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EDITORIAL

The evidence base for intra-articular lidocaine for closed manual reduction of acute anterior shoulder dislocation continues to grow

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In this edition of the Canadian Journal of Emergency Medicine, Sithamparapillai and colleagues provide further support for intra-articular lidocaine (IAL) when compared to intravenous analgesia and sedation (IVAS) for closed manual reduction of acute anterior shoulder dislocation (AASD) [1]. For AASD, Sithamparapillai and colleagues found that IAL has fewer adverse events, shorter emergency department (ED) length of stay, and difference in pain scores or ease of reduction than IVAS. Their findings are consistent with a Cochrane review comparing IAL and IVAS for AASD [2]. The difference in adverse effects is striking (1.3% for IAL vs 20.8% for IVS). However, whether these were minor and temporary or resulted in long-term patient harm is unclear. For example, patients in the aggregated IVAS group were at risk of respiratory depression (including apnoea and hypoxia), a complication routinely managed by emergency clinicians without long-term ill effects.

No comment is made on the risk of joint infection after needle penetration in the IAL group. Performed under aseptic conditions, the infection rate is low [2]. However, it may be that the small sample sizes failed to detect a signal in this systematic review and meta-analysis (SRMA). In discussing the clinical implications of their study, the authors conclude that IAL is equally efficacious and has the added advantages of avoiding the risks inherent to IVAS and can be performed at less cost. One drawback to IAL is that patients report less satisfaction compared to IVAS. This difference in patient satisfaction is despite both options scoring similarly on pain scores measured before and after reduction.

The low methodological quality of existing randomized controlled trials (RCTs) limits the conclusions of this SRMA. The methodological quality of existing RCTs is limited by the absence of double-blinding, relatively small sample sizes, use of empirical drug dosing in the IVAS trial arm, lack of objective evidence demonstrating intra-articular injection of lidocaine, different patient sedation levels in the IVAS trial arm, lack of control of the sedative drug used in the IVAS trial arm across studies and lack of control of the analgesic used in the IVAS trial arm across studies. Future clinical trialists could actively address these methodological limitations of existing RCTs.

The absence of double-blinding is understandable because of the nature of the comparator interventions. There are innovative RCT designs (e.g., equipoise-stratified design) that future clinical trialists may consider to address the absence of double-blinding in existing RCTs [3]. Another major methodological limitation of currently published RCTs comparing IAL and IVAS for ED closed manual reduction of AASD is the lack of evidence demonstrating accurate IAL injection. The advent of point-of-care ultrasonography (POCUS) in emergency medicine permits the use of bedside ultrasound to confirm IAL injection [4]. Instead of using the landmark-based method of IAL injection, future clinical trialists may consider using ultrasound-guided IAL in the IAL trial arm when comparing IAL and IVAS for ED closed manual reduction of AASD. POCUS also permits immediate confirmation of a satisfactory anatomical joint reduction.

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SRMAs are considered the highest level of clinical evidence in the hierarchy of clinical evidence [5]. By reviewing and including data from RCTs in recent years, Sithamparapillai and colleagues have built upon existing literature that guideline developers can use to formulate a recommendation grade for IAL for closed manual reduction of AASD in the ED setting. Interest in the choice of analgesics to facilitate the reduction of anterior shoulder dislocations is reflected in the growing number of RCTs comparing regional versus intravenous techniques. A 2011 Cochrane review found only five studies eligible for inclusion [2]. The article by Sithamparapillai and colleagues consists of 12 studies, revealing a doubling of the relevant RCTs over the last decade.

It is intuitively logical to conclude that this increasing number of RCTs reflects the existence of clinical equipoise (an honest null hypothesis and/or a state of uncertainty) between the two interventions for ED closed manual reduction of AASD. The increasing number of RCTs comparing IAL and IVAS may also reflect personal equipoise. Similar to clinical equipoise, personal equipoise exists when the clinician involved in the research study has no preference or is genuinely uncertain about the overall benefit or harm offered by the treatment to the patient. The existence of clinical and personal equipoise highlights the utility of a clinical guideline. An argument can be made for developing a systematic review (or overview) of published systematic reviews. To the best of our knowledge, there is no such published overview. Such an overview would summarise research findings and provide a convenient reference point for developing an evidence-based clinical guideline.

In summary, until a scientifically credible evidence-based clinical guideline exists, clinicians have two viable alternatives for providing patient comfort for reducing AASD. Each is efficacious and with acceptable side effect profiles. Choosing between IAL and IVAS will primarily depend on patient-specific and departmental factors, such as anaesthetic risk, resuscitation/IVAS bay capacity, the availability of IVAS-capable staff, cost and storage of anaesthetic agents, and familiarity with IAL and IVAS techniques. The lone medical practitioner working at night in a rural setting may elect IAL for safety. A busy metropolitan emergency department with streamlined IVAS protocols may be better suited to offer IVAS. Healthcare settings in the developing world may prefer IAL to achieve cost savings. Patient preferences and shared decision-making are of paramount importance, and the results drawn by Sithamparapillai and colleagues will no doubt occasion the emergency physician to be familiar with both techniques.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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