sound system. Recent developed real time compound imaging, Sono CT, which suppresses the artifacts and reinforces real structures by scanning from different angles and averaging these frames, may detect IMT and calcified lesions noninvasively.

**Methods:** We tried to measure IMT and evaluate calcified lesions of distal LAD using Sono CT after guiding usual TTDE (HDI 5000, Philips medical systems) in 33 patients (65.7± 9.3 years old) in whom IVUS catheter could be delivered to distal LAD area near Sono CT probe position on coronary intervention therapy for proximal LAD lesions. According to the usual TTDE probe position where the distal LAD flow was detected, we put the Sono CT probe, and tried to find coronary artery and to measure IMT and evaluate calcified lesions of the coronary artery. We confirmed Sono CT probe position was same as the location where we evaluated using IVUS in the catheter laboratory. Two independent echocardiographic experts analyzed whether IMT and calcified lesions could be detected or not.

**Results:** In all the patients, anterior and posterior coronary artery wall could be detected, and in 21 (64%) and in these 33 patients we could measure IMT using Sono CT. IMT of the anterior and posterior wall of the distal LAD were 0.5 ± 0.1mm and 0.4 ± 0.1mm, respectively. There were significant correlation between IMT that were measured by Sono CT and those by IVUS (r = 0.71 ± 0.24, p = 0.52, P<0.05). Using Sono CT, the calcified lesions could be detected or not in 3 patients assessed with usual TTDE at the same portion of coronary arteries, however, usual TTDE could not detect all these three calcified lesions.

**Conclusion:** IMT and calcified lesions of distal LAD can be assessed noninvasively and accurately using Sono CT.

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**Transthoracic Doppler Echocardiography as a Noninvasive Tool to Assess Coronary Artery Stenoses: A Comparison With Quantitative Coronary Angiography**

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**Background:** Transthoracic Doppler echocardiography (TTE) has been recently introduced to detect restenoses of left anterior descending artery (LAD) after coronary angioplasty. We sought to test the diagnostic accuracy of Doppler TTE in the whole coronary arterial tree in patients with suspected coronary artery disease.

**Methods:** We prospectively studied 84 patients aged 59-78 years (M=50, F=34) who were referred for a diagnostic quantitative coronary angiography (QCA) because of an intermediate probability of significant coronary artery disease. Patients with unstable angina or previous myocardial infarction were excluded. The TTE was performed one day before the QCA. A coronary artery stenosis was identified with colour Doppler as local spot of aliasing and turbulence. The flow velocity was measured using pulsed wave Doppler or colour Doppler rescaling and the ratio of maximal blood flow velocity at the site of a peak of aliasing and turbulence. The flow velocity was measured using pulsed wave Doppler or colour Doppler rescaling and the ratio of maximal blood flow velocity at the site of aliasing and turbulence. The flow velocity was measured using pulsed wave Doppler or colour Doppler rescaling and the ratio of maximal blood flow velocity at the site of aliasing and turbulence.

**Results:** QCA showed significant lesions (diameter reduction >50%) in 33 (39%) of the patients (92%). According to the selective angiographic data, the pts were assigned to three study groups: group A (43 pts) with a normal RGEA (<50% stenosis), group B (6 pts) with intermediate (50% to 75%) graft stenosis and group C (7 pts) with severe (>75% stenosis) graft stenosis. The D/S was smaller in group C than in groups A and B (p<0.05), but there were no significant differences between groups A and B. A D-fraction of <0.60 predicted severe RGEA graft stenosis (>75% stenosis angiographically) with a sensitivity and specificity of 100% and 90%, respectively. When the D-fraction was 0.75/50% graft stenosis and group C (7 pts) with severe (>75% stenosis) graft stenosis. The D/S was smaller in group C than in groups A and B (p<0.05), but there were no significant differences between groups A and B. A D-fraction of <0.50 predicted significant RGEA graft stenosis (>75% stenosis angiographically) with a sensitivity and specificity of 86% and 100%, respectively.

**Conclusion:** Noninvasive measurement of IMT and calcified lesions of distal LAD can be assessed noninvasively and accurately using Sono CT.