

LDL-cholesterol and ischemic stroke in patients with non-valvular atrial fibrillation



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BACKGROUND: Atrial fibrillation confers higher risk of ischemic stroke, but the contribution of low-density lipoprotein cholesterol (LDL-C) levels to this risk remains unclear. We examined the association between LDL-C levels and incident stroke in patients with atrial fibrillation treated with direct oral anticoagulants (DOACs).

METHODS: This study was conducted using the electronic database of Clalit Health Services. Included were 21,229 patients with first time diagnosis of non-valvular atrial fibrillation treated with DOACs between 2010-2017. Patients were categorized into 4 groups according to the CHA₂DS₂-VASc score (1-2, 3-4, 5-6, 7-9). Each group was further stratified to 4 sub-groups according to LDL-C levels (<70, 70-99, 100-130, >130mg/dl). Ischemic stroke rates were compared between the 4 LDL-C subgroups of each CHA₂DS₂-VASc category.

RESULTS: During 56,467 person-years of follow-up there were 2,481 incidents cases of ischemic stroke. Higher CHA₂DS₂-VASc score was associated with significantly increased risk of ischemic stroke (17.5, 26.9, 46.3, 94.9 cases per 1000 person years, for patients with CHA₂DS₂-VASc score of 1-2,3-4, 5-6, 7-9 respectively, p<0.001). However, there was no association between LDL-C levels and incident ischemic stroke within each CHA₂DS₂-VASc score group even following a multivariate adjustment. Sub-analyses of patients with previous stroke and those treated with statins also failed to show any association between LDL-C levels and incident ischemic stroke

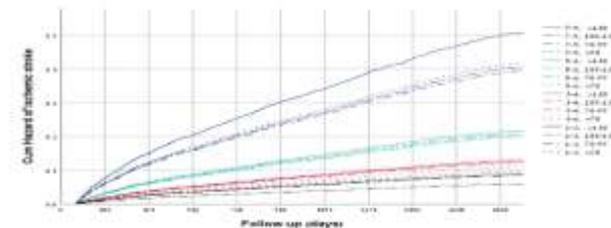


Figure-1. Cumulative Risk of ischemic stroke over time according to CHA₂DS₂-VASc score and LDL-C categories. (Non-significant p-value for the comparison of ischemic stroke risk according to LDL-C category within all 4 CHA₂DS₂-VASc score groups)

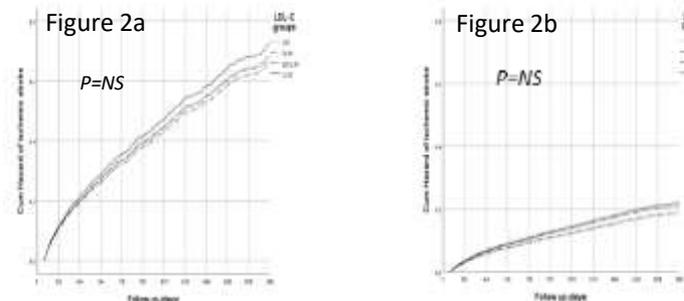


Figure 2: Cumulative hazard for ischemic stroke in patients with atrial fibrillation according to LDL-C in subgroups of patients with previous stroke (2a) and patients receiving statins (2b).

CONCLUSIONS: Unlike the general population, LDL-C levels were not associated with ischemic stroke risk among patients with atrial fibrillation treated with DOACs. The findings support the non-inclusion of dyslipidemia in ischemic stroke risk stratification of patients with atrial fibrillation.