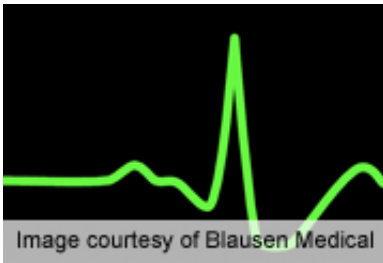


Heart rate affected by nocturnal hypoglycemia in T1DM patients

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(HealthDay) -- For adults with type 1 diabetes there is a marked decrease in the low-frequency component of heart rate variability during spontaneous nocturnal hypoglycemia, according to a study published online May 18 in *Diabetes Care*.

Minna L. Koivikko, M.D., from the University of Oulu in Finland, and colleagues conducted a study involving 37 adults with [type 1 diabetes](#) who underwent continuous [glucose monitoring](#) via a subcutaneous sensor as well as recording of R-R interval or [electrocardiogram](#) for three nights. During periods of hypoglycemia (glucose 3.9 mmol/L) of equal duration at the same time of night, [heart rate variability](#) was analyzed.

The researchers found that hypoglycemic and control episodes lasted a mean of 71 minutes, and heart rate or the high-frequency component of heart rate power spectrum did not change significantly during

hypoglycemia. There was a significant decrease in the low-frequency component of heart rate variability seen with hypoglycemia. There was a significant positive association between the decline in the glucose concentration and the decrease of the low-frequency component of heart rate variability ($r = 0.48$; $P = 0.04$). During controlled sympathetic activation, the decrease in the low-frequency component of heart rate variability was closely related to an increase in muscle sympathetic nerve action recorded in 10 subjects.

"Spontaneous nocturnal hypoglycemia in patients with type 1 diabetes results in a reduction of the low-frequency component of heart rate, which is best explained by excessive sympathetic activation without a concomitant withdrawal of vagal outflow," the authors write.

The study was funded by Polar Electro.

More information: [Abstract](#)
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