

# Should we reconsider dual antiplatelet therapy duration following bioresorbable scaffold angioplasty?

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Submitted Feb 05, 2017. Accepted for publication Mar 01, 2017.

doi: 10.21037/jtd.2017.03.05

View this article at: <http://dx.doi.org/10.21037/jtd.2017.03.05>

In the last years, the fourth revolution of interventional cardiology, represented by bioresorbable vascular scaffolds (BVS), became real. BVS's prerogatives are a good radial force to counter back acute vessel recoil for the time needed, then a complete disappearance after few years. Latest generation drug-eluting stents (DES) showed that a reduction in dual antiplatelet therapy (DAPT) could be afforded if clinically needed without incurring in thrombotic events (1,2), even if the DAPT trial showed that a 2.5 years prolonged DAPT was associated with reduced myocardial infarction, stent thrombosis (ST) and MACE, at the expense of higher bleeding rates (3-5).

The principal advantage of avoiding an eternal metallic prosthesis with BVS is expected to be a reduction in very late (generally >3 years) thrombotic events. But in the time being, which is the correct duration of DAPT to prevent scaffold thrombosis (ScaT)?

Unfortunately, the scare of ScaT, which has emerged since the early results of the GHOST-EU registry (6), has affected the confidence of a not negligible number of operators. In this light, the authors of this real-life registry concluded that BVS angioplasty with Absorb (Abbott Vascular, Santa Clara, USA) was affected by a higher rate of ScaT if compared with ST with the latest generation of DES. This is particularly true in the patients with diabetes mellitus or presenting with ostial lesions in which BVS strategy should be weighed carefully with an optimal implantation following the manufacturer instructions thus improving the procedural results and evaluating a more aggressive antiplatelet therapy in a bid to minimize ScaT (7).

In this view, our group conducted an experts' survey on BVS in 2014 (8,9) and thereafter in 2016 (10) whose

results were surprising at that time. Although international guidelines (11) suggest a DAPT duration of one year both after DES and BVS implantation, half of the so-called "Tech-experts" (operators with more than 20 implants until 2014) interviewed in 2014 indicated a longer DAPT duration after Absorb angioplasty in order to prevent ScaT. Interestingly, in the 2016 survey (10) only 8% of Experts suggested prolonging DAPT >12 months, although they also believed that a longer DAPT was needed after BVS implantation compared to DES.

In the recently published results of the ABSORB II study (12) the authors reported six very late ScaT between 1 and 3 years in the absorb arm compared to 0 events in the DES group. Notably, no one of the six patients was on DAPT at that time. Conversely, no ScaT occurred in patients on DAPT up to 3 years. Nevertheless it should be highlighted that the study was underpowered for clinical endpoint and affected by suboptimal implantation technique with low rate of BVS postdilatation.

Another piece of the puzzle comes from a recent study showing an increased platelet reactivity in the BVS group compared to the metallic stent (13), possibly caused by the greater intraluminal mass attributed to intravascular thrombi in BVS compared to its metallic counterpart (14). Although the latter is a small-sample study and these findings should be interpreted cautiously, the idea that has launched seems to be intriguing and provocative and could be annotated as a cause for higher ScaT with BVS. Moreover, the extent of blood-to-BVS contact surface does not negatively affect levels of platelet reactivity in patients on DAPT following BVS implantation (15).

Although large evidence-based data are required, we

would like to give a provocative approach on the matter: if a longer DAPT reduces ST but increases bleeding risk, when a BVS angioplasty is planned, in a low risk bleeding patient according to the DAPT score (3-5) a prolonged DAPT duration up to 3 years can be suggested, following the path tracked by the DAPT trial. At that time, no issues regarding a higher mass!

### Acknowledgements

None.

### Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

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**Cite this article as:** Buccheri D, Caramanno G, Geraci S, Cortese B. Should we reconsider dual antiplatelet therapy duration following bioresorbable scaffold angioplasty? *J Thorac Dis* 2017;9(3):417-418. doi: 10.21037/jtd.2017.03.05