ADA: Hypo-hyperglycemia minimizer system feasible

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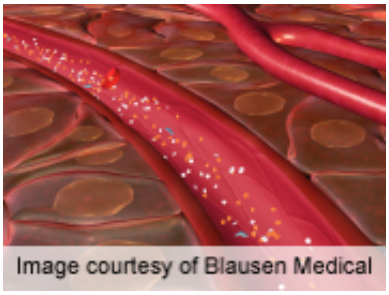
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The hypoglycemia-hyperglycemia minimizer system, which includes a continuous, subcutaneous insulin infusion pump, continuous glucose monitor, and software, is able to predict changes in blood glucose and adjust accordingly, and manipulate insulin delivery compared to corresponding basal rates, according to two studies presented at the American Diabetes Association's 72nd Scientific Sessions, held from June 8 to 12 in Philadelphia.

(HealthDay) -- The hypoglycemia-hyperglycemia minimizer (HHM) system, which includes a continuous, subcutaneous insulin infusion pump, continuous glucose monitor (CGM), and software, is able to predict changes in blood glucose and adjust accordingly, and manipulate insulin delivery compared to corresponding basal rates, according to two studies presented at the American Diabetes Association's 72nd Scientific Sessions, held from June 8 to 12 in Philadelphia.

Linda Mackowiak, R.N., from Animas Corporation in West Chester, Pa., and colleagues conducted a feasibility trial involving 13 participants

at one U.S. site to evaluate the ability of the HHM algorithm to predict a change in glucose above or below set thresholds, and to command the pump to adjust the insulin accordingly. The researchers found that the system was able to predict rises and falls in glucose and adjust accordingly. Advance warnings of significant decreases in CGM glucose were provided by the system. No safety concerns were experienced, including no severe hypoglycemia or diabetic ketoacidosis.

Ramakrishna Venugopalan, Ph.D., M.B.A., also from the Animas Corporation, and colleagues assessed the association between CGM trends and the insulin delivery characteristics in a feasibility study. Thirteen participants' basal rate profiles were fine-tuned by the investigator prior to an approximately 20-hour closed-loop control study. The researchers found that, for CGM values below 90 mg/dL, the algorithm dosed participants an average of 85.7 percent less than their corresponding basal rates. The algorithm dosed 42.2 percent more than the corresponding basal rates for CGM readings above 140 mg/dL. No safety concerns were noted, including no diabetic ketoacidosis or severe hypoglycemia.

"The successful completion of this study using the HHM system in a human clinical trial setting is a significant step forward in the development of an advanced first-generation artificial pancreas system," an author associated with both studies said in a statement. "It lays the foundation for subsequent clinical trials, bringing us one step closer to making the dream of an artificial pancreas a reality for millions of people living with type 1 diabetes."

The HHM system was developed in a partnership with the Juvenile Diabetes Research Foundation and the insulin-pump maker Animas; several authors disclosed financial ties to Animas.

More information: More Information