Impact of high-density lipoprotein levels in males and females undergoing percutaneous coronary intervention with drug eluting stents

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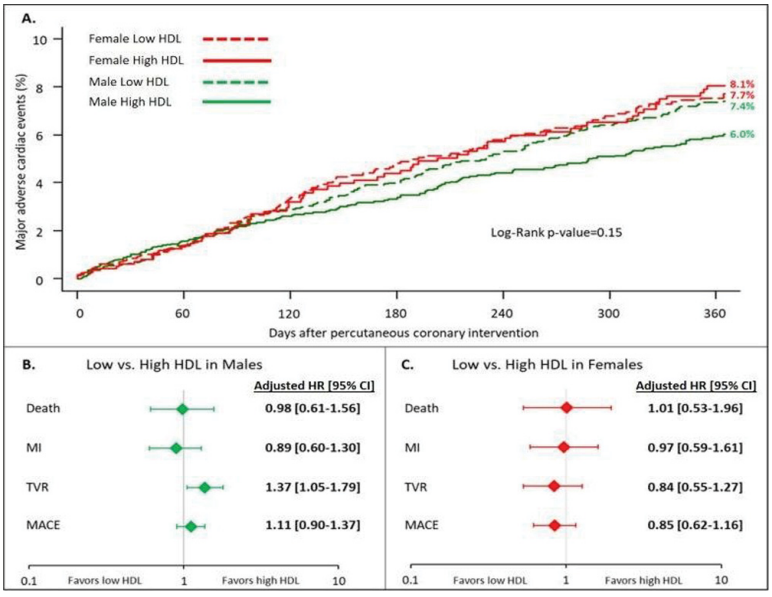
Funding Acknowledgement: Type of funding source: None

Background/Introduction: Low levels of high-density lipoprotein (HDL) have been associated with adverse cardiovascular events in multiple epidemiological studies. Evidence regarding the role of HDL in males and females with established coronary artery disease undergoing percutaneous coronary intervention (PCI) with drug eluting stents (DES) is scarce.
Purpose: We sought to investigate the impact of low HDL levels on 1-year cardiovascular outcomes in males and females undergoing PCI with DES.
Methods: We screened all patients undergoing PCI in our center from 2012 to 2017. Exclusion criteria were: unavailable baseline HDL measurement, age <18 years, presentation with ST-segment elevation myocardial infarction (MI) or shock, coexisting neoplastic disease and treatment without a stent or with a bare metal stent. The final population was divided by gender and further stratified to the high or low HDL group according to baseline HDL levels. Cut-offs were 40mg/dL in males and 50mg/dL in females, per the most recent ACC/AHA guideline recommendations. The primary endpoint of the analysis was major adverse cardiovascular events (MACE) at 1 year, defined as death, MI or target vessel revascularization (TVR). To account for potential clinical and anatomical confounders the outcomes were also adjusted for age, Caucasian ethnicity, hypertension, diabetes mellitus (DM), body mass index, smoking, prior MI, multi-vessel disease and type B2/C lesions.

Results: Out of the 10,843 patients included, 7,718 (71.2%) were male and 3,125 (28.8%) were female. Low HDL was noted in 58.5% of males and 63.8% of females. Patients with low HDL were younger and had a higher prevalence of DM, prior MI, smoking and multi-vessel disease. When comparing low to high HDL groups in terms of 1-year MACE a borderline significant difference was shown in males (7.4% vs. 6.0%; p-value=0.08) but not in females (7.7% vs 8.1%; p-value=0.90) [Panel A]. The numerically higher incidence of MACE in males with low HDL was primarily driven by TVR (5.4% vs 3.7%; p-value=0.005) while the rates of Death (1.4% vs. 1.3%; p=0.96) and MI (2.0% vs. 1.8%; p-value=0.89) were similar between the two groups. After adjustment the male low HDL subgroup remained at a higher risk for 1-year TVR but not 1-year MACE compared to the male high HDL subgroup [Panel B]. No difference for any individual component of MACE was shown between low and high HDL subgroups in females [Panel C].
Conclusion(s): High HDL levels were associated with a lower incidence of TVR and borderline reduction of MACE in male but not female patients undergoing PCI with DES. No difference was demonstrated in terms of death or MI between the high and low HDL subgroups at 1-year follow-up.



Impact of HDL levels according to gender