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Diabetes is not a homogenous risk: The role of coronary calcium score in the reclassification of cardiovascular risk in diabetic patients

Joseph Shemesh
Tel Aviv University, Israel

Coronary artery calcification (CAC) is the best surrogate marker of the total burden of coronary atherosclerosis. Its presence in asymptomatic subjects indicates sub-clinical disease and its quantity reflects the extent and the chronicity of the disease. CAC can be easily measured and reported by radiologists while reading chest CT. The presence or absence of CAC contributes to the reclassification of diabetic patients, pre-diabetics and those with metabolic syndrome as well. Prospective studies demonstrated that approximately one third of asymptomatic, middle aged, diabetic patients have no CAC detected indicating an excellent prognosis. In a meta-analysis of 8 studies that includes 6521 diabetics with a follow-up of 5.8 years, the presence of CAC is associates with a relative risk of 5.47 for all cause mortality or CV events and 9.22 for fatal and non fatal CV events. The recently published MESA CHD risk score is the first available algorithm incorporating CAC with traditional risk factors for 10-year risk prediction. For example in a 60 years old diabetic Caucasian male without CAC, the estimated 10-year MESA score risk of CHD event including the CAC score=0 is reduced to 3.5% compared to 9.3% if one did not factor in his CAC score. In summary, CAC reflects the atherosclerosis sequelae of the individual long-life global exposure to all the risk and protecting factors. It contributes to reclassify risk in diabetic patients and may improve individualized treatment.

Biography

Joseph Shemesh is a full clinical Professor of Cardiology at the Sackler School of Medicine, Tel-Aviv University, Israel. He is a recognized Investigator in the field of non-invasive detection of sub-clinical coronary atherosclerosis. As one of the pioneers in this field, he used in 1995 the Twin dual slice CT device which was the prototype of all the multi-slice CT devices and led the first publication that demonstrated the validity of coronary artery calcifications (CAC) measuring by mechanical CT. During the last 20 years, he published over 50 original articles that contribute to the understanding of the clinical significance of CAC and its application to the daily clinical practice. In his recent publications, he demonstrated the incremental prognostic value of CAC measuring in high risk populations including smokers, diabetics and hypertensive patients.

Joseph.Shemesh@sheba.health.gov.il

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