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In reply to: Letter by Dérimay et al. regarding the article, "A randomized trial comparing two stent sizing strategies in coronary bifurcation treatment with bioresorbable vascular scaffolds – The Absorb Bifurcation Coronary (ABC) trial" by Rampat et al.

We would like to thank Dérimay et al. for their interest in our study [1].

In line with EBC recommendation, we agree that a distal sizing strategy is preferable when using metal stents to treat coronary bifurcation disease [2]. Such a strategy avoids distal oversizing while allowing correction of proximal malapposition with liberal Proximal Optimisation Technique without incurring a significant risk of damage to the stent. However caution must be exercised with the ABSORB BVS due to the inherent limits of its expansion capacity. In fact, this difference in mechanical properties between stent and scaffold was the main impetus behind our study.

While we appreciate that bench studies have shown a postdilatatory capacity of 1 mm above the nominal diameter without scaffold damage [3], we disagree with the implication that this can therefore safely be performed in vivo. Acute scaffold disruption has even been observed in patients where the post dilatation balloon was same size of the scaffold [4]. The manufacturers of the ABSORB BVS recommend that post dilatation be performed with a balloon no larger than 0.5 mm of the scaffold size. In the interest of safety, we limited our study to bifurcations where the difference between proximal and distal reference diameters would not unduly take us above this threshold. This meant excluding left main bifurcation lesions. In that respect, we accept that our recommendation of a proximal sizing strategy may not be applicable to large bifurcations.

With metal stents, the right sizing strategy aims to achieve the balance between minimising the risk of both distal dissection and proximal malapposition. However, in our opinion, it would be a mistake to treat malapposition and edge dissection equally in the context of BVS implantation. The commercial lifespan of the ABSORB BVS was plagued by its higher risk of thrombosis compared to metal stents. Intracoronary imaging studies have revealed malapposition to be one of the most frequent intravascular findings in cases of ST [5]. We would argue that malapposition is a more hazardous phenomenon in BVS than DES. However not all malapposed struts carry an equal risk and malapposition distance also needs to be taken into account. In a study with drug eluting stents in stable angina, a malapposition distance of >300 μm showed the highest likelihood of delayed strut healing and persistence on follow up imaging [6]. Conversely, another study with metal stents found that struts with a malapposition distance of <270 μm are more likely to be apposed at 9 months [7]. It is not unreasonable to assume that struts with a low malapposition distance are less likely to induce persistent flow disturbance and thus pose a smaller thrombotic risk. Based on these observations, we chose a cut off of 300 μm to define a significantly malapposed strut.

Finally, we did observe a numerically higher but statistically insignificant number of distal dissections with a proximal sizing strategy compared to a distal one. While we recognize that our sample size was not large, it would be erroneous to assume that a larger cohort would have demonstrated statistical significance.

Yours Sincerely,

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