

Insulin pump known to be effective in adolescents, adults also benefits children

March 19 2018

The MiniMed 670G insulin pump system (Medtronic, Northridge, California) can improve glycemic outcomes in children with type 1 diabetes as young as 7 years of age, according to an industry-funded study. The results will be presented in a poster on Saturday, March 17 at ENDO 2018, the 100th annual meeting of the Endocrine Society in Chicago, Ill.

"The MiniMed 670G [system](#) can effectively manage [diabetes](#) and lead to improved time in the target glucose range and glycated hemoglobin (hemoglobin A1c) for individuals with type 1 diabetes between the ages of 7 and 75 who require at least eight units of insulin daily," said lead author Michael Alan Wood, M.D., Associate Professor of Pediatrics and Clinical Director of the Pediatric Diabetes Program at the University of Michigan Medical School in Ann Arbor, Mich.

"Achieving and maintaining glycemic control can be a challenge for adults and youth living with type 1 diabetes. The MiniMed 670G system, the world's first hybrid closed-loop insulin delivery system, automates and personalizes the delivery of basal insulin 24 hours a day," he said.

Wood and colleagues analyzed data from 105 children between 7 and 13 years of age with type 1 diabetes, who were enrolled in a single-arm investigation at nine investigational sites. The children used the system for a two-week baseline period in open-loop mode, followed by a three-month in-home study period with the hybrid-closed loop Auto Mode enabled.

The results in children were compared with data from the first pivotal trial of the device involving 30 adolescents between 14 and 21 years of age, and 94 adults between 22 and 75 years of age.

In the earlier research, in-home use of the system for three months improved the percentage of time in the target glucose range (70-180mg/dL), as well as A1c, in both adolescents and adults with type 1 diabetes.

The percentage of time spent in the target glucose range increased significantly in all age groups: from 56.2 percent to 65.0 percent in children, from 60.4 percent to 67.2 percent in adolescents, and from 68.8 percent to 73.8 percent in adults.

A1c levels were also significantly reduced in the children, as they were in the previously studied adolescents and adults: from 7.9 percent to 7.5 percent in children, from 7.7 percent to 7.1 percent in adolescents, and from 7.3 percent to 6.8 percent in [adults](#).

No episodes of severe hypoglycemia or diabetic ketoacidosis and no serious device-related adverse events were reported, and almost all [children](#) continued to use the pump after the study concluded.

Wood said that the results of the study did not surprise him. "The pilot studies of the system were encouraging, but it was necessary to test it in a larger, more diverse population to confirm its effectiveness."

"This is the most advanced system to manage type 1 diabetes on the market today. Until additional hybrid closed-loop systems are available to provide the same capabilities, I would assume that more patients will be using this one," he said.

Medtronic funded the study.

Provided by The Endocrine Society

Citation: Insulin pump known to be effective in adolescents, adults also benefits children (2018, March 19) retrieved 17 May 2023 from <https://medicalxpress.com/news/2018-03-insulin-effective-adolescents-adults-benefits.html>

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