The Controversy: HDL-C and CVD

- A low level of HDL-C is a major independent risk factor for atherosclerotic cardiovascular disease.
- In randomized, controlled trials, high-dose niacin or CETP
  did not improve CV outcomes despite significantly increasing HDL-C.
- Furthermore, genetic variants associated with HDL-C levels are not associated with CVD.
- These observations suggest that HDL cholesterol may not be causally associated with CVD.

Adjusted hazard ratios for CVD deaths in men

Hazard ratio

HDL-C (mg/dL)

Low income
HBP
DM
Smoking
COPD

* indicates P < 0.05

CV death
Cancer death
Other death

REF

Hazard ratios

HDL-C (mg/dL)

≤30 31-40 41-50 51-60 61-70 71-80 81-90 >90
Independent of HDL cholesterol mass

HDL-C may be the wrong biomarker to reflect HDL function

**Cholesterol efflux**
ABCA1, ABCG1 and SR-B1

**Anti-apoptotic**
recruitment of endothelial progenitor

**Anti-inflammatory**
inhibit VCAM-1 expression

**Antioxidative**
anti-oxLDL, inactivate LOOH and oxPhospholipase

**Anti-infectious**
trypanosome lytic factor and LPS inactivation

**Vasodilatory**
NO release, prostacyclin (PGI2) production and eNOS activation

**Anti-thrombotic**
inhibition of platelet aggregation and prostacyclin (PGI2) production

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