DISTINGUISHING ISCHEMIC FROM NON-ISCHEMIC LEFT BUNDLE BRANCH BLOCK BY TRANSTHORACIC ENHANCED CORONARY ECHO DOPPLER IN CONVERGENT COLOR DOPPLER MODE

Oral Contributions
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Background: Thanks to new technological advances (convergent color Doppler mode) and new tomographic planes, transthoracic enhanced echo Doppler of coronaries (CED) has the potential to detect both mild and critical coronary stenoses over the entire left anterior descending coronary artery (LAD), by detecting and measuring blood flow velocity acceleration at the stenosis site. We hypothesized that this method has the potential to detect both critical and subcritical LAD stenosis in patients (pts) with left bundle branch block (LBBB) of uncertain etiology.

Methods: Twenty-five consecutive pts with LBBB, scheduled for quantitative coronary angiography, underwent CED. Color guided pulsed wave Doppler mapping of the whole LAD (specifically the proximal, mid and distal parts) was performed and for each segment, maximal and reference blood flow velocity were recorded in order to attain the percentage increase of velocity and in case that was > 30% (a previously validated cutoff for coronary stenosis) the time velocity integral was measured as well, to obtain the % of stenosis area (CSA) through the continuity equation.

Results: CED feasibility was 100%. Quantitative coronary angiography revealed LAD stenosis (in the proximal-mid tracts) in 9 pts that was graded as severe in 5 pts (% CSA = 85±12) and mild in 4 pts (% CSA = 45±12) and no stenosis in 16 pts. CED was excellent at detecting both critical and subcritical stenosis, revealing significant acceleration of blood flow velocity (> 30%) in the proximal-mid segments of all pts with angiographic stenosis in the LAD. The sensitivity and specificity for detecting at least one LAD angiographic stenosis were 100% (5/5 pts) and 100% (20/20 pts) for critical stenosis (p<0.001), and 100% (4/4 pts) and 75% (12/16 pts) for subcritical stenosis (p=0.006). The calculated % CSA by Doppler was 87±4 for critical and 35±14 for subcritical stenosis (r= 0.91 vs angiography, p<0.001)

Conclusion: LAD blood flow velocity evaluation by means of CED is feasible and reliable in detecting and grading the severity of LAD stenosis in LBBB, entirely non-invasively. CED is a very promising technique to distinguish ischemic from non-ischemic LBBB in pts with LBBB of uncertain etiology.