ARCHIVES OF THE TURKISH SOCIETY OF CARDIOLOGY

Official journal of the TURKISH SOCIETY OF CARDIOLOGY

Comment on the Clinical Course of Methemoglobinemia After Cardiac Device Implantation

Kalp Cihazı İmplantasyonu Sonrası Methemoglobineminin Klinik Seyrine İlişkin Yorum

LETTER TO THE EDITOR
EDİTÖRE MEKTUP

To the Editor,

We read with great interest the recent article by Sertdemir et al.,[1] "Prevalence and Clinical Course of Methemoglobinemia After Cardiac Device Implantation: An Observational Study at Necmettin Erbakan University Hospital in Konya, Türkiye," published in the Archives of the Turkish Society of Cardiology. The authors addressed an important issue by designing a well-structured observational study to better understand the complications associated with local anesthesia during cardiology procedures. This study fills an important knowledge gap and provides a solid scientific basis for improving patient safety in electrophysiology laboratories. However, several areas require further consideration because they may affect the reliability of the study. First, the authors reported a clear relationship between the administered dose and methemoglobin levels, indicating that methemoglobin levels increased with the dose. However, according to Table 3 of the same study, the group with methemoglobin levels of 1.5–3% received a lower mean dose (22.33 mg) than the group with normal levels of ≤ 1.5%, which received a higher mean dose (24.35 mg) (Table 1).[1] This contradictory finding is consistent with the study by Gutenberg et al.,[2] which suggested that the dose is not the only factor affecting methemoglobin levels. Instead, other factors, such as drug metabolism, blood flow to the injection site, and genetic differences, may play a greater role in determining methemoglobin levels. Although the authors remeasured methemoglobin levels at 60 and 120 minutes, providing preliminary kinetic data, the study by Hjelm and Holmdahl[3] suggested that methemoglobin levels peak approximately 6 hours after prilocaine administration and return to normal within 24 hours in most patients. Therefore, the preliminary pharmacokinetic data in the present study may have been insufficient to accurately estimate the prevalence and incidence of the condition.

Nonetheless, this research provides valuable information about the clinical effects and safety of local anesthesia. In summary, we advocate the implementation of extended monitoring protocols and multivariable modeling incorporating host-specific factors, as these practices will likely improve anesthesia safety.

Table 1. Mean drug dose according to FMetHb level

FMetHb group	Mean drug dose (mg)
≤ 1.5% (normal)	24.35
1.5–3% (mild elevation)	22.33
> 3% (significant elevation)	28.04

FMetHb, Fractional methemoglobin.

Conflict of Interest: The authors have no conflicts of interest to declare.

Funding: The authors declared that this study received no financial support.

References

1. Sertdemir AL, Şahin AT, Kan H, et al. Prevalence and Clinical Course of Methemoglobinemia After Cardiac Device Implantation. *Turk Kardiyol Dern Ars*. 2026;54(5):421-426. [CrossRef]
2. Gutenberg LL, Chen JW, Trapp L. Methemoglobin levels in generally anesthetized pediatric dental patients receiving prilocaine versus lidocaine. *Anesth Prog*. 2013;60(3):99-108. [CrossRef]
3. Hjelm M, Holmdahl MH. Biochemical Effects Of Aromatic Amines. Ii. Cyanosis, Methaemoglobinaemia And Heinz-Body Formation Induced By A Local Anaesthetic Agent (Prilocaine). *Acta Anaesthesiol Scand*. 1965;9:99-120. [CrossRef]

Maryam Arain
Inshira Noor

Liaquat University of Medical and Health Sciences, Jamshoro, Pakistan

Corresponding author:
Maryam Arain
✉ maryammaharali@gmail.com

Received: July 17, 2026
Accepted: August 03, 2026

Cite this article as: Arain M, Noor I. Comment on the Clinical Course of Methemoglobinemia After Cardiac Device Implantation. *Turk Kardiyol Dern Ars.* 2026;54(6):541.

DOI: 10.5543/tkda.2026.74389

Copyright@Author(s)
Available online at archivestsc.com. Content of this journal is licensed under a Creative Commons Attribution – NonCommercial-NoDerivatives 4.0 International License.