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Editor Note on Insulin Therapy

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Description

Insulin therapy has been an important treatment for type1 diabetes. Insulin is a hormone which is secreted by pancreas helps in producing glucose for the body to use for energy. Drug therapy for Type2 diabetes focuses on helping a body produce more insulin or on making the body more sensitive to the insulin produced. Insulin therapy would be initiated if pancreas is unable to keep up with glucose demands. Insulin treatment varies with people depending on their use (some people may need 2 or 3 injections per day and some need several injections) and also their physiological factors, diet, activity level, illness and stress. Syringe or an insulin pen is used to administer the insulin therapy injections. The common injecting sites are the abdomen, thighs, back of the arms, hips, or buttocks. In critically ill patients, continuous intravenous insulin infusion is the most effective way to meet glycemic goals. The optimal glucose targets for noncritical ill patients are still unknown, and must be tailored to the patients' specific needs. While intensive insulin therapy decreased blood glucose levels, it had no effect on in-hospital mortality. The avoidance of newly acquired kidney damage, rapid weaning from mechanical ventilation, and accelerated release from the ICU and hospital, on the other hand, greatly decreased morbidity. The connection between hyperinsulinemia and hypertension has garnered a lot of attention recently. Hyperinsulinemia is linked to a number of pathways that, in theory, may raise blood pressure. Increased sodium absorption in the renal tubules, increased sympathetic nervous system function, stimulation of vascular smooth-muscle cell formation, and inhibition of vasodilative prostagland are just a few of them.

We hypothesized that high insulin doses in critically ill patients trigger hyperinsulinemia, which may increase the risk of mitogenic complications in the presence of a sensitive mitogenic insulin signaling pathway. This will help to understand the possible correlation between high insulin doses and negative outcomes, particularly in cancer patients. For the chronically ill, glycemic management with intensive insulin therapy has become standard of treatment. Intensive insulin therapy reduced post-burn insulin resistance and the body's widespread catabolic response. When compared to controls, intensive insulin therapy reduced inflammatory and acute-phase responses by lowering IL-6 and acute-phase proteins. The intensive insulin therapy group had a mortality rate of 4%, while the control group had a mortality rate of 11%.

Insulin delivered by SQ injection is absorbed directly into the bloodstream, with only a limited function for the lymphatic system in transport. The rate-limiting stage of insulin activity is the absorption of human insulin into the bloodstream after SQ absorption. Blood flow variations at different injection sites are due to insulin absorption variability (abdomen, deltoid, gluteus, and thigh). This results in a 2 times faster rate of absorption from the abdomen than from other subcutaneous sites for normal insulin.

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