



AORA INDIA

ACADEMY OF REGIONAL ANAESTHESIA OF INDIA

AORA Recommended Reads

Volume 1

Dear AORAian,

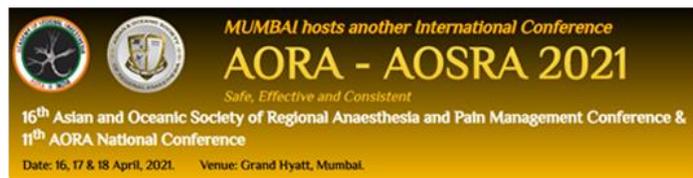
Greetings on the occasion of Diwali 2019. Celebrate this Diwali with some of the cracking articles published in the recent past.

Here are some articles and links to them which have been found to be interesting and educating by your AORA-India Colleagues.

(Articles Selected By: Dr Somita Christopher, Hyderabad, Dr Ritesh Roy, Bhubaneswar and Dr Subramanyam Mahankali, Bangalore)

Happy Diwali to one and all

See you all at



1 **Ultrasound-guided lung sliding sign to confirm optimal depth of tracheal tube insertion in young children**

Authors: Ahn JH, Kwon E, Lee SY, Hahm TS, Jeong JS.

Br J Anaesth. 2019 Sep;123(3):309-315.

Conclusion: In paediatric patients younger than 24 months, use of the ultrasound-guided lung sliding sign was more accurate than auscultation for optimal positioning of the tracheal tube

<https://doi.org/10.1016/j.bja.2019.03.020>

2 **Role of inferior vena cava collapsibility index in the prediction of hypotension associated with general anesthesia: an observational study**

Authors: Marcell Szabó Anna Bozó, Katalin Darvas, Alexandra Horváth & Zsolt Dániel Iványi

BMC Anesthesiology volume 19, Article number: 139 (2019)

Conclusion: In spontaneously breathing preoperative noncardiac surgical patients, preoperatively detected IVCCI \geq 50% can predict postinduction hypotension with high specificity but low sensitivity. Despite moderate performance, IVCCI is an easy, noninvasive and attractive option to identify patients at risk and should be explored further.

<https://bmcanesthesiol.biomedcentral.com/articles/10.1186/s12871-019-0809-4>

3 **Point-of-care ultrasound defines gastric content in elective surgical patients with type 2 diabetes mellitus: a prospective cohort study**

Authors: Li Zhou, Yi Yang, Lei Yang, Wei Cao et al.

BMC Anesthesiology 2019 19:179

Conclusions: Almost half of type 2 diabetic patients have a full stomach following the current preoperative fasting guideline. Preoperative ultrasound assessment of gastric content in type 2 diabetic patients is suggested, especially for those with diabetes - related eye disease.

<https://bmcanesthesiol.biomedcentral.com/articles/10.1186/s12871-019-0848-x>

4 **Combined ultrasound and nerve stimulator-guided deep nerve block may decrease the rate of local anesthetics systemic toxicity: a randomized clinical trial**

Authors: Xu-hao Zhang, Yu-jie Li, Wen-quan He et al.

BMC Anesthesiology 2019 19:103

Conclusions: Ultrasound guidance, HBV infection and the female sex were risk factors of LAST with LPBs and SNBs. For patients infected with HBV or female patients receiving LPBs and SNBs, we recommended that combined ultrasound and nerve stimulator guidance should be used to improve the safety.

<https://bmcanesthesiol.biomedcentral.com/articles/10.1186/s12871-019-0750-6>

5 **The ultrasound-guided proximal intercostal block: anatomical study and clinical correlation to analgesia for breast surgery**

Authors: Nantthasorn Zinboonyahoon, Panya Luksanaprukksa, Sitha Piyaselakul et al.

BMC Anesthesiology 2019 19:94

Conclusion: In this anatomical study, PICB at the 2nd and 4th ICS produced lateral spread along the corresponding intercostal space, medial spread to the adjacent paravertebral/epidural space and cranio-caudal spread along the endothoracic fascial plane. Clinically, combined PICBs at the same levels resulted in consistent segmental chest wall analgesia and reduction in perioperative opioid consumption after breast surgery. The incomplete overlap between paravertebral spread in the anatomical study and area of hypoesthesia in our clinical findings, suggests that additional non-paravertebral routes of injectate distribution, such as the endothoracic fascial plane, may play important clinical role in the multi-level coverage provided by this block technique.

<https://bmcanesthesiol.biomedcentral.com/articles/10.1186/s12871-019-0762-2>

6 **Practice advisory on the bleeding risks for peripheral nerve and interfascial plane blockade: evidence review and expert consensus**

Authors: Tsui BCH, Kirkham K, Kwofie MK, Tran Q, Wong P, Chin KJ, Sondekoppam RV.

Can J Anaesth. 2019 Nov;66(11):1356-1384

Conclusions:

Bleeding complications following regional peripheral nerve and interfascial plane blocks are rare, but when present, they may lead to significant patient morbidity and the need for further investigations and interventions. The risk of bleeding complications following regional anesthesia procedures depends on the degree of trauma produced by the

needle, patient coagulation status, and the type of block. The present advisory describes the risk and subsequent clinical implications from the perspective of the individual type of block. The risk of bleeding complications and the subsequent sequelae vary between blocks. This needs to be weighed against the potential benefits, while offering these procedures on a case-by-case basis. The paucity of evidence in anticoagulated patients does not necessarily translate into a lower risk of bleeding complications as most of these blocks will not routinely be offered to such patients given existing regional anesthesia guidelines. The best efforts of the panel were employed to categorize bleeding risk for peripheral regional anesthesia procedures using published evidence combined with the panel's clinical experience. Nevertheless, the actual risk of a given procedure is indeterminate and the quality of published evidence for most blocks remains low. The ratings are in part based on theoretical principles and consensus because sufficient evidence from quality-controlled studies was absent. The risks categories determined by applying this methodology should therefore not be construed as absolute and the consensus will be subject to periodic revision as warranted by evaluation of the evolving knowledge base. Hence, it is critical to reemphasize that many recommendations stated here are based on limited or non-existent clinical data. As such, interpretation of the literature by this panel may differ from that of other equally qualified experts. More importantly, the clinician must exercise their clinical judgement when determining the risks and benefits in individual patient cases and how to proceed should inadvertent vascular puncture be noted. Given these facts, readers of this consensus advisory should be reminded that these recommendations are not to be defined as a standard of care but rather serve as a resource for clinicians assessing the risk and benefits of regional anesthesia in management of their patients.

<https://doi.org/10.1007/s12630-019-01466-w>

7 Reducing breakthrough pain during labour epidural analgesia: an update.

Authors: Hon Tan;Ban Sng;Alex Tiong Sia;

Current Opinion in Anaesthesiology. 32(3):307–314, JUNE 2019

SUMMARY:

Recent advances in combined spinal epidural, DPE, automated mandatory bolus, and individualized therapies have advanced our goal of providing effective labour analgesia that is titrated to changing analgesic requirements during labour and delivery and reducing breakthrough pain.

<https://doi.org/10.1097/ACO.0000000000000713>

8 Functional anatomy of the nerve and optimal placement of the needle for successful (and) safe nerve blocks

Authors: Franco, Carlo D; Sala-Blanch Xavier.

Current Opinion in Anesthesiology: October 2019 - Volume 32 - Issue 5 - p 638–642

Summary: It is necessary to have a better understanding of what intraneural injection is when dealing with any type of nerve blocks, be that single nerve, plexuses, or the sciatic nerve. Perineural injections provide successful anesthesia without putting the nerve integrity at risk. That practice is supported by years of experience and common sense. Currently, there is no evidence to support any kind of intraneural injections, intrafascicular or extrafascicular.

<https://doi.org/10.1097/ACO.0000000000000776>

9 Novel lateral approach for erector spinae plane block: a convenient and safe method. (Letter to the Editor)

Authors: Won W, Jung K, Bang S

Reg Anesth Pain Med. 2019 Feb 15.

Conclusion: The lateral approach may be another block technique to supplement the disadvantages of the original ESP block method.

10 Anaesthetic care of patients undergoing primary hip and knee arthroplasty: consensus recommendations from the International Consensus on Anaesthesia-Related Outcomes after Surgery group (ICAROS) based on a systematic review and meta-analysis.

Authors: Memtsoudis SG, Cozowicz C, Bekeris J et al.

Br J Anaesth. 2019 Sep;123(3):269-287.

CONCLUSIONS:

Recommendation: primary neuraxial anaesthesia is preferred for knee arthroplasty, given several positive postoperative outcome benefits; evidence level: low, weak recommendation.

RECOMMENDATION:

neuraxial anaesthesia is recommended for hip arthroplasty given associated outcome benefits; evidence level: moderate-low, strong recommendation. Based on current evidence, the consensus group recommends neuraxial over general anaesthesia for hip/knee arthroplasty.

<https://doi.org/10.1016/j.bja.2019.05.042>

11 **Refining a great idea: the consolidation of PECS I, PECS II and serratus blocks into a single thoracic fascial plane block, the SAP block.**

Authors: Carlo D Franco and Konstantin Inozemtsev

Reg Anesth Pain Med. 2019 Sep 26.

Conclusion

We believe that we have made a compelling rational argument in favor of the traditional model of sensory innervation of the anterolateral wall of the chest.

We have postulated that PECS I, PECS II and serratus blocks have a common mechanism of action that conforms to the traditional innervation model and also that their variable success is linked to their different ability to spread to block the lateral cutaneous branches of the upper intercostal nerves. As a logical corollary, we have proposed to consolidate PECS/ serratus blocks into a single block with an injection point located closer to the target nerves. We have called this block the serratus anterior plane block or SAP block, in a nod to TAP block, the original inspiration for PECS blocks. We believe that this new point of injection, closer to the only nerve branches implicated in the sensory innervation of the chest wall, should theoretically improve the chances for success, and facilitate the approach to thoracic wall anesthesia by the adoption of a single block. We acknowledge that the framework for this proposal, although rational, at this time remains theoretical and speculative. Future clinical studies should compare this proposed block to thoracic epidural/paravertebral and to PECS/serratus in common settings like postoperative analgesia in breast surgery.

The modifications to PECS block that originated PECS II and serratus blocks were efforts to find the single right technique, however the focus was on blocking branches of the brachial plexus. Recognizing the real targets and bringing the injection point closer to them refines a great idea.

<https://doi.org/10.1136/rapm-2019-100745>

12 **Lower extremity regional anesthesia: essentials of our current understanding**

Authors: De Q Tran, Francis V Salinas, Honorio T Benzon and Joseph M Neal

Regional Anesthesia & Pain Medicine 2019;44:143-180.

Conclusion,: The last 13 years could be construed as the beginning of a “Golden Age” for lower extremity regional anesthesia. Multiple well-conducted studies have appeared in the literature, broadening our collective understanding of the anatomy, methods/techniques, pharmacology, and outcomes pertaining to lower extremity nerve blocks. More importantly, these trials have also highlighted areas in dire need of further investigation. The authors are convinced that, with the (future) third iteration of this review article, multiple questions raised in the preceding pages will have found answers and multiple new queries will see the light of day.

<http://dx.doi.org/10.1136/rapm-2018-000019>

13 Focused assessment with sonography in trauma (FAST) for the regional anesthesiologist and pain specialist.

Authors: Manson WC, Kirksey M, Boublik J, Wu CL, Haskins SC

Reg Anesth Pain Med. 2019 May;44(5):540-548

Abstract

This article in our point-of-care ultrasound (PoCUS) series is dedicated to the role the focused assessment with sonography in trauma (FAST) exam plays for the regional anesthesiologist and pain specialists in the perioperative setting. The FAST exam is a well-established and extensively studied PoCUS exam in both surgical and emergency medicine literature with over 20 years demonstrating its benefit in identifying the presence of free fluid in the abdomen following trauma. However, only recently has the FAST exam been shown to be beneficial to the anesthesiologist in the perioperative setting as a means to identify the extravasation of free fluid into the abdomen from the hip joint following hip arthroscopy. In this article, we will describe how to obtain the basic FAST views (subcostal four-chamber view, perihepatic right upper quadrant view, perisplenic left upper quadrant view, and pelvic view in the longitudinal and short axis) as well as cover the relevant sonoanatomy. We will describe pathological findings seen with the FAST exam, primarily free fluid in the peritoneal space as well as in the pericardial sac. As is the case with any PoCUS skill, the application evolves with understanding and utilization by new clinical specialties. Although this article will provide clinical examples of where the FAST exam is beneficial to the regional anesthesiologist and pain specialist, it also serves as an introduction to this powerful PoCUS skill in order to encourage clinical practitioners to expand the application of the FAST exam within the scope of regional anesthesia and pain management practice.

<https://doi.org/10.1136/rapm-2018-100312>

14 Comparing two posterior quadratus lumborum block approaches with low thoracic erector spinae plane block: an anatomic study.

Authors: Elsharkawy H, Bajracharya GR, El-Boghdadly K, Drake RL, Mariano ER

Reg Anesth Pain Med. 2019 Mar 28. pii: rapm-2018-100147

CONCLUSIONS:

The posteromedial QL block at L2 produces more cranial spread beyond the lumbocostal ligament than the posterolateral QL block, and this spread is comparable with a low thoracic ESP block. Both posterior QL and ESP blocks show unreliable spread of injectate to the paravertebral space and ventral rami, but the dorsal rami were frequently covered.

<https://doi.org/10.1136/rapm-2018-100147>

15 **Ultrasound visualization of the anatomy relevant for lumbar plexus block: comparison of the paramedian transverse and Shamrock scan technique.**

Authors: Pangthipampai P, Tangwiwat S, Pakpirom J, Songthamwat B, Karmakar MK.

Reg Anesth Pain Med. 2019 Mar 18.

Conclusion: We have demonstrated that the lumbar plexus is more frequently visualized, and the quality of the ultrasound visualization of the lumbar plexus is superior, with the Shamrock-ITS scan than with the PMTS-ITS. Future research should evaluate the utility of the Shamrock-ITS scan for USG LPB.

<https://doi.org/10.1136/rapm-2018-100011>

16 **Daring discourse: is nerve block with sedation the safest anesthetic for beach chair position?**

Authors: Steven Orebaugh, Shawn Palmeri, Charles Lin, Jacques YaDeau

Reg Anesth Pain Med. 2019 Jul;44(7):707-712.

Recommendations:

APSF promulgated a slate of recommendations based on the best available evidence in 2008. We agree with the majority of these recommendations as practical and reasonable, given the paucity of high-level evidence available. In addition, based on the results of studies summarized above, we recommend that anesthesiologists, when possible, avoid GA with controlled ventilation, incorporate PNB to reduce the necessary depth of anesthesia, and allow for spontaneous ventilation or a mild degree of hypoventilation when ventilation is controlled .

While these recommendations are suggestions for best-practice based on an imperfect research foundation, there is evidence to support them. As detailed in the text above, several clinical studies have shown a marked reduction in CDE incidence with sedation/nerve block when compared with GA for shoulder surgery in BCP. Some of the studies have detected a reduction in side effects such as nausea as well as improved neurocognitive function in comparison to those receiving a general anesthetic. Likewise, reductions in CDE have been demonstrated with hypoventilation, allowing modest elevation of ETCO₂ levels.

<https://doi.org/10.1136/rapm-2018-100230>

17 Leaning Tower of Pisa? Avoiding a major neurologic complication with the erector spinae plane block

Authors: Missair A, Flavin K, Paula F, Benedetti de Marrero E, Benitez Lopez J, Matadial C

Reg Anesth Pain Med. 2019 Jul;44(7):713-714

Discussion point: The proposed impact of the erector spinae plane (ESP) nerve block on both functional and dysfunctional spinal stability systems.

Conclusion: Given the focus on analgesic effects of truncal blocks, further research is warranted into the consequences of this technique on motor function and its potential detrimental effect on spinal stability.

<https://doi.org/10.1136/rapm-2018-100360>

18 Upper trunk block for shoulder analgesia with potential phrenic nerve sparing: a preliminary anatomical report

Authors: José Cros Campoy, Oscar Domingo Bosch, Jaume Pomés, Jing Lee, Ben Fox, Xavier Sala-Blanch

Reg Anesth Pain Med. 2019 May 22

Results: We found staining of the injectate over the entire upper trunk with its anterior and posterior divisions, the suprascapular nerve under the omohyoid muscle and the lateral pectoralis nerve, and the C5 and C6 roots. The middle trunk was partially stained. There was no evidence of dye staining of the lower trunk, anterior aspect of the anterior scalene muscle, or the phrenic nerve.

Conclusions: Our study offers an anatomical basis for the possibility of providing shoulder analgesia and avoiding a PNP.

<https://doi.org/10.1136/rapm-2019-100404>

19 Recurrence of breast cancer after regional or general anaesthesia: a randomised controlled trial

Authors: Prof Daniel I Sessler, Lijian Pei, Prof Yuguang Huang, MD et al.

The Lancet Published: October 20, 2019

Interpretation

In our study population, regional anaesthesia-analgesia (paravertebral block and propofol) did not reduce breast cancer recurrence after potentially curative surgery

compared with volatile anaesthesia (sevoflurane) and opioids. The frequency and severity of persistent incisional breast pain was unaffected by anaesthetic technique. Clinicians can use regional or general anaesthesia with respect to breast cancer recurrence and persistent incisional pain.

[https://doi.org/10.1016/S0140-6736\(19\)32313-X](https://doi.org/10.1016/S0140-6736(19)32313-X)

20 Daring Discourse: Interfascial Plane Blocks: Back to Basics

Authors: Hesham Elsharkawy, Amit Pawa, and Edward R. Mariano

Regional Anaesthesia and Pain Medicine Volume 43, Issue 4

Conclusions:

Ultrasound-guided interfascial plane blocks are a recent development in modern regional anesthesia research and practice and represent a new route of transmission for local anesthetic to various anatomic locations, but much more research is warranted. Before we become overtaken with enthusiasm for these new techniques, we need to go back to basics by deepening our understanding of fascial tissue anatomy and structure and determine the precise targets for needle placement. This an important area for future research because, rather than identifying a precise nerve location with predictable effects of local anesthetic on a target nerve or plexus, interfascial plane blocks require assessing the location of fascial planes in different regions of the body, unpredictable spread of LA across tissue planes (not confined to small area), and unknown potential implications on patient outcomes. We also need an elevated understanding of the many factors that influence the ultimate spread and quality of the resulting block in order to best integrate them into contemporary perioperative pain management protocols.

<http://dx.doi.org/10.1097/AAP.0000000000000750>