

Insulin pump reduces mortality from cardiovascular disease by almost 50%

August 11 2015

People with type 1 diabetes who use insulin pump therapy face almost 50% less risk of dying from cardiovascular disease than those who take insulin by multiple daily injections. The *British Medical Journal* has published a study conducted at Sahlgrenska Academy.

Based on the National Diabetes Register, researchers monitored 18,168 Swedes with type 1 diabetes from 2005 to 2012. While 2,441 of the subjects used insulin pump therapy, the others relied on multiple daily injections.

Lower risk

The study found that insulin pump users had a substantially lower risk of dying of cardiovascular disease than the daily injection group. The correlation was statistically certain.

"We carefully analyzed the findings to eliminate the risk of bias or confounding and concluded that the effect had been fully verified," says Isabelle Steineck, researcher at Sahlgrenska Academy.

More frequent monitoring

The next step will be to identify the mechanisms that explain the extra benefits of insulin pump therapy. Dr. Steineck believes that one reason for the difference between the two therapies is that the insulin pump

method is accompanied by more extensive patient training and more frequent blood glucose monitoring.

"There is a rationale for insulin pump treatment resulting in more stable blood glucose concentrations than multiple daily injections" she says.

"Previous studies have shown that insulin pump can reduce the frequencies of severe hypoglycemic episodes. Severe hypoglycaemia can be a risk factor for cardiovascular events, particularly among high risk individuals."

"We evaluated the patients who used insulin pump therapy and do not know if the observed effect is attributable to continuous infusion of insulin or that some of the effect is attributable to intensified glucose monitoring, increased motivation to control blood glucose, or a better knowledge about having diabetes type 1" says Isabelle Steineck.

Safe and effective

The researchers have concluded that insulin pumps not only make life easier for patients, but represent a safe and effective treatment method.

"This is good news for anyone with [type 1 diabetes](#)," says Soffia Gudbjörnsdottir, diabetologist and director of the Swedish National Diabetes Register. "But not everybody wants to use a pump, and the biggest priority is still to optimize [blood glucose](#) monitoring."

Approximately 20% of Swedish type 1 [diabetes](#) patients have access to [insulin pump](#) therapy. But earlier studies at Sahlgrenska Academy have demonstrated that hospitals vary greatly – anywhere from 12% to almost 30% of patients may receive pumps.

More information: "Insulin Pump Therapy, Multiple Daily Injections and Cardiovascular Mortality in 18,168 People with Type 1 Diabetes:

Observational Study" *BMJ* 2015; 350 doi:
[dx.doi.org/10.1136/bmj.h3234](https://doi.org/10.1136/bmj.h3234)

Provided by University of Gothenburg

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