



RECOMMENDATIONS FOR PERIPHERAL NERVE BLOCKS



Academy of Medicine
of Malaysia



College of
Anaesthesiologists, AMM



Malaysian Society
of Anaesthesiologists

RECOMMENDATIONS FOR PERIPHERAL NERVE BLOCKS

**Special Interest Group in Regional Anaesthesia
College of Anaesthesiologists,
Academy of Medicine of Malaysia**

Year 2019

CONTENTS

Foreword From Director-General of Health Malaysia	1
Foreword From President of College of Anaesthesiologists, Academy of Medicine of Malaysia	2
Foreword From Convenor of Special Interest Group in Regional Anaesthesia, College of Anaesthesiologists, Academy of Medicine of Malaysia	3
Contributors	4
Reviewers	4
1. Introduction	5
2. Informed Consent	6
3. Preparation	6
Preoperative Assessment	
Location	
Monitoring	
4. Performance	7 - 8
Equipment	
Procedural Sedation	
Peripheral Nerve Blocks Under Anaesthesia	
Infection Control	
Personnel	
Complications of Peripheral Nerve Blocks	
Peripheral Nerve Blocks in Anticoagulated Patients	
Documentation	
5. Postoperative Care	9
6. References	10

FOREWORD

I am deeply honoured to be invited to write this foreword for the RECOMMENDATIONS FOR PERIPHERAL NERVE BLOCKS developed by the Special Interest Group in Regional Anaesthesia of the College of Anaesthesiologists, Academy of Medicine of Malaysia.

May I congratulate the group and everyone involved for their commendable efforts in coming up with these recommendations, which are very relevant in our day-to-day clinical practice.

The College of Anaesthesiologists, Academy of Medicine of Malaysia together with the Malaysian Society of Anaesthesiologists have been at the forefront in the delivery of anaesthesia and intensive care in the country.

Regional Anaesthesia is now a subspecialty training programme in the Ministry of Health since 2015. The training was established to enhance existing Acute Pain Services further, more so in the era of Enhanced Recovery after Surgery and Global Surgery Initiative.

I hope that all will appreciate these recommendations and that the medical personnel in both the public and private hospitals will benefit from the efforts put in by the writing committee. Rest assured that by adhering to these minimum recommendations, we can minimise adverse outcomes following peripheral nerve blocks as much as possible.

The Ministry of Health Malaysia will continue to support all medical personnel in any way we can by providing the necessary framework, equipment, medications and other logistics required in rendering the practice of peripheral nerve blocks as safe as possible.

Datuk Dr Noor Hisham Bin Abdullah

Director-General of Health
Ministry of Health Malaysia

FOREWORD

I would like to take this opportunity to thank the Special Interest Group in Regional Anaesthesia of the College of Anaesthesiologists, Academy of Medicine of Malaysia for inviting me to write a foreword for the RECOMMENDATIONS FOR PERIPHERAL NERVE BLOCKS. These recommendations represent another momentous effort and collaboration by the organisations involved in this exercise.

The College of Anaesthesiologists, Academy of Medicine of Malaysia has taken many initiatives to improve and enhance the quality and delivery of medical services especially in anaesthesia and intensive care services in the country; not only by organising congresses and continuous medical education programmes but also being very active in the preparation and dissemination of guidelines and protocols. These initiatives not only help our members but serve as reference for a wide majority of practitioners both in the Ministry of Health as well as in other facilities to help formulate strategies and standard operating procedures to meet the objectives of their services.

With the advent of ultrasound guided regional anaesthesia, we are seeing more peripheral nerve blocks being performed across the country. As such, we need to ensure that the skills and care are not only optimal but of the highest standards as well.

I hope that these recommendations will be appreciated by all medical personnel, be it in the public or the private hospitals. By adhering to these minimum recommendations, adverse outcomes following peripheral nerve blocks can be minimised.

From the standpoint of the College of Anaesthesiologists, Academy of Medicine of Malaysia, we will continue to support the activities in the field of peripheral nerve blocks by the Special Interest Group in Regional Anaesthesia.

Dato' Dr Jahizah binti Hassan

President

College of Anaesthesiologists

Academy of Medicine of Malaysia

FOREWORD

Firstly, on behalf of the Special Interest Group in Regional Anaesthesia (SIG), I would like to thank the College of Anaesthesiologists for encouraging us to partake in this endeavour. It has been an incredible journey since the inception of this group in 2006. On a personal note I believe this group has grown, numbers notwithstanding, in experience and in its stance within the anaesthetic fraternity locally and internationally. I am proud to acknowledge that many members in this group are standing shoulder to shoulder with the who's who in regional anaesthesia and I sincerely hope that we will continue to contribute further.

To pass on what we have experienced and the practices that we hold dear, we started embarking on this project in late 2017. I would like to thank and express my appreciation for the hard work of each individual in the writing SIG committee and the invited external reviewers for their immense contribution every step of the way until its completion in mid-2018. I would also like to extend my heartfelt gratitude for the input and advice from the College's secretariat who applied the finishing touches to complete the realization of a group's dream.

May I thank the past Presidents of the College and the Malaysian Society of Anaesthesiologists who have mentored us as well as the past Convenor of the SIG who has laid the framework for this group to flourish to what it has become today. Last but not least, to the current President of the College, Dato' Dr Jahizah Hassan, for her hands-on approach, not only to the many lives that she has personally touched but to anaesthesia in Malaysia in general.

With the launch of this document, we envisage that this will further encourage involvement and advances in optimal and safe practice within this field and, with it, the hope that it will be the first of many more to come.

Dr Azrin Mohd Azidin

Convenor

Special Interest Group in Regional Anaesthesia

College of Anaesthesiologists

Academy of Medicine of Malaysia

CONTRIBUTORS

Dr Shahridan Mohd Fathil

Consultant Anaesthesiologist
Hospital Gleneagles Medini
Iskandar Puteri, Johor

Dr Azrin Mohd Azidin

Consultant Anaesthesiologist
Hospital Kuala Lumpur
Kuala Lumpur

Dr Amiruddin Nik Mohamed Kamil

Consultant Anaesthesiologist
Hospital Kuala Lumpur
Kuala Lumpur

Dr Mafeitzeral Mamat

Consultant Anaesthesiologist
Hospital Gleneagles Medini
Iskandar Puteri, Johor

Dr Shereen Tang Suet Ping

Consultant Anaesthesiologist & Lecturer
Universiti Kebangsaan Malaysia Medical Centre
Kuala Lumpur

Dr Ahmad Afifi Mohd Arshad

Consultant Anaesthesiologist & Pain Specialist
Hospital Sultanah Bahiyah
Alor Setar, Kedah

REVIEWERS

Associate Professor Dr Shahnaz Hasan

Consultant Anaesthesiologist & Lecturer
University Malaya Medical Centre
Kuala Lumpur

Dr Jamsari Sukro

Consultant Anaesthesiologist
Pantai Hospital Kuala Lumpur
Kuala Lumpur

1. INTRODUCTION

Benefits of peripheral nerve block (PNB) are improvement in postoperative analgesia and reduction in opioid use, reduction in hospital length of stay, reduction in postoperative nausea and vomiting, faster recovery and post-anaesthesia care unit bypass, earlier participation in physiotherapy and overall improved patient satisfaction.¹ The major complications of PNB such as nerve injury, catheter infection, bleeding, and Local Anaesthetic Systemic Toxicity (LAST) are very rare.²

Continuous PNB (cPNB) with in-dwelling catheters can be used to prolong the duration of post-operative analgesia as well as in chronic pain management.³ Regional anaesthesia may prevent the postoperative progression from acute to chronic pain.⁴

PNBs can be performed on both inpatients and patients in the ambulatory settings. This document outlines the recommendations for the performance of PNB.

2. INFORMED CONSENT

- 2.1 Consent for PNB should be obtained in accordance with the College recommendations.⁵
- 2.2 In order to allow the patient to make an informed decision, sufficient information should be provided during the pre-operative assessment. The planned PNB, alternative anaesthetic options, benefits, possible risks and complications should be included in the discussion.

3. PREPARATION

3.1 Preoperative Assessment

The planned PNB must be appropriate for anaesthesia and/or analgesia either in operative or non-operative settings taking into consideration the patient and procedure related risks. Attention should be given to any pre-existing neurological deficit, bleeding risk and infection.⁶

The 'STOP BEFORE YOU BLOCK' process is strongly recommended to reduce the incidence of inadvertent wrong-site nerve block during regional anaesthesia.⁷

3.2 Location

PNBs should only be performed in an area with adequate resuscitation facilities in accordance with the College recommendations.⁸ The resuscitation drugs should also include lipid emulsion 20%.

3.3 Monitoring

Patients undergoing PNB should be continuously monitored in accordance with the College recommendations.⁸ The minimal monitoring should include electrocardiography, non-invasive blood pressure and pulse oximetry.

4. PERFORMANCE

4.1 Equipment

Ultrasound guidance with or without low-current nerve stimulator is encouraged for the safe conduct of PNB.⁸ It is recommended that specifically designed echogenic needles and catheter systems be used. Nerve block injection pressure monitor should be used when available.⁹

4.2 Procedural Sedation

PNBs should ideally be performed awake or under light sedation by which the patient is relaxed and comfortable but still able to maintain verbal communication.

4.3 PNB Under Anaesthesia

In cases where prior general or central neuraxial anaesthesia is deemed necessary, the equipment in 4.1 should be used to avoid inadvertent intraneural injection.⁹ Interfascial plane block can be safely performed under anaesthesia.

4.4 Infection Control

PNBs should be performed using strict aseptic techniques in accordance with the College guidelines.¹⁰ Chlorhexidine gluconate in an alcohol-based solution should be considered the skin disinfectant of choice prior to the performance of all PNBs.¹⁰ The placement of protective sterile covers on the transducer while performing PNBs is essential for infection control. Any acoustic coupling medium should be sterile. In catheter technique, sterile barrier precautions (i.e. mask, gown and drape) should be practised and catheter use longer than 48 hours is not recommended.¹¹

4.5 Personnel

PNB should only be performed by competent physicians equipped with the necessary knowledge and skills.

4. PERFORMANCE

4.6 **Complications of PNB**

PNB practitioners should be able to recognise and manage complications of PNB based on current guidelines.⁹ Local Anaesthetic Systemic Toxicity (LAST) is a rare but potentially fatal complication of PNB. All personnel involved should be aware of LAST. Precautionary measures to avoid LAST should be taken.¹²

4.7 **PNB in Anticoagulated Patients**

PNB in patients receiving anticoagulant or antiplatelet shall follow the current international guidelines.¹³

4.8 **Documentation**

A complete documentation of PNB should be recorded in patient's case note or electronic medical records.

5. POSTOPERATIVE CARE

The anaesthetized and insensate limb should be protected from any possible mechanical and thermal injury until full recovery. Keep the arm in a sling and protect the elbow to prevent ulnar nerve injury. Keep the leg adequately padded to prevent common peroneal nerve injury. Complete weight bearing should be discouraged for blocks involving lower extremities until full recovery.

Patients should be followed up postoperatively for block efficacy, regression or management of any complications. Preferably the follow up is done by a dedicated team.

6. REFERENCES

1. Joshi, G., et al., Peripheral nerve blocks in the management of postoperative pain: challenges and opportunities. *J Clin Anesth* 2016;**35**:p.524-529.
2. Jeng, C.L., T.M. Torrillo, and M.A. Rosenblatt, Complications of peripheral nerve blocks. *Br J Anaesth* 2010;**105 Suppl 1**:p.i97-107.
3. Aguirre, J., et al., The role of continuous peripheral nerve blocks. *Anesthesiol Res Pract* 2012;**2012**:p.560879.
4. Andraea, M.H. and D.A. Andraea, Regional anaesthesia to prevent chronic pain after surgery: a Cochrane systematic review and meta-analysis. *Br J Anaesth* 2013;**111**(5):p.711-20.
5. Recommendations on Pre-Anaesthetic Assessment revised 2014, College of Anaesthesiologists, Academy of Medicine of Malaysia.
6. Mulroy, M.F., R.S. Weller, and G.A. Liguori, A checklist for performing regional nerve blocks. *Reg Anesth Pain Med* 2014;**39**(3):p.195-9.
7. Barrington, M.J., et al., Wrong-site regional anesthesia: review and recommendations for prevention? *Curr Opin Anaesthesiol* 2015;**28**(6):p.670-84.
8. Recommendations for Patient Safety and Minimal Monitoring Standards during Anaesthesia and Recovery. College of Anaesthesiologists, Academy of Medicine of Malaysia, (4th Edition) 2014.
9. Neal, J.M., et al., The Second ASRA Practice Advisory on Neurologic Complications Associated With Regional Anesthesia and Pain Medicine: Executive Summary 2015. *Reg Anesth Pain Med* 2015;**40**(5):p.401-30.
10. Guidelines on Infection Control in Anaesthesia 2014, College of Anaesthesiologists, Academy of Medicine of Malaysia.
11. Capdevila, X., S. Bringuier, and A. Borgeat, Infectious risk of continuous peripheral nerve blocks. *Anesthesiology* 2009;**110**(1):p.182-8.
12. Neal, J.M., et al., The Third American Society of Regional Anesthesia and Pain Medicine Practice Advisory on Local Anesthetic Systemic Toxicity: Executive Summary 2017. *Reg Anesth Pain Med* 2018;**43**(2):p.113-123.
13. Horlocker, T.T., et al., Regional Anesthesia in the Patient Receiving Antithrombotic or Thrombolytic Therapy: American Society of Regional Anesthesia and Pain Medicine Evidence-Based Guidelines (Fourth Edition). *Reg Anesth Pain Med* 2018;**43**(3):p.263-309.

SECRETARIAT

Unit 1.6, Level 1, Enterprise 3B

Technology Park Malaysia

Jalan Inovasi 1, Bukit Jalil

57000 Kuala Lumpur, Wilayah Persekutuan

Tel: +603 8996 0700, 8996 1700, 8996 2700

Fax: +603 8996 4700

Email: secretariat@acadmed.my
