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Author's Reply

Impact of BMI on risk of CIED pocket hematoma: a sub-analysis of the BRUISE trial

Dear Editor,

Clinically significant pocket hematoma (CSH), as defined in the BRUISE trial[1], following cardiac implantable electronic device (CIED) surgery occurs more often in patients requiring perioperative anticoagulation, and depends on the anticoagulation strategy used. The BRUISE trial[1] found that heparin bridging significantly increases the risk for CSH as compared to continuing warfarin.

Does body mass index (BMI) play a role in CSH? Yalcin et al[2] raise an important question regarding the association between pocket hematoma and BMI based on the findings of a retrospective study conducted in China. Guo et al[3] reported an increased occurrence of pocket hematoma in a group of Chinese patients undergoing CIED surgery with a BMI < 23 kg/m^2. They explain that subcutaneous implants in patients with lower amounts of subcutaneous adipose tissue, as reflected by a lower BMI, may increase the risk of hematoma formation. They suggest that a subpectoral muscle approach could be an alternative in patients with low BMI. Yalcin et al[2] take this further and suggest avoiding heparin bridging in patients with a BMI < 23 kg/m^2.

While we agree that heparin bridging should be avoided, we feel that the continued warfarin approach, when possible, is preferred for all patients, regardless of BMI. It is important to note that in the paper of Guo et al[3], only 1.3% of patients were on warfarin or subcutaneous heparin bridging. As such, no conclusion can be drawn regarding the association between BMI and the type of anticoagulation therapy for the risk of pocket haematoma.

The BRUISE study[1] collected data on BMI and published its findings in the study appendix. Both the heparin bridging arm and the continued warfarin arm were well matched for BMI (28.4 ± 6.4 vs. 28.3 ± 5.4). Univariate analysis of all patients comparing those with and without CSH failed to detect a statistical difference in BMI (28.0 ± 5.2 vs. 28.4 ± 6.0, *p*-value = 0.58). In the group with continued warfarin there was also no significant difference in BMI between patients with or without CSH (28.32 ± 5.42 vs. 27.15 ± 6.08, *p*-value = 0.47).

Following the letter of Yalcin et al[2], we repeated a sub-analysis of the BRUISE data using 23 kg/m^2 as a BMI cut-off. We did not detect any difference in the occurrence of CSH between the two groups with BMI lower or equal to 23 kg/m^2 vs. higher than 23 kg/m^2 (Chi-square 0.7856).

In conclusion, heparin bridging perioperatively confers a higher risk of CSH irrespective of BMI. Our analysis4 suggests that the best management of patients (on warfarin and at high risk of thromboembolic events) undergoing CIED implantation is to perform the procedure without interruption of warfarin and with an INR in therapeutic range.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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