**INTRAVASCULAR ULTRASOUND (IVUS): CURRENT STATUS AND FUTURE PROSPECTS**

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Intravascular ultrasound (IVUS), since its introduction over 20 years ago, provides cross-sectional images of both the arterial wall and lumen, contributing to the understanding of the vessel biology and the natural history of coronary artery disease. IVUS has been incorporated into daily practice in Japan. IVUS-guided interventional procedures improve clinical outcome in patients with complex coronary artery lesions. The ability of the technique to measure plaque burden has permitted the use of IVUS-based surrogate endpoints to test the efficacy of new therapeutic agents. Optical coherence tomography (OCT) is newly developed imaging technology. Both IVUS and OCT have advantages and disadvantages. While OCT has better resolution and offers clearer and easier images to interpret, OCT is limited in comprehensive vessel analysis due to limited signal penetration and requires optimal clearance of blood from the vessel lumen. Then, imaging using both IVUS and OCT catheters would provide incremental value in plaque characterization and post-intervention evaluation. However, such a procedure is time consuming, costly and suffers from inaccurate coregistration of the two image modalities. As advances in the technology of IVUS, development of methods to turn radiofrequency data into quantitative information with virtual histology and integrated backscatter, have gained popularity for characterization of plaque. Recently, novel imaging devices, including high-resolution IVUSs based on the high frequencies technology and hybrid-modalities such as OCT and IVUS, are being developed. They should provide an improved assessment of plaque structure, and would much improve the outcome of interventional procedure.