

Resuming anticoagulation after brain hemorrhage while on warfarin treatment: INR at the time of bleeding should be taken into consideration—authors' reply

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Dear Editor,

We would like to thank Dr. Balestrino and colleagues for their interest in our debate, and for sharing their thoughts about the controversial issue of restarting anticoagulants after intracerebral hemorrhage [1–3].

They suggest that for patients who experienced bleeding while having supratherapeutic INR levels, warfarin may be re-started while implementing a strategy to better control INR value. To support this, they argue that, very often, bleeding during warfarin therapy occurs when INR exceeds the therapeutic range. Indeed, in nearly half of the patients with a bleeding event while on an oral anticoagulant, INR is at supratherapeutic levels, as shown by a recent study as well as a previous meta-analysis [4, 5].

However, the results of these two studies may be read in the other way round: in nearly half of patients with a bleeding event while on oral anticoagulant, INR is not at supratherapeutic levels; i.e., a patient who is treated with oral anticoagulants may still bleed even if we manage to keep INR within the therapeutic window [4, 5]. Therefore, this suggestion (i.e., to re-initiate warfarin in a patient who suffers an intracerebral hemorrhage while having a supratherapeutic INR, and, at the same time (successfully implementing strategies to control INR more adequately), may not be the answer given that this patient may still bleed, even with a therapeutic INR.

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Of course, this comes on top of another significant issue: how effectively do we control INR and how much can this be improved? Recent data about anticoagulation control are frustrating: among 2,683,674 INR measurements in 138,319 patients in office-based community practice in the United States, only 53.7 % measurements were within the therapeutic range [6]. Similar results were also reported in the hospital setting, where INR is in the therapeutic range in only 54.5 % of 18,867 patients hospitalized for atrial fibrillation [7]. Several methods have been proposed to improve INR control, but even in cases in which INR measurements and dose adjustments are frequent, several other factors (e.g., renal and hepatic metabolism, interactions with drugs taken occasionally, balance of hemostasis, patient compliance), may lead to failure of any attempt to produce stable INR values [8]. Accordingly in our opinion, in a patient who has already had a cerebral hemorrhage with warfarin in the presence of an elevated INR value, this event may be considered as an indicator of the difficulty of maintaining INR within the therapeutic range, even in the future, rather than a factor that can be corrected and managed to reduce subsequent risks.

The suggestion by Balestrino et al. needs to be considered with caution, as well as our own suggestions in our recent debate; strong recommendations about re-initiation of warfarin in patients with intracerebral hemorrhage are hindered by the scarcity of high-quality evidence. In this context, we are confident that Balestrino et al. agree that further research is urgently needed to provide more insight into this controversial topic. Finally, we repeat that the patient's values and preferences should definitely become a part of the decision process.

Conflict of interest None.

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