MIXTURE of two forms of insulin which simplifies treatment of diabetics and gives better control of blood sugar is announced in the *Journal, American Medical Association* (Aug. 28).

Slow-acting protamine zinc insulin, already in use for several years, is mixed with the original type of rapid-acting insulin to make a single daily injection having many of the advantages of both types.

Protamine zinc insulin has been used to reduce the number of injections necessary for most diabetics compared to the use of ordinary insulin. But since the insulin is slowly released from the protamine zinc compound at a steady rate throughout the day and night, moderate and severe cases of diabetes have not always received adequate control of the blood sugar level after meals when the need for insulin is greatest.

To combat this condition, physicians have been prescribing an additional second injection of regular insulin along with the protamine zinc form usually to be taken just before breakfast. Thus the prolonged action of protamine zinc insulin protects against too much blood sugar at night, while the regular insulin tends to control the rise of blood sugar after meals.

Objections to this solution of the problem are that it is a compromise method requiring two injections a day, thereby partly nullifying one of the chief advantages of protamine zinc insulin, and it requires the patient to use two different forms of insulin with two different doses, thus increasing the possibility of error.

Following the lead of earlier workers, two groups of physicians report successful clinical trials using a mixture of the two insulins in a single injection.

Drs. Cyril M. MacBryde and Harold K. Roberts of St. Louis conducted a comparative clinical study on 62 patients using a mixture of three parts of fast-acting insulin to one part with slow effect.

It was discovered, however, that acidity or alkalinity affected the amounts of the two kinds of insulin found in the final mixture. To avoid this uncertainty, the insulins were mixed and adjusted to a slight alkalinity about the same as that found in body tissues, which produced a final product of the proper composition.

Use of the new insulin mixture on severe diabetes not only controlled blood sugar as well as when both insulins were given separately, the physicians report, but gave better regulation in most cases. Less expected were results on mild cases which showed that the 3.1 insulin gave better effects than the usual treatment of these cases in which protamine zinc insulin alone is administered.

Another study, using a different mixture of the insulins containing two parts of regular and one part of protamine zinc, is reported by Drs. Arthur R. Colwell and Joseph L. Izzo of Evanston, Ill. Their studies on 60 patients reveal that a single injection of this mixture also gives better control than that obtained with standard insulins injected more often.

The insulin is released at a rate which causes moderate increases in intensity when needed after meals, the physicians explain, and allows decreases when desirable during sleep. Dosage is about 10% less than with ordinary methods because of improved efficiency.

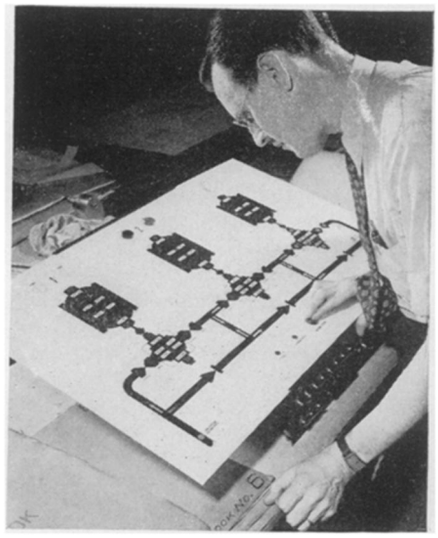
Science News Letter, September 4, 1943

ENGINEERING

Electrical Nurses Rushed For 20-Inch Fuel Pipeline

➤ "ELECTRICAL NURSES" are being rushed to completion as part of the $860,000 worth of equipment being built by the Westinghouse Electric & Manufacturing Company in Pittsburgh for the 20-inch pipeline scheduled for operation between Texas and the East Coast by year's end.

An "electrical nurse" will be located at each of 29 pumping stations to take the temperature of motors, pumps and bearings, to feel the pressure "pulse" in the pipe, and to show the station operator through what steel arteries fuel is flowing. The device designed by Westinghouse engineers is a waist-high control desk about eight feet long with a plastic top on which is imprinted a diagram of the station, showing each motor, pump, valve and pipe.



PIPELINE NURSE — A few push-buttons will control the flow of millions of gallons of vital oil products through the 20-inch pipeline now being built between Houston, Texas, and the Eastern Seaboard. For each of the line's 29 pumping stations Westinghouse Electric & Manufacturing Co. is building an electrical "nurse" consisting of a control desk with a diagram of which this is a model.

Beneath the diagram 60 tiny electric lamps report operating conditions.

"If one of the three pumps in the station develops an abnormal temperature or pressure," explained M. A. Hyde, petroleum industry engineer, "a tiny red lamp flashes on to show the trouble spot on the diagram. But the operator doesn't have to move a finger to shut the unit down—the same thermostat or pressure relay that flicked on the telltale lamp sends into action protective devices which automatically stop the electric motor and close the valves leading into the pump, causing other valves to open, re-routing the fuel around the idle unit."

Oil will be pumped through the pipeline by 88 electric motors with a total of more than 100,000 horsepower—a force equivalent to 18 mountain freight locomotives pulling at full throttle. These motors will deliver 235,000 barrels of gasoline daily.

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