Harnessing drug-coated balloons for management of left main coronary disease: A promising strategy?

Kenan Yalta[1], Ertan Yetkın[2], Tulin Yalta[3]

[1]Department of Cardiology, Trakya University, Edirne, Turkey
[2]Department of Cardiology, Türkiye Hastanesi, Istanbul, Turkey
[3]Department of Pathology, Trakya University, Edirne, Turkey

Correspondence to:
Kenan Yalta, MD,
Department of Cardiology, Trakya University,
Balkan Yerleşkesi, 22030, Edirne, Turkey,
phone: +90 505 657 98 56,
e-mail: kyalta@gmail.com

DOI: 10.33963/KP.a2022.0116

Received:
May 2, 2022

Accepted:
May 4, 2022

Early publication date:
May 6, 2022

In clinical practice, management of unprotected left main stem (LMS) stenoses with percutaneous coronary intervention (PCI) has been quite challenging, particularly in the presence of bifurcation or aorto-ostial stenoses [1–3]. In this context, certain stent-based PCI techniques have been described as having variable safety and efficacy [1]. In their recently published article, Kovacevic M, et al. [1] have reviewed a variety of issues associated with unprotected LMS stenting. We fully agree with the suggested challenges and their management strategies [1]. However, we also would like to underscore the potential clinical value of drug-coated balloons (DCBs) in management of LMS disease.

It is well known that drug-eluting stents (DESs) have been increasingly used in the setting of LMS stenoses [1] despite a high mortality risk in the case of stent-related complications including stent thrombosis, etc. In particular, these stent-related complications appear to be substantially higher in aorto-ostial and bifurcation points largely due to a variety of adverse rheological, anatomical, and histopathological factors that might potentially be associated with geographic miss along with stent malapposition and/or delayed endothelization [3, 4]. Moreover, "carina shift" might arise as a significant procedural complication frequently encountered in management of bifurcation stenoses (including distal LMS), particularly with the use of certain techniques including cross-over stenting and ostial stenting [1–3].

Consequently, the use of alternative tools and techniques potentially with better safety outcomes might arise as a viable option in management of LMS stenoses, particularly involving aorto-ostial or distal bifurcation points [2, 3]. In this context, harnessing DCBs has been suggested as a safe and effective option for management of de-novo atherosclerosis involving small and large coronary arteries, even in the setting of stenoses with precarious anatomical features (including stenoses at bifurcation points) [2]. In a recent study, management with DCBs alone (with the guidance of optic coherence tomography [OCT]) was demonstrated to work well in most patients with stenosis involving the distal LMS (Medina types 0,1,0 or 0,0,1) [2]. Importantly, none of the patients in the study population had any adverse clinical events at 7.7 ± 6.0 months following PCI with DCBs [2]. However, the clinical value of DCBs remains to be established in more complex types of LMS disease (including Medina 1,1,1, etc.) [3]. Accordingly, we wonder about the opinion and experience of the authors [1] regarding management of unprotected LMS stenoses with DCBs alone (with provisional DES implantation where necessary) [1].

In conclusion, the use of DCBs might obviate stent-related complications (including carina shift, late thrombosis, etc.), and might serve as a reasonable option for management of unprotected LMS stenoses [2, 3]. However, further studies are still needed before labeling them as alternatives to DES, particularly in the setting of LMS stenoses with high-risk anatomical features.

Article information

Conflict of interest: None declared.

Funding: None.

REFERENCES

1. Kovacevic M, Burzotta F, Srdanovic I, et al. Percutaneous coronary intervention to treat unprotected left main: Common (un-answered) challenges. Kardiol Pol. 2022; 80(4): 417–428, doi: 10.33963/kp.a2022.0078.
2. Erdoğan E, Li Z, Zhu YX, et al. DCB combined with provisional DES implantation in the treatment of De Novo Medina 0,1,0 or 0,0,1 left main coronary bifurcation lesions: A proof-of-concept study. Anatol J Cardiol. 2022; 26(3): 218–225, doi: 10.5152/AnatolJCardiol.2021.1157, indexed in Pubmed: 35346908.
3. Jaffe R, Halon DA, Shiran A, et al. Percutaneous treatment of aorto-ostial coronary lesions: Current challenges and future directions. Int J Cardiol. 2015; 186: 61–66, doi: 10.1016/j.ijcard.2015.03.161, indexed in Pubmed: 25814346.
4. Nakazawa G, Yazdani SK, Finn AV, et al. Pathological findings at bifurcation lesions: the impact of flow distribution on atherosclerosis and arterial healing after stent implantation. J Am Coll Cardiol. 2010; 55(16): 1679–1687, doi: 10.1016/j.jacc.2010.01.021, indexed in Pubmed: 20394871.