Background

- Inflammation contributes to progression of atherosclerotic cardiovascular disease (CVD). A key regulator of inflammation is Group IIA secretory phospholipase A2 (sPLA2-IIA).
- Most studies that have examined the association between sPLA2-IIA and outcomes have done so in patient populations with established CVD (ie, secondary prevention settings).
- However, the association between sPLA2-IIA and outcomes in a primary prevention setting has not been well studied.
- Objectives: Investigators 1) evaluated the association of sPLA2-IIA mass with incident CVD events and 2) conducted a genome-wide association study (GWAS) to identify genetic variants associated with sPLA2-IIA mass.

Methods

- The JUPITER trial (Justification for the Use of Statins in Prevention: An Intervention Trial Evaluating Rosuvastatin) included participants with LDL cholesterol <130 mg/dL but considered at risk of CVD based on chronic inflammation: high-sensitivity C-reactive protein (hsCRP) ≥2 mg/L.¹
- sPLA2-IIA mass was measured by an enzyme immunoassay in blood specimens taken at baseline (n=11,269) and 1 year later (n=9,620).
- The correlation of single-nucleotide polymorphisms (SNPs) with sPLA2-IIA mass was evaluated in a subset of trial participants (n=6,692).
- Multivariable Cox regression analyses were used to evaluate the association of sPLA2-IIA mass with CVD events and the association of SNPs with sPLA2-IIA mass and CVD events.

Results

- Among the trial population, 313 first CVD events occurred during the follow-up period of up to 5 years.
- Baseline sPLA2-IIA mass was associated with increased risk of CVD events.
  - After adjusting for traditional cardiometabolic risk factors, the hazard ratio (HR) for CVD event risk was 1.22 per standard deviation increase in sPLA2-IIA mass (P=0.002).
  - This association was slightly attenuated after additionally adjusting for hsCRP (HR: 1.18, P=0.01).
- The SNP rs11573156C in the gene encoding sPLA2-IIA had the strongest correlation with sPLA2-IIA mass; however, it was not associated with greater CVD event risk (HR: 1.11, P=0.34).

Conclusions

- Among the JUPITER trial participants, sPLA2-IIA mass at baseline was independently associated with the risk of future CVD events.
- Further study is needed to better understand whether sPLA2-IIA should be targeted pharmacologically for CVD event risk reduction.