Novel artificial pancreas cuts HbA1c, hypoglycemia in T1DM

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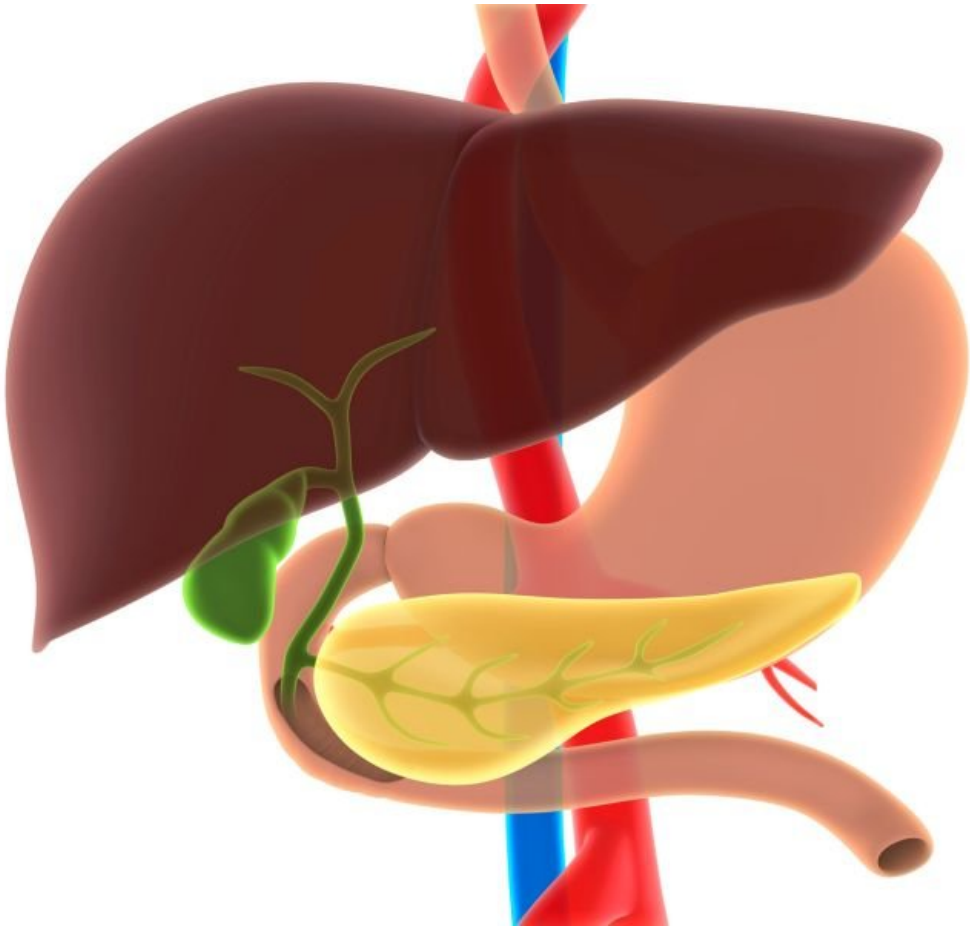

(HealthDay)—A novel adaptive artificial pancreas (AP) can reduce

hemoglobin A1c (HbA1c) in adults with type 1 diabetes (T1D), according to a study published online Oct. 13 in *Diabetes Care*.

Eyal Dassau, Ph.D., from Harvard University in Cambridge, Mass., and colleagues developed and tested a novel adaptive AP in an uncontrolled, multicenter 12-week clinical trial. A total of 30 adults with T1D completed a continuous glucose monitor (CGM)-augmented one-week sensor augmented pump (SAP) period. Basal insulin delivery settings used by the AP for initialization were adapted weekly after the AP was started, and every four weeks the carbohydrate ratios were adapted by an algorithm. Expert study clinicians and patients reviewed the adaptations.

The trial was completed by 29 patients. The researchers found that HbA1c was 7.0 ± 0.8 percent at the start of AP use, and after 12 weeks, improved significantly to 6.7 ± 0.6 percent. CGM time spent in the hypoglycemic range improved during the day and overnight from 5.0 to 1.9 percent and from 4.1 to 1.1 percent, respectively, compared with the SAP run in. Basal insulin was adapted throughout, while carbohydrate ratios were adapted to a larger extent initially, with minimal changes thereafter. About 10 percent of the adaptation recommendations were overridden manually. No protocol-related serious adverse events occurred.

"Use of our novel adaptive AP yielded significant reductions in HbA1c and hypoglycemia," the authors write.

Several authors disclosed financial ties to the pharmaceutical and medical device industries, and two authors disclosed patents and patent applications. Several companies provided equipment for the study.

More information: Abstract/Full Text (subscription or payment may be required)