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Permalink

<https://escholarship.org/uc/item/9952f428>

Journal

CIRCULATION, 88(4)

ISSN

0009-7322

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Publication Date

1993-10-01

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Peer reviewed

Clinical Cardiology: **Intravascular Ultrasound—** **Guided Revascularization** **Thursday Morning**

3210

Can Intravascular Ultrasound Improve Coronary Stent Deployment?

Steven L. Goldberg, Antonio Colombo, Yaron Almagor, Luigi Maiello, Antonio Gaglione, Shigeru Nakamura, Jonathan M. Tobias, Centre Cuoro Columbus, Milan, Italy and University of California, Irvine

Intravascular ultrasound (IVUS) imaging was used in 40 patients to assist optimal stent deployment. IVUS provides information regarding plaque morphology, adequacy of stent expansion and intravascular dimensions. The stent was dilated with a balloon 0.5 mm larger than the angiographic lumen to obtain an appropriate angiographic result. IVUS was then performed, but in only 5 (13%) did the appearance suggest adequate stent expansion defined as the lumen cross sectional area (CSA) \geq 80% of the expected CSA of the balloon. In 29 (73%) cases, subsequent dilatations were performed with larger balloons or higher pressures and further IVUS was performed to guide therapy.

ULTRASOUND DIMENSIONS

	<u>Initial</u>	<u>Final</u>	<u>Increase</u>	
Intrastent Min Diam (mm)	2.8 \pm 0.5	3.3 \pm 0.5	19%	p<0.0001
Intrastent Max Diam (mm)	3.3 \pm 0.5	3.7 \pm 0.5	11%	p<0.001
Intrastent Area (mm ²)	7.4 \pm 1.5	9.3 \pm 2.5	34%	p<0.001
Balloon Size	3.8 \pm 0.3	4.2 \pm 0.4	12%	p<0.0001

Compared with IVUS, angiography underestimates the residual stenosis within a stent. Further improvement is possible even after optimal angiographic images are obtained, leading to a larger "acute gain" with the use of bigger balloons. IVUS enhances the deployment of intracoronary stents to assess adequacy of stent expansion and direct further intervention.