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Reply to the Letter to the Editor: "Comment on the Clinical Course of Methemoglobinemia After Cardiac Device Implantation"

Editöre Mektup Yanıtı: "Kalp Cihazı İmplantasyonu Sonrası Methemoglobineminin Klinik Seyrine İlişkin Yorum"

LETTER TO THE EDITOR REPLY
EDİTÖRE MEKTUP YANITI

To the Editor,

We are grateful to the authors[1] for their thoughtful comments regarding our study, "Prevalence and Clinical Course of Methemoglobinemia After Cardiac Device Implantation."[2] The authors appropriately highlight that the relationship between prilocaine dose and fractional methemoglobin (FMetHb) level should not be interpreted as a strictly linear or monotonic dose–response relationship. Although patients with FMetHb > 3% received the highest mean prilocaine dose, the mean dose in the 1.5–3% group was slightly lower than that observed in the ≤ 1.5% group. Our intention was therefore not to suggest that prilocaine dose alone determines the magnitude of methemoglobin formation. Rather, our findings demonstrated that higher prilocaine exposure was associated with the group showing the greatest biochemical elevation, while ROC analysis identified a dose of ≥ 24.50 mg as being associated with FMetHb > 3%, albeit with only moderate discriminatory performance.

The authors also raise an important point regarding the timing of methemoglobin measurements. Our study evaluated methemoglobin concentrations during the early periprocedural period, with measurements obtained at baseline and at 60 and 120 minutes. The 120-minute observation period also reflects our institution's established postprocedural care protocol for CIED implantation. At our center, patients undergoing uncomplicated device implantation are routinely considered for same-day discharge approximately 2 hours after the procedure, provided that the postprocedural chest radiograph is satisfactory and no other clinical concerns are present. We acknowledge that later measurements, including assessments at approximately 4–6 hours and potentially up to 24 hours, could provide a more complete pharmacokinetic profile and may identify delayed peaks in some patients. Accordingly, our findings should primarily be interpreted as describing the early biochemical course of methemoglobinemia following prilocaine administration during CIED implantation rather than its complete pharmacokinetic evolution.

Nevertheless, the principal objective of our study was to increase awareness of early methemoglobin elevation in the CIED implantation setting, where routine measurement is uncommon and most biochemical elevations may remain clinically silent. We therefore agree that future prospective studies incorporating extended serial measurements, weight-adjusted anesthetic exposure, and host-specific variables would provide important additional information. Such studies may help better define individual susceptibility, the temporal profile of methemoglobin formation, and clinically meaningful predictors of symptomatic toxicity.

References

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2. 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]

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