

## **Predictors for Development of Significant CAD in Patients with Previously Normal Coronary Arteries**

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**Background and Aim:** Little is known about the risk of developing significant coronary artery disease (CAD) in pts with previously demonstrated normal (NCA) or near normal coronary arteries (NNCA), and the factors influencing this risk. Therefore in the current study we tried to identify the predictors of development of significant CAD.

**Methods:** We searched our database of coronary angiograms performed from January 1992 to November 2009. We identified patients who underwent repeat coronary angiography after NCA or NNCA on first coronary angiogram. The contribution of risk factors for CAD, the indication for angiography and ECG-changes to the risk of developing significant CAD was examined.

**Results:** During the research period 29350 coronary angiograms were performed in our institution. Of the 241 patients who underwent repeat angiography after having NNCA (57 – 24%) or NCA (184 – 76%) at the 1st procedure, 173 pts (72%) had no change in coronary anatomy on repeat angiogram. 68 (28%) patients developed significant CAD on 2nd angiogram, 25 (44%) with NNCA vs. 43(23%) with NCA on 1st angiogram, OR=2.3 (95% confidence interval, 1.2-4.5, p=0.016). The mean time difference between the 1st and 2nd angiogram was 5.3±3yrs. Pts with NNCA on the 1st angiogram underwent repeat angiogram after a mean of 3.9±3yrs, pts with NCA after a mean of 5.6±3yrs (p=0.001). Of the pts with significant CAD on the 2nd angiogram, 28 (41%) had ST-deviation, i.e. depression, elevation or both (p<0.001) and 46% T-wave inversion (p=0.001) on ECG. Evidence of myocardial infarction was apparent for 18 (58%) pts with significant CAD (p<0.0001). Presence of two or more CAD risk factors were associated with increased risk for CAD on 2nd angiogram, HR=2.28 (95% CI 1.27-4.10, p=0.006).

**Conclusions:** The majority of pts with previously NCA will still have normal coronaries on a 2nd angiogram. The presence of 2 or more CAD risk factors, NNCA on the 1st angiogram, ischemic ECG changes, evidence of myocardial infarction are independent predictors for the development of significant CAD.