**BEYOND STENOSIS: PLAQUE AND ISCHEMIA ASSESSMENTS BY CORONARY CTA**

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Coronary CT angiography (CCTA) is revolutionizing the noninvasive assessment of patients with suspected coronary artery disease (CAD). Now, beyond stenosis, assessments of ischemia and of coronary plaque are opening new potentials for clinical impact of CCTA. CT perfusion (CTP) and noninvasive FFR (FFRct) are methods that aid in assessing the hemodynamic significance of CCTA stenosis, with promise to reduce unnecessary invasive coronary angiography (ICA) post-CCTA. Stress CTP, performed with a second contrast injection during vasodilator stress, has been shown to correlate well with myocardial SPECT perfusion. FFRct, based on computer modeling of the standardly acquired CCTA, has shown higher accuracy in predicting invasive FFR than stenosis on CCTA or ICA. Unlike ICA, CCTA allows visualization and characterization of non-calcified plaque, as well as calcified plaque. Automated software approaches can now measure a large array of plaque features, which have been shown to provide information beyond stenosis regarding prognosis and ischemia. Machine learning approaches combining the various plaque characteristics are highly predictive of invasive FFR, potentially reducing unnecessary ICA. Plaque quantification uniquely provides a tool for assessment of the effects of medical therapy in patients with nonobstructive or obstructive CAD. On serial CCTA examinations reduction of LDL cholesterol or statin therapy has been associated with a reduction of or slowing in progression of quantified non-calcified plaque. Most recently, it has been shown that quantitative assessment of CCTA can extend to the pericoronary adipose tissue (PCAT). Inflamed plaques appear to cause a decrease in the lipid content of the PCAT, resulting in increased density detectable by assessment of CT attenuation. PCAT assessment could become a biomarker of CAD activity. We are just beginning to uncover the vast potential of this young technology to impact the assessment and management of CAD.