

Intraosseous (IO) access can be complicated by obesity. Successful placement of a 25 mm IO needle is unlikely when soft tissue depth exceeds 20 mm” Kehrl et al (2016).

Abstract:

Background: Intraosseous (IO) access can be complicated by obesity. Successful placement of a 25 mm IO needle is unlikely when soft tissue depth exceeds 20 mm.

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Objectives: The authors examined the relationship between body mass index (BMI), the ability to palpate the tibial tuberosity (TT), and soft tissue depth at recommended IO insertion sites.

Methods: Obese emergency department patients were assessed for a palpable TT and received ultrasound measurement of the soft tissue depth at recommended IO insertion sites. Linear and logistic regression were used to determine cut-off BMI values predicting soft tissue depth > 20 mm.

Results: 75 patients were enrolled with a mean BMI of 47.2. The mean soft tissue depth at the proximal humerus, proximal tibial, and distal tibial were 29.6 [95% CI 27.5-31.7] mm, 11.0 [8.9 to 13.0] mm, and 10.7 [9.4 to 12.1] mm, respectively. In 5 patients without a palpable TT the soft tissue depth exceeded 20 mm at all three anatomic sites. A BMI ≥ 43 and BMI ≥ 60 predicted a soft tissue depth > 20 mm at the proximal tibia and distal tibia, respectively, while no reliable BMI cut-off was identified at the proximal humerus.

Conclusions: In obese adults with a palpable TT or BMI ≤ 43 a 25 mm IO needle is likely adequate at the proximal and distal tibial insertion sites. Empiric use of an extended 45 mm IO needle is advisable at the proximal humeral insertion site in obese patients.

Reference:

Kehrl, T., Becker, B.A., Simmons, D.E., Broderick, E.K. and Jones, R.A. (2016) Intraosseous Access in the Obese Patient: Assessing the Need for Extended Needle Length. The American Journal of Emergency Medicine. June 12th. .

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