Impact of the Absorb Biodegradable Vascular Scaffold Surface Area on On-Treatment Platelet Reactivity

Poster Contributions
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Background: Biodegradable vascular scaffolds (BVS) promise to address pending issues of current-generation stents. While promising data of this novel platform is accumulating, signals of scaffold thrombosis (ST) were noted in recent registry data. Our study aimed to determine whether such signals could be substantiated by a possible association of levels of on-treatment platelet reactivity (PR) with the total surface area (TSA) of the implanted BVS.

Methods: We included 202 consecutive patients with Absorb BVS implantation and platelet function testing from January 2013 to April 2014. For investigating the impact of TSA on PR, patients were divided into 2 groups regarding their median BVS TSA. On-treatment ADP-induced PR was determined with the Multiplate analyzer.

Results: Median [interquartile range] Absorb BVS TSA was 1.39 [1.29 - 2.17] cm². PR values did not differ between the two groups (12.0 [9.0 - 19.0] U for patients (n=83) with a TSA > median vs. 13.0 [9.0 -19.5] U for patients (n=119) with a TSA ≤ the median; P=0.69, see Figure). No correlation was observed between BVS TSA and PR (Spearman correlation = -0.10, P=0.16). 30-day follow-up was complete in 98% of patients and two definite STs (0.99%) occurred.

Conclusion: Present data suggest that BVS TSA does not negatively affect PR in patients on antiplatelet treatment after BVS implantation. More clinical and mechanistic studies are needed to explore determinants of ST risk for this promising device as well as their possible underlying mechanisms.