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Letter to the Editor

Reply to: Intraosseous devices in small children: The need for a clearly defined strategy

To the Editor,

We are grateful for the important remarks by Dr Bouchut and colleagues. The letter highlights a highly relevant and interesting aspect of the topic.

The saying “children are not small adults” is familiar to all of us. Accordingly, a well-functioning procedure for adult patients is not always applicable unchanged for children. Our study shows that the current procedure for establishing an intraosseous access in infants and children should also be critically reviewed. In infants and children in particular, peripheral venous access is sometimes difficult to establish. Therefore, an easy to use and well-functioning procedure is necessary.

As described in the letter, the anatomical proportions of infants and children can deviate drastically from the proportions in adults and of course have a larger relative range. A study that reliably determines quantitative values for anatomical proportions is therefore certainly useful and of great importance. Depending on the results, procedures can then be altered accordingly and/or new devices can be developed that are tailored to the specific need. In our opinion, a corresponding study should answer two questions in particular:

- Where is the potentially largest “landing area” for the needle, sorted by age group?
- Of the various systems, are individual systems better or worse suited for the corresponding access due to their design?

However, there are a few things to consider:

- The proximal tibia is currently usually recommended as the standard site for intraosseous access,¹ as the literature to date has described mostly poorer results in alternative sites.² However, these studies have been conducted on adults and are therefore not necessarily representative for infants and children. Our study cannot clarify this either, since in almost all cases the proximal tibia was chosen as the access site (only two cases with a different access site; in both cases malpositions of the needle³).
- In our study, the malpositions in which the corticalis was perforated on both sides were the minority of malpositions (31% in infants and 11% in children³). Thus, not only the width of the medullary cavity

seems to be decisive for success. This should be taken into account when revising the procedure.

- As already described in the letter, the changed risk profile of extravasations and other procedure related risks depending on the puncture site should not be ignored.¹ However, depending on the severity and life-threatening nature of the underlying disease, a higher risk may be acceptable.

Sincerely,

Conflict of interest statement

The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

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