

AIM-HIGH

Discussant

Philip Barter
The Heart Research Institute
Sydney, Australia

This trial sought to determine whether extended release niacin reduces cardiovascular events in patients treated to low LDL-C levels with a statin

It was an event driven trial designed to have an 85% power to detect a 25% reduction in cardiovascular events. It was calculated that a sample size of 3400 participants followed for 2.5 - 7 years would generate the required 800 primary events.

However, the study was terminated early for futility at which time there had been about 550 primary events

Treatment with niacin increased the level of HDL-C by 25% to an on-treatment level of 42 mg/dL.

However, unfortunately for the investigators, the level of HDL-C also increased substantially in the placebo group to an on-treatment level of 38 mg/dL.

As a consequence, the on-treatment difference in HDL-C between the two groups was only 4 mg/dL

The median on-treatment levels of LDL-C were 68 and 63 mg/dL, respectively, in the placebo and niacin groups, a difference of 5 mg/dL.

From population studies, a 4 mg/dL difference in HDL-C predicts a 10% difference in CV events

From the CTTC meta-analysis, a difference in LDL-C of 5 mg/dL predicts a 2.5% difference in events.

Thus, the observed on-treatment lipid levels in the two groups predict a CV event rate in the niacin group 12.5% lower than in the placebo group

Note: A predicted 12.5% lower event rate is only half the predicted 25% on which the power calculations were based.

Put simply, in no way did this trial have the power to detect a 12.5% reduction in events

So, whatever, conclusions are drawn from this trial, it cannot be emphasized too much that it has **NOT tested the HDL hypothesis; nor was it powered sufficiently to test the potential benefits of niacin.**

The value of adding niacin to effective statin therapy is currently being investigated the very much larger HPS2-THRIVE study that has randomized 25,000 participants