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LETTER TO THE EDITOR

The risk of local anesthetic systemic toxicity is increased in patients with critically low weight and muscle mass

O risco de toxicidade sistémica dos anestésicos locais é mais elevado em doentes com peso e massa muscular extremamente baixos

We read with interest the case report of local anesthetic systemic toxicity (LAST) by Nunes Silva et al.[1] This report is primarily focused on recognition and treatment of LAST, but it fails to adequately emphasize the focus of the Third American Society of Regional Anesthesia and Pain Medicine Practice Advisory on Local Anesthetic Systemic Toxicity in their 2017 Executive Summary, namely that ''Prevention is the primary and preferred mechanism for reducing the frequency and severity of LAST'' and ''meticulous attention to detail is the most important aspect of prevention.''[2] Prevention involves identification of patients at higher risk for LAST. The two highest risk patient categories are those at extremes of age and those with low muscle mass. It seems that the most important factor in this case report is the patient's reduced muscle mass, with a total body weight of only 37 kg. Recently, low muscle mass has been identified as an independent risk factor for LAST.[2–5] With regard to LAST, recent findings suggest that when large amounts of local anesthetic are absorbed, muscle is an important reservoir for local anesthetic storage.[2,6] This is supported by findings that patients with critically low muscle mass, as seen in the patient described by Nunes Silva et al., exhibit a much higher susceptibility to the toxic effects of local anesthetics.

Anecdotally, practitioners who only manage adult patients may be less likely to weight-adjust medication doses for extremely low body weight patients. A weight of 37 kg is consistent with the 50th percentile for weight in an 11- to 12-year-old girl. In this report, the original dose of 20 ml (200 mg) was already in excess of the maximum recommended dose for this patient (166.5 mg). However, an additional local anesthetic dose was administered due to patient discomfort, eventually leading to a dose of 600 mg, which is over 3.5 times the suggested safe limit in a 37 kg patient. Adult patients are sometimes smaller than some of our pediatric patients, yet weight-based dosing is often overlooked.

We believe that the most important lesson learned from this case report is that extremely low body weight and low muscle mass patients must be treated very cautiously when dosing local anesthetics and that failure to appreciate this risk factor can easily lead to delay in recognition or treatment of LAST. For example, this case report specifically describes symptoms that are exclusively neurologic in nature, but states that anaphylaxis was suspected. In the setting of toxic doses of local anesthetic administration and neurologic symptoms, LAST should have been the first diagnosis to be suspected and ruled out. The relevant discussion of lipid emulsion and reminder of its importance in the emergency treatment algorithm for LAST does not supersede the fact that prevention of LAST is much easier when a weight-based local anesthetic dose is considered and the increased risk of LAST is fully appreciated in this unique patient population.

Conflicts of interest

The authors have no conflicts of interest to declare.

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