Title

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Enhanced Diagnostic Ability of Intravascular Ultrasound Imaging Compared with Angiography

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In a series of 144 intravascular ultrasound (IVUS) imaging studies, IVUS was performed diagnostically in 35 patients (pts) where the angiogram (angio) did not provide a definitive diagnosis. IVUS imaging was used to determine if there was a significant lesion in 11 pts (Group 1) where the angio did not reveal a stenosis. IVUS was performed to determine if the lesion required further intervention when angio showed less than 50% stenosis (15 pts, Group 2), or stenosis between 50% and 65% in 9 pts (Group 3). Angio % diameter stenosis, IVUS lumen cross-sectional area (CSA), IVUS atheroma CSA and IVUS % area stenosis were measured (*p≤0.05, **p≤0.01).

	Group 1	Group 2	Group 3
Angio. % stenosis	———	40.5± 8.5	57.3± 3.2**
Lumen CSA (mm^2)	13.6±19.4*	4.9± 3.0	4.7± 1.6
Atheroma CSA	5.6± 2.3	7.0± 3.7	8.8± 4.5
IVUS % stenosis	39.8±24.1	57.6±18.9*	65.7±13.1**

The results of IVUS imaging influenced the therapy in all of these patients: 17 pts (49%) received an intervention and 18 pts (51%) did not undergo further therapy. In Group 1, IVUS revealed "napkin-ring stenosis" in 3 pts and severe calcification in 8 pts. Two of these pts had an intervention based on IVUS results. In Group 2, 11 pts (73%) underwent PTCA because IVUS revealed a tight stenosis. In Group 3, PTCA was performed in 4 pts and was not performed in 5 pts based on the IVUS results. IVUS improves diagnostic accuracy over angiography in difficult cases and helps determine if further interventions are necessary.