Treatment patterns of lipid lowering therapy in patients with coronary artery disease above vs. below 75 years of age

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Introduction: In patients with coronary artery disease (CAD), lipid lowering therapy is recommended as cornerstone of secondary prevention. Treatment of elderly patients inherits a medical challenge, as they experience higher absolute risk reduction with more intensive lipid lowering regimes but may be more prone to side effects by therapy.

Purpose: To evaluate the treatment patterns in lipid lowering therapy comparing CAD-patients above vs. below 75 years of age.

Methods: We retrospectively included patients with known CAD, admitted to the West German Heart and Vascular Center in the years of 2009-2010 (n=500), 2012-2013 (n=500), and 2015-2016 (n=500). LDL-cholesterol levels and intensity of stain therapy (based on dosage and type of statin) were assessed from all available hospital records. Lipid levels and treatment regimens were evaluated comparing patients =75 vs. <75 years of age. The analysis was approved by the local ethics committee (17-7458-BO).

Results: A total of 1,500 patients (mean age: 68.4 ± 11.2 years, 75.8% male) from 813 referring treating primary care physicians in 98 cities of Germany were included in our analysis. 983 patients were <75, whereas 517 were =75 years of age. Elderly patients were less likely male (67.9% vs. 79.9%, p<0.0001), had lower BMI (26.8kg/m² vs. 28.4kg/m², p<0.0001), and less likely current smokers (7.6% vs. 19.2%, p<0.0001, for patients =75 vs. <75years of age, respectively). LDL-cholesterol levels were not significantly different between age groups (=75: 96.1 ± 35.1 mg/dl; <75: 98.9 ± 35.7mg/dl, p=0.14). In contrast, elderly patients had higher HDL-cholesterol levels (49.9 ± 15.1 mg/dl vs. 46.7 ± 15.2, p=0.0002) and markedly lower triglycerides (135.6 ± 90.0mg/dl vs. 171.4 ± 124.6mg/dl, p<0.0001). Simvastatin was most frequently prescribed in both age groups (54.9% vs. 50.7%, p=0.16), followed by Atorvastatin (31.6% vs. 33.3%, p=0.53). Elderly patients received significantly lower dosages of statin (28.8 ± 12.8mg vs. 31.4 ± 13.7mg, p=0.0007). Interestingly, patients =75 years of age archived LDL<70mg/dl slightly more frequently than younger patients (24.0% vs. 20.1%, p=0.09). Excluding patients with myocardial infarction at presentation, CK-levels were not relevantly different between age groups (131.9 ± 450.0U/l vs. 127.5 ± 111.4U/l, p=0.78). Excluding patients with signs of systemic inflammation, high-sensitive CRP levels did not differ when comparing patients =75 vs. <75 years of age (0.15 ± 0.12mg/dl vs. 0.14 ± 0.12mg/dl, p=0.33).

Conclusion: Evaluating lipid lowering treatment patterns of 1500 patients from 813 treating physicians, we observed that patients =75 years of age receive lower doses of statin therapy, but reached slightly lower LDL-cholesterol-levels. However, the majority of elderly patients miss current recommendations regarding LDL-thresholds. Interestingly, no signs of a higher frequency of statin-induced myopathy in the elderly were observed in our analysis.