

# Sensor-augmented insulin pump therapy reduces rate of severe hypoglycemic events

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Use of an insulin pump with a sensor that suspends insulin delivery when blood glucose falls below a set threshold reduced the rate of severe and moderate hypoglycemia among patients with type 1 diabetes and impaired awareness of hypoglycemia, according to a study in the September 25 issue of *JAMA*.

Hypoglycemia is a critical obstacle to the care of patients with type 1 diabetes. Sensor-augmented pump therapy with an automated insulin suspension or low glucose suspension function is a technology has the potential to reduce the duration and frequency of significant hypoglycemia, according to background information in the article.

Trang T. Ly, M.B.B.S., D.C.H., F.R.A.C.P., of the Princess Margaret Hospital for Children, Perth, Australia, and colleagues randomized 95 patients with type 1 diabetes, average age 19 and recruited from December 2009 to January 2012 in Australia to standard [insulin pump](#) therapy (n = 49) or low-glucose triggered automated insulin suspension (n = 46) for 6 months. The researchers selected patients with impaired awareness of hypoglycemia because they are at significantly higher risk of experiencing hypoglycemic events. Approximately one-third of patients with [type 1 diabetes](#) have evidence of impaired hypoglycemia awareness.

The researchers found that sensor-augmented pump therapy with low-glucose triggered automated insulin suspension reduced the combined rate of severe and moderate hypoglycemia in patients with type 1

[diabetes](#). After 6 months of treatment and controlling for the baseline hypoglycemia rate, the number of severe and moderate hypoglycemia events in the low-glucose suspension group decreased from 175 to 35, whereas the number of events decreased from 28 to 16 in the pump-only group. Analysis of the data indicated that the adjusted incidence rate of hypoglycemia was lower for the low-glucose suspension group than for the pump-only group.

"These findings suggest that automated insulin suspension can reduce the incidence of hypoglycemic events in those most at risk, that is, those with impaired awareness of hypoglycemia," the authors write.

Pratik Choudhary, M.B.B.S., M.R.C.P., M.D., of King's College London, writes in an accompanying editorial that the data from this and other studies demonstrates "the ability of sensor-augmented insulin pumps with threshold suspension function to provide a significant reduction in severe hypoglycemia."

"These data can now be used to evaluate the health economic benefits of this therapy and also can be used by clinicians, payers, and regulatory authorities to help make this therapy and technology more widely available to patients who struggle daily with [hypoglycemia](#)."

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