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IN BRIEF

DYSLIPIDAEMIA

HDL-related biomarkers of cardiovascular risk

HDL particle number outperforms HDL-cholersterol level, apolipoprotein A-I level, and cholesterol efflux capacity as a predictor of cardiovascular events. This finding comes from a nested case–control study of the JUPITER trial, involving individuals with a normal LDL-cholesterol level and an increased C-reactive protein level. Of the four measures of HDL quality or quantity at baseline, only HDL particle number was significantly and inversely associated with incident cardiovascular disease. After 12 months of rosuvastatin therapy, HDL particle number was again the strongest predictor of incident cardiovascular disease; cholesterol efflux capacity was also predictive. The researchers conclude that HDL particle number might "serve as a biomarker of residual [cardiovascular] risk or response to [statin] therapy in the future".

ORIGINAL ARTICLE Khera, A. V. *et al.* Cholesterol efflux capacity, HDL particle number, and incident cardiovascular events: an analysis from the JUPITER trial (Justification for the Use of Statins in Prevention: An Intervention Trial Evaluating Rosuvastatin). *Circulation* http://dx.doi.org/10.1161/CIRCULATIONAHA.116.025678 (2017)

GENETICS

Smoking reduces genetic protection against CHD

An allele variant upstream of the *ADAMTS7* gene locus is associated with reduced expression of the *ADAMTS7* metalloproteinase and protects against coronary heart disease (CHD); however, cigarette smoking attenuates this protective effect by 60%. Researchers analysed data from 29 studies involving 60,919 patients with CHD and 80,243 controls for genetic variants at 45 loci associated with CHD and five loci associated with smoking behaviour. Every T allele of rs7178051 (upstream of *ADAMTS7*) was associated with a 12% reduced risk of CHD in individuals who had never smoked, compared with a 5% risk reduction in smokers. Expression of *ADAMTS7* was induced in human coronary artery smooth muscle cells exposed to cigarette smoke extract *in vitro*. "Inhibition of ADAMTS7 is a novel potential therapeutic strategy for CHD that may have particular benefits in individuals who smoke cigarettes," suggest the investigators.

ORIGINAL ARTICLE Saleheen, D. *et al.* Loss of cardio-protective effects at the *ADAMTS7* locus due to gene-smoking interactions. *Circulation* http://dx.doi.org/10.1161/CIRCULATIONAHA.116.022069 (2017)

CARDIAC RESUSCITATION

Benefit of bystander CPR and defibrillation

In a long-term study of out-of-hospital cardiac arrest in Denmark, bystander cardiopulmonary resuscitation (CPR) or defibrillation was associated with lower risks of brain damage or admission to a nursing home compared with no bystander resuscitation. The investigators studied 2,855 patients who survived for >30 days after an out-of-hospital cardiac arrest between 2001 and 2012. Overall, 10.5% had brain damage or were admitted to a nursing home, and 9.7% died during follow-up (1 year). Among the 2,084 patients who had a cardiac arrest not witnessed by emergency medical services personnel, the rates of bystander CPR and defibrillation both increased significantly during the study period. In adjusted analyses, the risk of brain damage or nursing-home admission was significantly reduced by either bystander CPR (HR 0.62) or bystander defibrillation (HR 0.45) compared with no bystander resuscitation. Furthermore, all-cause mortality was also reduced by bystander CPR (HR 0.70) or defibrillation (HR 0.22).

ORIGINAL ARTICLE Kragholm, K. *et al.* Bystander efforts and 1-year outcomes in out-of-hospital cardiac arrest. *N. Engl. J. Med.* **376**, 1737–1747 (2017)