

## In-stent restenosis risk factors following carotid artery stenting

Mesut Engin<sup>1</sup>, Abdurrahman Demirel<sup>2</sup>, Ufuk Aydın<sup>1</sup>, Yusuf Ata<sup>1</sup>, Şenol Yavuz<sup>1</sup>

<sup>1</sup>Department of Cardiovascular Surgery, University of Health Sciences, Bursa Yuksek Ihtisas Training and Research Hospital, Bursa, Turkey

<sup>2</sup>Ministry of Health Nazilli State Hospital, Department of Cardiovascular Surgery, Aydın, Turkey

### Correspondence to:

Mesut Engin, MD,  
Department of Cardiovascular  
Surgery,  
University of Health Sciences,  
Bursa Yuksek Ihtisas Training  
and Research Hospital,  
Mimar Sinan Town, Emniyet  
Street, Yıldırım/Bursa, Turkey,  
phone: +90 224 295 50 00,  
e-mail:  
mesut\_kvc\_cor@hotmail.com  
Copyright by the Author(s), 2025  
DOI: 10.33963/v.phj.102555

### Received:

September 9, 2024

### Accepted:

September 12, 2024

### Early publication date:

October 1, 2024

We have read the article by Karaduman et al. [1] titled "Predictive significance of the prognostic nutritional index for in-stent restenosis following carotid artery stenting" with great interest. First of all, we congratulate the authors for their valuable contribution to the literature. However, we would like to discuss some issues about in-stent restenosis (ISR) risk factors following carotid artery stenting (CAS).

The authors included 816 patients who underwent CAS and were followed up for 24 months in the current study. ISR occurred in 35 (4%) patients during follow-up. The prognostic nutritional index, a new marker, has been shown to be an independent predictor of ISR development [1]. However, we believe it would be beneficial to include known risk factors clearly and explicitly in the analyses investigating the prognostic value of new markers.

The authors used chronic kidney disease (CKD) as a categorical variable in their study, and 138 (16.9%) of the patient cohort had CKD. The median interquartile range for creatinine values in ISR(+) and ISR(-) patients was 0.9 (0.84–1.22) and 0.96 (0.83–1.17), respectively [1]. It would be useful to clearly state how CKD is defined in the patient population where the median values are within normal limits. CKD may be an important risk factor for ISR [2].

Diabetes mellitus (DM) is an important condition that has negative effects on cardiovascular health. It has significant effects on both the development and prognosis of vascular diseases [3]. In their current study, the authors stated that approximately half of the patients in both patient groups had DM. They also concluded that DM had no signifi-

cant effect on ISR ( $P = 0.429$ ) [1]. However, it is a known fact that patients with DM are more prone to stent stenosis [3]. According to the authors, what could be the reason for this similarity between the groups in their study? Could the patient groups consist of patients who have good blood glucose control?

Medical treatments applied to patients after the CAS procedure are also very important. In the current study, the rates of dual antiplatelet and statin use were determined to be approximately 40%. How were these treatments arranged during the follow-up periods after the CAS procedure? Current studies have shown that ISR development can be reduced with antiplatelet treatments arranged specifically for the individual [4]. In addition, the authors found total cholesterol values to be an independent predictor for ISR development in both multivariate analysis models [1]. Therefore, it may be useful to clearly state the anti-lipid treatments used by the patient group during the follow-up period.

The current study includes a patient group at high risk for atrial fibrillation considering both the frequency of coronary artery disease (75%) and the high mean age (median 66 years) [1]. It can occur at rates of up to 20% in normal populations between the ages of 60 and 70 years [5]. Could the use of anticoagulants due to atrial fibrillation in the authors' current study have affected the results of the study?

### Article information

**Conflict of interest:** None declared.

**Funding:** None.

**Open access:** This article is available in open access under Creative Common Attribution-Non-Commer-

cial-No Derivatives 4.0 International (CC BY-NC-ND 4.0) license, which allows downloading and sharing articles with others as long as they credit the authors and the publisher, but without permission to change them in any way or use them commercially. For commercial use, please contact the journal office at [polishheartjournal@ptkardio.pl](mailto:polishheartjournal@ptkardio.pl)

## REFERENCES

1. Karaduman A, Yilmaz C, Tiryaki MM, et al. Predictive significance of the prognostic nutritional index for in-stent restenosis following carotid artery stenting. *Pol Heart J.* 2024; 82(11): 1083–1090, doi: 10.33963/v.phj.102443, indexed in Pubmed: 39240912.
2. Alexandrescu DM, Mitu O, Costache II, et al. Risk factors associated with intra-stent restenosis after percutaneous coronary intervention. *Exp Ther Med.* 2021; 22(4):1141, doi: 10.3892/etm.2021.10575, indexed in Pubmed: 34504587
3. Sun X, Zhang C, Ma Y, et al. Association between diabetes mellitus and primary restenosis following endovascular treatment: a comprehensive meta-analysis of randomized controlled trials. *Cardiovasc Diabetol.* 2024; 23(1):132, doi: 10.1186/s12933-024-02201-6, indexed in Pubmed: 38650038
4. Hudzik B, Blachut A, Lesiak M, et al. Summary of the European Society of Cardiology guidelines on dual antiplatelet therapy in patients after percutaneous coronary interventions. *Kardiol Pol.* 2022; 80(10): 974–989, doi: 10.33963/KP.a2022.0198, indexed in Pubmed: 36036339.
5. Zoni-Berisso M, Lercari F, Carazza T, Domenicucci S. Epidemiology of atrial fibrillation: European perspective. *Clin Epidemiol.* 2014; 6: 213–220, doi: 10.2147/CLEP.S47385, indexed in Pubmed: 24966695