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# The impact of glucose control on carotid arterial wall thickness in Diabetes mellitus patients

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**Objective:** We evaluated the impact of diabetes mellitus (DM) and DM control status on each layers of carotid artery in asymptomatic population. **Methods:** This is an observational cohort study consisted of 1,479 patients. The carotid images were sent to the Korea Research Institute of Standards and Science for core laboratory analysis using specialized software which can measure intima and media thickness respectively. **Results:** DM patients (n＝634, 42.9%) were likely to be older, higher prevalence of male, hypertension and dyslipidemia, and higher creatinine level than non-DM patients (n＝845, 57.1%). There was no significant demographic difference according to DM control status in DM patients. DM patients showed higher carotid intima-media thickness (CIMT, 0.70±0.15mm vs. 0.66±0.16mm, $p<0.001$) and media thickness (CMT, 0.41±0.12 mm vs. 0.36±0.12mm, $p<0.001$) than non-DM patients, whereas intima thickness (CIT) showed no significant difference (0.29±0.07 mm vs. 0.30±0.06 mm, $p=0.067$) between 2 groups. Well controlled DM patients (HbA1C＜7.0%, n＝232, 47.4%) showed higher CIT (0.30±0.08mm vs. 0.27±0.06 mm, $p=0.003$) than poorly controlled DM (HbA1C ≥ 7.0%, n＝257, 52.6%). Old age and LDL-cholesterol were the independent factors for CIMT, CIT and CMT in total asymptomatic adults as well as DM patients. DM control status was not significant independent factor for CIMT. **Conclusions:** The increased CIMT in DM patients was mainly due to the increased CMT. DM control status did not impact on carotid arterial wall thickness in this study. Lipid control rather than glucose control may be the most important factor to decrease atherosclerosis progression in subclinical adults.

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# A Case Report of a 61 year-old Male Patient with Congenital Coronary Artery Fistula to Right Atrium

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Coronary artery fistula (CAF) is an abnormal connection between coronary artery and any of cardiac chambers or other vessels. It is a rare congenital anomaly (0.002%), however, with frequent use of cardiac imaging, the number of incidental CAFs has been increasing (0.05%). Although it is recommended to close CAFs in patients with symptoms, the decision to operate in case of incidental CAFs is not clearly justified. A 61-year-old male with 100 pack-year history of smoking and COPD presented with worsening dyspnea. The cardiac markers and NT-proBNP levels were normal. Transthoracic echocardiography showed normal LV function, and the dilated RCA os with tubular structure through RA (Fig A and B). ECG-gated CT clearly demonstrated a dilated RCA, giving rise to a fistula that drained into the RA (Fig C). Coronary angiography (Fig D) showed that normal coronaries with right CAF. Cardiac catheterization revealed the step up in oxygen saturation from 61.6 to 82.4% in RA and a left to right shunt (Qp/Qs 2.13) was present with normal pulmonary artery pressure and wedge pressure (mean 18 and 12 mmHg, respectively) (Fig E and F). Because the patient did not present with symptoms ralated to CAF, he was managed conservatively with close observation. In case of symptomatic CAFs, most data suggest surgery as the preferred treatment. In our case, it was felt that primary closure of the fistula was inadequate. Surgical repair by ligating the fistula and bypassing the RCA had to be performed. Patients requested postponing surgery until the symptoms are established.