

Niacin reduces cardiovascular events and total mortality in MI patients, regardless of glycemic status

JANUARY 12, 2005 | Michael O'Riordan

Baltimore, MD - Although caution is typically exercised in the use of niacin among patients with elevated fasting glucose levels or overt diabetes, a recent analysis of a large lipid-lowering trial—the **Coronary Drug Project (CDP)**—has shown that niacin has favorable effects on clinical outcomes, even in patients with evidence of abnormal glucose metabolism or overt diabetes.[1]

"It has been reported from both the CDP and other studies that niacin treatment, especially at high doses, may elevate plasma glucose levels in some patients," writes **Dr Paul L Canner** (Maryland Medical Research Institute, Baltimore) and colleagues in the January 15, 2005 issue of the *American Journal of Cardiology*. "The present results show that the increase in glucose levels with niacin did not translate into any disadvantage with respect to cardiovascular events or mortality risk."

Canner and colleagues explain that niacin increases plasma glucose levels in some patients, although the mechanisms are not completely understood. However, it was uncertain whether the effect on glucose control would result in any disadvantage with respect to cardiovascular events or mortality, especially as the drug is being used more frequently to raise HDL cholesterol levels, write the investigators.

To determine whether the effect on glucose control had adverse effects on cardiovascular events and mortality, Canner and colleagues examined data from the CDP, a randomized, double-blind, placebo-controlled trial of five lipid-modifying therapies in 8300 men with previous MI. In the CDP, conducted between 1966 and 1974, only niacin significantly reduced the risk of cardiovascular events during six-year follow-up and reduced the risk of mortality during six- and 15-year follow-up.

Investigators sought to determine cardiovascular and total mortality outcomes in the niacin and placebo study groups stratified by baseline glycemic status and by change in glycemic status from baseline to year one. At baseline, 42% of patients in the CDP had elevated fasting plasma glucose levels (≥ 100 mg/dL) and approximately 39% had impaired glucose tolerance. During the trial, niacin increased both fasting and one-hour plasma glucose levels, but there was no difference between those taking placebo and those on niacin who were newly prescribed insulin or oral hypoglycemic agents by study's end.

Compared with placebo, niacin reduced the six-year recurrent MI and CHD death/MI risk and 15-year total mortality risk in patients at all levels of baseline fasting blood glucose levels. The reduction in risk was seen even in subjects with fasting blood glucose levels ≥ 126 mg/dL, the current definition of diabetes, and in those with one-hour plasma glucose levels ≥ 180 mg/dL. Similarly, the effect of niacin was not diminished even among patients with the largest increases in fasting or one-hour plasma glucose levels from baseline to one year.

Percentages of events by baseline fasting glucose levels in the niacin and placebo groups in the Coronary Drug Project

Event*	<95 mg/dL (n=424 and n=1026)**	95-104 mg/dL (n=409 and n=1028)	105-125 mg/dL (n=216 and n=552)	≥ 126 mg/dL (n=70 and n=181)	z value for interaction
MI at 6 years (%)	11.1 vs 15.4	9.8 vs 12.9	10.6 vs 14.3	7.1 vs 15.5	-0.44
CHD death or MI at 6 years (%)	24.8 vs 32.4	27.9 vs 29.6	26.4 vs 31.7	37.1 vs 44.8	0.47

Total mortality at 15 years (%)	50.5 vs 53.9	47.7 vs 55.5	56.5 vs 63.9	71.4 vs 77.9	-0.63
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*Event rates given as a percent in niacin vs percent in placebo group

**Sample sizes for the niacin and placebo groups, respectively

Percentages of events by baseline one-hour plasma glucose levels in the niacin and placebo groups in the Coronary Drug Project

Event*	<140 mg/dL (n=299 and n=765)**	140-179 mg/dL (n=386 and n=919)	180-219 mg/dL (n=246 and n=654)	≥220 mg/dL (n=182 and n=443)	z value for interaction
MI at 6 years (%)	9.7 vs 13.1	11.1 vs 14.6	9.8 vs 13.6	10.4 vs 16.7	-0.47
CHD death or MI at 6 years (%)	25.4 vs 27.8	25.1 vs 32.3	28.0 vs 31.5	31.9 vs 39.5	-0.23
Total mortality at 15 years (%)	46.5 vs 49.8	50.8 vs 56.4	49.2 vs 61.2	65.9 vs 70.9	-0.66


*Event rates given as a percent in niacin vs percent in placebo group

**Sample sizes for the niacin and placebo groups, respectively

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Canner and colleagues note that patients treated with insulin were excluded from enrollment in the CDP. However, they conclude that caution in using niacin in patients with abnormal glucose metabolism or overt diabetes mellitus is not supported by their current CDP analysis.

Source

1. Canner PL, Furberg CD, Terrin ML et al. Benefits of niacin by glycemic status in patients with healed myocardial infarction (from the Coronary Drug Project). *Am J Cardiol* 2005; 95: 254-257. 

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