REFERENCES


REPLY: Intraluminal Scaffold Dismantling

The Downside of Positive Remodeling?

We appreciate Dr. Bennett and colleagues’ interest in our paper, which addresses the imaging and histopathological findings of patients with very late scaffold thrombosis (1). In their letter, the authors present outcomes of a patient with complex left main bifurcation intervention treated with a hybrid approach, including a dedicated metallic self-expanding, drug-eluting stent (DES) bifurcation device in combination with 2 ABSORB bioresorbable vascular scaffolds (BVS) (Abbott Vascular, Santa Clara, California). Despite a presumably adequate result with full lesion expansion and apposition as assessed by optical coherence tomography, the patient developed considerable positive vessel wall remodeling and late scaffold strut disintegrity, which are findings that have been previously associated with stent thrombosis.

Positive remodeling may ensue as consequence of an inflammatory response to scaffold drugs and polymers (2). If the outward remodeling of the vessel wall outpaces the loss of the scaffold’s structural integrity, late acquired malapposition may occur, imposing an important risk for very late stent thrombosis. Although positive remodeling was strongly associated with use of early generation DES (particularly sirolimus-eluting stents) (2), and to a lesser degree with newer generation DES (3), the frequency and clinical sequelae following bioresorbable scaffold implantation are not well established to date. Late scaffold strut disintegrity with subsequent malapposition represents a resorption-specific phenomenon. In the absence of full neointimal scaffold integration, struts may protrude into the lumen after loss of structural integrity and potentially trigger thrombosis, as shown by our group (1).

Bioresorbable scaffolds entail promising features to advance the field of coronary revascularization. Although meta-analyses of pivotal clinical trials comparing ABSORB BVS with everolimus-eluting metallic stents attest to a similar efficacy, stent thrombosis occurred more frequently in ABSORB BVS-treated patients (4). This difference occurring within the first year after implantation may be overcome by meticulous implantation techniques as well as guidance by intracoronary imaging, although the benefit of such a strategy has to be confirmed in carefully designed studies and may be dependent on patient and lesion characteristics. Progress in scaffold technology using lower scaffold strut thickness and novel polymeric or metallic bioresorbable materials is expected to further improve results compared with the progress observed with metallic DES.

Lorenz Räber, MD, PhD
Kyohei Yamaji, MD, PhD
*Stephan Windecker, MD
*Department of Cardiology
Bern University Hospital
Freiburgstrasse
3010 Bern
Switzerland
E-mail: stephan.windecker@insel.ch
http://dx.doi.org/10.1016/j.jacc.2016.03.548

Please note: Dr. Windecker has received research grants and speaker fees from Abbott Vascular. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

REFERENCES