

Management of side branch stenosis with pre-dilatation in coronary bifurcation disease. Author's reply

Dobrin Vassilev^{1,2}, Niya Mileva^{1,3}, Panayot Panayotov^{1,4}, Gianluca Rigatelli⁵, Robert J Gil⁶

¹Medica Cor Hospital, Ruse, Bulgaria

²Ruse University "Angel Kanchev", Ruse, Bulgaria

³Medical University of Sofia, Sofia, Bulgaria

⁴Department of Cardiology, Pulmonology and Endocrinology, Medical Faculty, Medical University of Pleven, Pleven, Bulgaria

⁵Ospedali Riuniti Padova Sud, Padova, Italy

⁶National Medical Institute of Internal Affairs and Administration Ministry, Warszawa, Poland

Correspondence to:

Niya Mileva, MD, PhD,
Medical University of Sofia,
Georgi Sofiiski 1, 1431 Sofia,
Bulgaria,
phone: +35 989 798 39 36,
e-mail: nmileva91@gmail.com

Copyright by the Author(s), 2024

DOI: 10.33963/v.phj.101169

Received:

June 13, 2024

Accepted:

June 14, 2024

Early publication date:

June 14, 2024

We thank Çörekçiöglü et al. for their interest in our recent publication demonstrating an important association between side-branch predilatation and mortality in patients with coronary bifurcation stenoses [1].

While we fully agree that side-branch predilatation is a questionable matter, we struggle to see the value of the application of the V-resolve risk score in our population [2]. This score was based on the visual estimation of only one observer. Furthermore, the score was developed in a retrospective, single-center study, without external validation and with different observers. Indeed, the authors of the study themselves mention that the V-RESOLVE score should not be regarded as the sole criterion of strategy selection in bifurcation revascularization.

We acknowledge the comment regarding the assessment of the significance of the side branch. The inclusion criteria of our study included a side branch diameter of ≥ 2.0 mm. Regarding side branch protection techniques, we adopted a jailed-wire approach in all patients. Although the study by Dou et al. [3] reported that the jailed balloon strategy is superior to the conventional strategy in reducing SB occlusion, analyses have shown that jailed balloon protection does not translate into lower MACE at 1-year follow-up [4], nor in a reduction in procedural myocardial infarction [5]. Therefore, we have consistently followed the current recommendations regarding provisional stenting and side branch protection [6].

We appreciate the opportunity to discuss in detail the rate of periprocedural

myocardial infarction and periprocedural troponin elevation in our study. Despite the probable protective effect on SB closure, the rate of troponin rising $>5 \times$ UNL (SBPD vs. SBPD — 46% vs. 28%; $P = 0.003$) post-PCI and the rate of troponin rising $>20\%$ from the baseline level (SBPD[+] vs. SBPD[-] $\pm 86\%$ vs. 77%; $P = 0.002$), were significantly higher in the SBPD group. Interestingly, the rate of periprocedural myocardial infarction was not significantly different between the groups with and without SB closure — 52% vs. 34%; $P = 0.066$. We performed additional survival analysis, dividing the patients into a group with a post-procedural troponin rise of $5 \times$ UNL and a group without such a significant rise in troponin. The results revealed a non-significant difference in all-cause (23% vs. 24%; $P = 0.415$) and cardiovascular mortality (23% vs. 22%; $P = 0.633$) between SBPD(+) and SBPD(-) in the low troponin group (Figure 1A). However, in the group with high post-procedural troponin, there was numerically higher all-cause (34% vs. 30%; $P = 0.095$) and cardiovascular (26.2% vs. 22%; $P = 0.138$) mortality in the SBPD(+) group (Figure 1B).

In conclusion, we believe that our results support the hypothesis that side-branch predilatation is an important marker of bifurcation lesion severity, and is therefore associated with worse clinical outcomes.

We hope that by addressing the comments raised, the scope of our study has been increased and that it can serve as a basis for future research in the field of coronary bifurcation interventions.

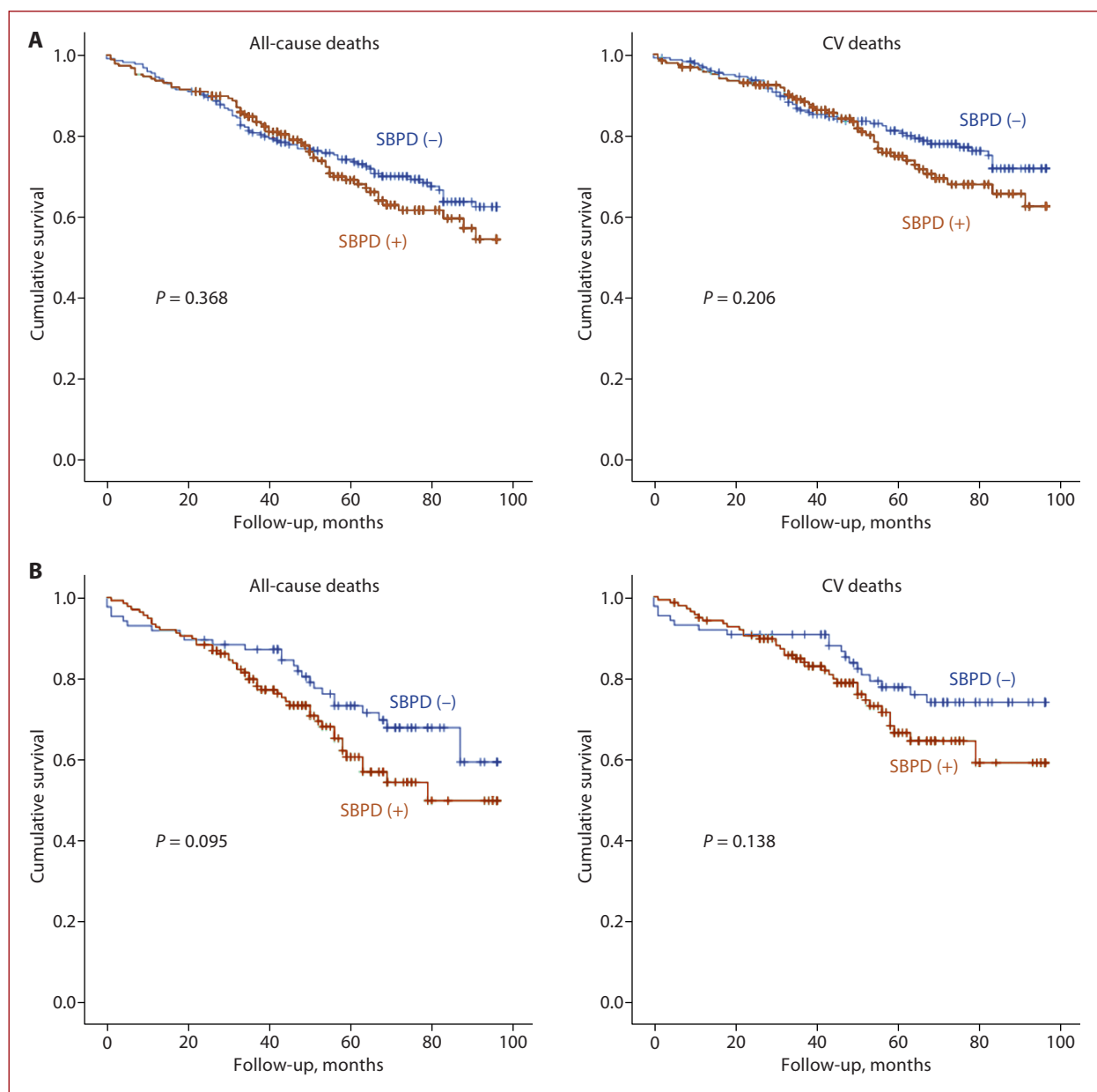


Figure 1. **A.** Kaplan–Meier curves showing all-cause deaths in patients without a troponin increase $>5 \times \text{ULN}$ — patients with side branch predilatation vs. patients without side branch predilatation; **B.** Kaplan–Meier curves showing cardiovascular deaths in patients with a troponin increase $>5 \times \text{ULN}$ — patients with side branch predilatation vs. patients without side branch predilatation

REFERENCES

- Vassilev D, Mileva N, Panayotov P, et al. Side branch predilatation during percutaneous coronary bifurcation intervention: Long-term mortality analysis. *Polish Heart Journal*. 2024; 82(4): 398–406, doi: [10.33963/v.phj.100213](https://doi.org/10.33963/v.phj.100213).
- Dou K, Zhang D, Xu B, et al. An angiographic tool based on Visual estimation for Risk prediction of Side branch Occlusion in coronary bifurcation interVENTion: the V-RESOLVE score system. *EuroIntervention*. 2016; 11(14): e1604–e1611, doi: [10.4244/EIJV11114A311](https://doi.org/10.4244/EIJV11114A311), indexed in Pubmed: 27056121.
- Dou K, Zhang D, Pan H, et al. Active SB-P versus conventional approach to the protection of high-risk side branches: The CIT-RESOLVE trial. *JACC Cardiovasc Interv*. 2020; 13(9): 1112–1122, doi: [10.1016/j.jcin.2020.01.233](https://doi.org/10.1016/j.jcin.2020.01.233), indexed in Pubmed: 32381188.
- Zhang D, Zhao Z, Gao G, et al. Jailed balloon technique is superior to jailed wire technique in reducing the rate of side branch occlusion: subgroup analysis of the conventional versus intentional strategy in coronary bifurcation intervention trial. *Front Cardiovasc Med*. 2022; 9: 814873, doi: [10.3389/fcvm.2022.814873](https://doi.org/10.3389/fcvm.2022.814873), indexed in Pubmed: 35433861.
- Qin Q, Zheng B, Liu J, et al. Active versus conventional side branch protection strategy for coronary bifurcation lesions. *Int Heart J*. 2021; 62(6): 1241–1248, doi: [10.1536/ihj.21-467](https://doi.org/10.1536/ihj.21-467), indexed in Pubmed: 34789648.
- Pan M, Lassen JF, Burzotta F. The 17th expert consensus document of the European Bifurcation Club - techniques to preserve access to the side branch during stepwise provisional stenting. *EuroIntervention*. 2023; 19(1): 26–36, doi: [10.4244/EIJ-D-23-00124](https://doi.org/10.4244/EIJ-D-23-00124), indexed in Pubmed: 37170568.