Incidence of Stent Thrombosis With Bioresorbable Vascular Scaffolds In Comparison With Drug-Eluting Stents

In evaluating the effectiveness of bioresorbable vascular scaffolds (BVS) in comparison with traditional drug-eluting stents (DES), the ABSORB China trial (1) found a remarkably low incidence of stent thrombosis in both treatment arms. This finding, however, differs to some extent from that found in other randomized trials aimed at this comparison.

In the same issue of the Journal, Windecker et al. (2) described a pairwise meta-analysis (including the ABSORB China trial and 4 other randomized controlled trials) that found no significant difference in stent thrombosis between BVS and DES (pooled odds ratio for BVS vs. DES 1.86; 95% confidence interval 0.55 to 6.27). Very recently, the results of a large-scale randomized trial comparing these 2 stents (ABSORB III) have also been made available (3).

To shed light on this controversy, we updated the meta-analysis of Windecker et al. (2) by including also the data of the ABSORB III trial. Although Windecker et al. (2) tested both the random-effects model and the fixed-effects model, our results were computed only according to the fixed-effects model, which is the most appropriate in the presence of rare events (4).

According to our results (Figure 1), BVS showed, in comparison with DES, a higher incidence of stent thrombosis that reached the threshold of statistical significance when expressed as risk difference (risk difference +0.67%; 95% confidence interval...
By increasing the statistical power of the analysis, our updated meta-analysis, therefore, showed that BVS tend to increase the rate of stent thrombosis in comparison with DES. This finding did not emerge from the results of the ABSORB China trial.

In summary, the proofs of an increased rate of stent thrombosis of BVS are slowly accumulating in the light of these 6 trials. Quite importantly, this finding is in agreement with that observed in some observational studies evaluating BVS (5) in which the incidences of stent thrombosis were higher than those commonly found with DES.

Owing to the increased rate of stent thrombosis, we conclude that the clinical profile of BVS does not allow us to consider them a new standard of care. Another reason that should discourage a wide use of BVS is that their cost is nearly double that of conventional DES.

REFERENCES


+0.06% to -1.29%; p = 0.031). By increasing the statistical power of the analysis, our updated meta-analysis, therefore, showed that BVS tend to increase the rate of stent thrombosis in comparison with DES. This finding did not emerge from the results of the ABSORB China trial.

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Please note: Dr. Messori has carried out this study in the context of his activity at ESTAR Toscana, an institution that belongs to the Italian national health system. Dr. Messori has reported that he has no relationships relevant to the contents of this paper to disclose.