

## Epidural Anaesthesia In Labour Clinical Guideline

This book examines the future of birthing practices, particularly by focusing on epidural analgesia in childbirth. It describes historical and cultural trajectories that have shaped the way in which birth is understood in Western, developed nations. In setting out the nature of epidural history, knowledge and practice, the book delves into related birth practices within the hospital setting. By critically examining these practices, which are embedded in a scientific discourse that rationalises and relies upon technology use, the authors argue that epidural analgesia has been positioned as a safe technology in contemporary maternity culture, despite it carrying particular risks. In examining alternative research the book proposes that increasing epidural rates are not only due to greater pain relief requirements or access but are influenced by technocratic values and a fragmented maternity system. The authors outline the way in which this epidural discourse influences how information is presented to women and how this affects their choices around the use of pain relief in labour.

The process of labor and delivery has been one of the most perilous activities in human life. The awkward evolutionary compromises giving rise to humans makes birthing potentially life threatening for both mother and child. Despite the development of modern care, labor and delivery continues to be a dangerous process even though the levels of fatality have decreased over the past several decades. This clinically focused guide to modern labor and delivery care covers low and high-risk situations, the approach of the team in achieving a successful outcome and what to consider when quick decisions have to be made. Aimed at both trainee and practicing obstetrician-gynecologists, this new edition includes practical guidance such as algorithms, protocols, and quick-reference summaries. It is squarely focused on the process of birth and concentrates on modern clinical concerns, blending science with clinical applications.

**Background and goal of study:** The aim was to know the incidence of breakthrough pain (BP) comparing two analgesic regimes. We also evaluated the BP incidence between epidural (EA) and combined spinal epidural (CSE) analgesia.

**Materials and methods:** We performed a randomized double blind clinical trial on nulliparous women (18-40 yrs old), with a cervical dilatation 4cm at singleton term pregnancy. Exclusion criteria were contraindication for EA and the presence of systemic disease. Patients were randomized to receive EA with PCEA (group 1), EA plus PIEB (group 2), CSE with PCEA (group 3), or CSE plus PIEB (group 4). The anaesthesiologist who performed the epidural block was blinded for the analgesic regime, and pain was assessed by a third anaesthesiologist blinded for the technique or analgesic regime. All patients had a background epidural infusion (0.125% levo-bupivacaine with 1.45 mcg/ml fentanyl, 5 ml/h.). PCEA groups were set with 10 ml boluses (20 min lockout interval). PIEB groups received 10ml bolus per hour

(20 min lock time with PCEA). BP was defined as the need for analgesia due to pain in visual analog scale (VAS) and treated with 10ml bolus of epidural infusion. Failed block was considered when VAS was 3 or more for 30 minutes after epidural catheter insertion and patients were excluded from the analysis. We recorded BP episodes, PCEA boluses, total volume of infusion, VAS pain scores, delivery outcomes, and maternal satisfaction. Results: 60 patients were included. Groups were homogeneous. 93% of PIEB group patients had 0 episodes of BP, and 95% of PCEA patients had at least 1 episode of BP. ( $p=0.002$ ). There were less BP episodes in PIEB groups (mean 0.5 vs 0.9 in group 2; 1.2 vs 1.8 in group 4) compared with control groups (2.4 vs 1.7 in group 1; 2.9 vs 1.7 in group 3) ( $P < 0.05$ ). Total local anaesthetic demand for BP was significantly lower in PIEB (mean 4.1 vs 7.2 ml in group 2; 95%: 9.4 vs 17.7 ml in group 4) compared with PCEA groups (28.8 vs 16.8 ml in group 1; 28.0 vs 16.0 ml in group 3) ( $P < 0.05$ ).

Short, concise summary of clinical and non-clinical aspects of obstetric analgesia and anaesthesia for trainees and seniors.

The clinical practice of anesthesia has undergone many advances in the past few years, making this the perfect time for a new state-of-the-art anesthesia textbook for practitioners and trainees. The goal of this book is to provide a modern, clinically focused textbook giving rapid access to comprehensive, succinct knowledge from experts in the field. All clinical topics of relevance to anesthesiology are organized into 29 sections consisting of more than 180 chapters. The print version contains 166 chapters that cover all of the essential clinical topics, while an additional 17 chapters on subjects of interest to the more advanced practitioner can be freely accessed at [www.cambridge.org/vacanti](http://www.cambridge.org/vacanti). Newer techniques such as ultrasound nerve blocks, robotic surgery and transesophageal echocardiography are included, and numerous illustrations and tables assist the reader in rapidly assimilating key information. This authoritative text is edited by distinguished Harvard Medical School faculty, with contributors from many of the leading academic anesthesiology departments in the United States and an introduction from Dr S. R. Mallampati. This book is your essential companion when preparing for board review and recertification exams and in your daily clinical practice.

This textbook provides an up-to-date summary of the scientific basis, assessment for and provision of anaesthesia throughout pregnancy and labour. It is divided into nine sections including physiology, assessment, complications and systemic disease.

The updated fourth edition of this comprehensive, highly respected reference covers all you need to know about obstetric anesthesia—from basic science to various anesthesia techniques to complications. The editorial team of leading authorities in the field now features Drs. Linda S. Polley, Lawrence C. Tsen, and Cynthia A. Wong and presents the latest

on anesthesia techniques for labor and delivery and medical disorders that occur during pregnancy. This edition features two new chapters and rewritten versions of key chapters such as Epidural and Spinal Analgesia and Anesthesia. Emphasizes the treatment of the fetus and the mother as separate patients with distinct needs to ensure the application of modern principles of care. Delivers contributions from many leaders in the fields of obstetric anesthesia and maternal-fetal medicine from all over the world. Offers abundant figures, tables, and boxes that illustrate the step-by-step management of a full range of clinical scenarios. Presents key point summaries in each chapter for quick, convenient reference. Features new chapters on Patient Safety and Maternal Mortality to address the latest developments in the field and keep you current. Presents completely rewritten chapters on Epidural and Spinal Analgesia and Anesthesia, Anesthesia for Cesarean Section, and Hypertension Disorders, updated by new members of the editorial team-Drs. Linda S. Polley, Lawrence C. Tsen, and Cynthia A. Wong, for state-of-the-art coverage of key topics and new insights. Covers all the latest guidelines and protocols for safe and effective practice so you can offer your patients the very best. Simulation is becoming an integral part of medical education and has already a well-established role within anaesthesia training, with many examination questions already modelled on simulation scenarios. The clinical diversity and multidisciplinary nature of an obstetric team creates the ideal environment for simulation training. It enables the team to develop their knowledge of clinical emergencies whilst becoming more aware of the importance of human factors. This book is a practical guide to inspire clinical leads to establish simulation within their delivery suite. The book comprises an extensive obstetric scenario library, with each scenario broken down into learning outcomes, a list of staff and equipment needed, specific stages mapped to learning outcomes with appropriate results/investigations and a checklist of ideal actions to enable the post-scenario debrief. Written by consultant obstetric anaesthetists, this book will appeal to medical practitioners interested in facilitating obstetric simulation.

**Background and Aims:** Post-dural puncture headache (PDPH) is the most common complication following accidental dural puncture (ADP) and is particularly frequent after epidural analgesia in obstetrics. The aim of our study is to describe the incidence and management of PDPH after epidural analgesia in obstetrics in our hospital, as well as the efficiency of our PDPH protocol in clinical practice. **Methods:** We included all obstetric patients (n=2703) who received epidural anaesthesia for labour during 2016 and 2017. Patients with reported ADP and those in whom ADP was not noticed and develops PDPH, started postpartum standardized treatment for PDPH. It included conservative therapies such as bed rest, hydration, corticoids and analgesics. If headache continued after 48 hours, an epidural blood patch (EBP) was performed. Incidence of PDPH, number of patients who received EBP, the day in which EBP was made and the remission of headache were reported. **Results:** The incidence of obstetric ADP in our centre is 1.15% (31/2703), 64.5%

(20/31) of them developed PDPH. EBP was performed in 65% (13/20) of women with persistent headache. PDPH was relieved in 12/13 (92.3%) of them and one case needed a second EBP. The median day until the EBP was performed was 4 days (range 3-6). Conclusions: The incidence of PDPH after ADP in our centre is within than the average published. The EBP is a useful technique for treatment in patients with unsuccessful conservative management of PDPH. This book is aimed at anaesthetists in training and those studying for the FFARCS examination, as well as at those senior anaesthetists whose training was completed before the revival of interest in regional anaesthesia. Those already using regional techniques will find the book useful for extending and updating their knowledge. Key features include: clear views on often misunderstood subjects such as the pharmacokinetics and systemic toxicity of local anaesthetic drugs and the use of test doses; a comprehensive chapter on the management of patients undergoing regional anaesthesia; an assessment of the present place of spinal anaesthesia and an account of the features of some of the newer spinal agents. Offers clear views on often misunderstood subjects such as the pharmacokinetics and systemic toxicity of local anaesthetic drugs, and the use of test doses Explains difficult concepts in an easy, practical and well-illustrated way Provides an assessment of the present place of spinal anaesthesia and accounts of some of the newer spinal agents, ensuring you are up-to-date with the latest developments Added content and expertise on obstetric anaesthesia More detailed approach to subject matter in order to deal with the increase in information in this rapidly expanding area The introduction of John McClure as a co-editor with an interest in obstetric anaesthesia (one of the areas in which regional anaesthesia is widely used) Several new chapters including: The anatomy and physiology of pain- Local Anaesthetic Kinetics Clinical uses of local anaesthetic drugs Pre-operative considerations Post-operative Pain and Audit Regional anaesthesia for day-care surgery Regional Anaesthesia in the Elderly Patient All other chapters revised and updated

A Guide to effective care in pregnancy and childbirth is a clearly written review of the important research evidence on the effects of the various care practices carried out during pregnancy, childbirth, and the early days after birth. In addition to the details provided in the text, the book concludes with valuable tables that list the practices which are beneficial, those of unknown effectiveness, and those likely to be ineffective or harmful.

This is the first text to systematically review the evidence for obstetric anesthesia and analgesia. Evidence-based practice is now being embraced worldwide as a requirement for all clinicians; in the everyday use of anesthesia and analgesia for childbirth, anesthetists will find this synthesis of the best evidence an invaluable resource to inform their practice. Contributions from anesthetic specialists trained in the skills of systematic reviewing provide a comprehensive and practical guide to best practice in normal and caesarean section childbirth. This book, coming from one of the

world's leading obstetric centers and the cradle of evidence-based medicine, is a much needed addition to the obstetric anesthesia literature.

Regional Analgesia in Obstetrics provides an account of the developments in the provision of regional analgesia and anaesthesia in obstetrics over the last decade. The book covers the attitudes to obstetric analgesia in different countries; the indications for regional analgesia in labour; the effects of regional analgesia on outcome; and operative delivery. A pocket-sized edition which provides an accessible reference to clinical management, and also a revision source for those taking professional examinations. Topics discussed include the management of medical problems in labour, and the conduct of spinal and epidural analgesia.

Epidurals are increasingly popular and have become more versatile, with applications in adult surgery, trauma, obstetrics and paediatric practice. This book of best practice guidelines aims to help develop and improve patient care, stimulate learning and highlight ideas for nursing research. It can be used as a quick reference guide for clinical practice or as a framework for developing individual local epidural services and practice guidelines. outlines the specific responsibilities of the multidisciplinary healthcare team in relation to epidural practice reviews the issues of risk benefit analysis and informed consent provides an overview of the physiology of acute pain, epidural catheter insertion procedure and the pharmacodynamics and pharmacokinetics of the commonest classes of drugs describes the equipment required to ensure safe and effective delivery of epidural solution to patients An overview of the nature and frequency of the observations required for close monitoring of patients and a practical guide to the removal of the catheter are also provided. Clinical governance and competency-based training are also addressed, and a framework provided to fit the training into the Agenda for Change Knowledge and Skills framework. Written by a highly regarded expert in the field of obstetric anesthesia Handy point of care Up-to-date information on the subject Good board review tool

Optimizing outcomes for women in labor at the global level requires evidence-based guidance of health workers to improve care through appropriate patient selection and use of effective interventions. In this regard, the World Health Organization (WHO) published recommendations for induction of labor in 2011. The goal of the present guideline is to consolidate the guidance for effective interventions that are needed to reduce the global burden of prolonged labor and its consequences. The primary target audience includes health professionals responsible for developing national and local health protocols and policies, as well as obstetricians, midwives, nurses, general medical practitioners, managers of maternal and child health programs, and public health policy-makers in all settings.

Background: Low-dose epidural analgesia has been well established for the management of labour pain<sup>1</sup>, but clearly it is not devoid of risks. Subdural block is a possible complication, estimated to occur in the range of 1 in 4200 epidurals<sup>2</sup>. Case report: 37 year old, 39 week pregnant patient, presenting to the hospital in labour. Her past medical history was uneventful except for controlled asthma and migraine. A lumbar epidural was placed at the L3-L4 level, using the loss-of-resistance technique with saline. After catheter placement, there was a very slow oozing of a cold, clear liquid, consistent with the injected saline. We proceeded to administer 3 cc of a mixture of 0,2% levobupivacaine with sufentanil 0,01mg as a test dose, obtaining no cardiovascular, sensory or motor changes after 5 minutes, after which the remainder of a total volume of 10cc (20mg levobupivacaine and sufentanyl) was administered. There was complete relief of pain within 12 further minutes.

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However, 2 hours later the Anaesthesiology team was called because the patient had developed asymmetric motor block in both lower limbs, as well as a patchy sensory block with areas of anaesthesia extending up to T4 but with sacral sparing. The complaints reverted completely in a further 3,5 hours, at which time there was need for further analgesia, prompting removal of the previous epidural catheter and repetition of the technique at the L2-L3 level. Discussion: Subdural blocks typically take 20-40 minutes to occur<sup>3</sup>, leading to a higher block than expected which is often patchy and asymmetric, but with sacral sparing, as occurred in our patient<sup>2</sup>. Block height is often unpredictable, and can extend into the upper limbs and face, with high blocks presenting a greater risk of progressive respiratory depression. Differential diagnosis should be made, not only with subarachnoid block but also with the possibility of a spinal haematoma, which is a surgical emergency. Learning points: The time frame of clinical symptoms, neurologic examination and reversibility usually help make the differential diagnosis. It should be kept in mind that even when a subdural block is assumed, additional complications such as gradual respiratory depression should be kept in mind, prompting close clinical vigilance and anticipation of possible corrective measures.

This manual encompasses a comprehensive approach to the management of labour. Based on the simple proposition that effective uterine action is the key to normal delivery, Active Management of Labour covers all aspects of delivery for nulliparous women with vertex presentation and single foetus. This is an accessible and practical guide for obstetricians and midwives as well as anaesthetists and the auxiliary staff of maternity units. Encourages an active interest in labour by all professional staff Emphasises the importance of constant personal attention and good communication in labour Discusses in detail the need to distinguish between: - first and subsequent births - single cephalic and all other pregnancies - induction and acceleration of labour Fosters the development of a team spirit between midwife and obstetrician Demonstrates how good labour ward organisation can improve care Proves the importance of audit in ensuring quality of care Updated chapters on dystocia and caesarean section New key points summary at the end of each chapter Updated review of clinical outcomes at the National Maternity Hospital

Epidural analgesia is a form of pain relief administered through the space surrounding the dural sheath either by direct injection or via catheter. The agent, when administered, can cause both a loss of sensation (anesthesia) and a loss of pain (analgesia), by reversibly interrupting the transmission of signals through nerves in or near the spinal cord. This form of pain relief has been found useful in many clinical situations. This book intends to provide an in-depth review of the current knowledge on epidural analgesia. The use of this form of analgesia is explored by contributors from different perspectives, including labor and delivery, postoperative analgesia in both pediatric and geriatric patients, and its role during anesthesia and surgery. In order to provide a balanced medical view this book was edited by an obstetric anesthesiologist.

Book description to come.

Local anesthetics are being increasingly applied in different surgeries. Lower side effects of neuroaxial anesthesia, regional anesthesia, and field block, in comparison to general anesthesia (volatile and intravenous agents), are the main reasons why physicians prefer to conduct surgeries under local anesthesia, especially in outpatient and day care surgeries. It is important to emphasize the presence of an anesthesiologist, and vigilant monitoring of the hemodynamic parameters, in decreasing a patient's anxiety, exerting other modalities for analgesia and increasing the safety margin in many procedures.

Essential Clinical Anesthesia Cambridge University Press

Background and goal of study: The aim was to compare PIEB vs PCEA for labour analgesia measuring the incidence of breakthrough pain (BP). The influence of the neuraxial block (NB) was also assessed. Materials and methods: A randomised double blind clinical trial was conducted on nulliparous women (18-40 yrs old), with cervical dilation 4 cm at singleton term pregnancy (Clinical Trials NCT 02768272). Systemic disease or contraindicated NB were exclusion criteria. Patients were randomised to receive epidural analgesia (EA) + PCEA (group 1), EA + PIEB (group 2), combined spinal-epidural (CSE) + PCEA (group 3), or CSE + PIEB (group 4). All patients had a 5 ml/h background epidural infusion (0.125% levo-bupivacaine + 1.45 mcg/ml fentanyl). PCEA pumps were set up to dispense 10 ml boluses (20 min lockout interval). Patients in PIEB groups received 10 ml bolus per hour (20 min lock time with PCEA). BP was defined as  $\geq 2$  in visual analog scale (VAS) and treated with a 10 ml epidural top-up. Block failure (BF) was diagnosed as a VAS  $\geq 3$  sixty minutes after the NB and patients were excluded from the analysis. The anaesthesiologist who performed the NB was blinded for the selected group and pain was assessed by other colleague blinded for the NB and group. Results: 175 patients were randomized. 22 were not analysed due to BF (12%). A relevant reduction of BP episodes was observed in PIEB (mean 0.45  $\pm$  0.8 in group 2; 0.71  $\pm$  1.3 in group 4) compared with PCEA (2.4  $\pm$  1.7 in group 1; 2.9  $\pm$  1.7 in group 3) (P

The provision of anesthesia during childbirth still generates considerable debate; opinions vary widely within the obstetric anesthesia community over issues such as the effect of anesthetic drugs on the fetal brain and the choice between different epidural techniques. Controversies in Obstetric Anesthesia and Analgesia debates these and other clinical management controversies encountered in daily practice, providing practical advice on how to manage each clinical problem. This concise, practical text is designed to provide rapid access to key information on both diagnosis and treatment, presenting each side of the debate in a clear discussion. Key references and suggestions for further reading are also provided. Written by a team of international practitioners working with and caring for high risk obstetric patients, Controversies in Obstetric Anesthesia and Analgesia is an invaluable resource for trainees and practitioners in anesthesia, obstetrics and critical care medicine.

In the United States, over half of pregnant women receive some form of anesthesia for their deliveries; this translates into well over 2 million anesthetics per year. With this new handbook, anesthesiologists have easy access to step-by-step, to-the-point information on how to manage patients in specific situations. Every aspect of obstetric anesthesia practice is covered, including patient evaluation, anesthesia for labor and delivery, anesthesia for cesarean delivery, management of patients with concurrent medical problems, management of obstetric emergencies, fetal assessment, and neonatal

resuscitation. Distilled, synthesized text is complemented by a generous number of tables, charts, figures and flow diagrams, all presented in accessible handbook format. Obstetric Anesthesia is an ideal introduction to the specialty as well as an essential daily guide for obstetric patient care and management.

This volume, representing a compilation of authoritative reviews on a multitude of uses of statistics in epidemiology and medical statistics written by internationally renowned experts, is addressed to statisticians working in biomedical and epidemiological fields who use statistical and quantitative methods in their work. While the use of statistics in these fields has a long and rich history, explosive growth of science in general and clinical and epidemiological sciences in particular have gone through a sea of change, spawning the development of new methods and innovative adaptations of standard methods. Since the literature is highly scattered, the Editors have undertaken this humble exercise to document a representative collection of topics of broad interest to diverse users. The volume spans a cross section of standard topics oriented toward users in the current evolving field, as well as special topics in much need which have more recent origins. This volume was prepared especially keeping the applied statisticians in mind, emphasizing applications-oriented methods and techniques, including references to appropriate software when relevant. · Contributors are internationally renowned experts in their respective areas · Addresses emerging statistical challenges in epidemiological, biomedical, and pharmaceutical research · Methods for assessing Biomarkers, analysis of competing risks · Clinical trials including sequential and group sequential, crossover designs, cluster randomized, and adaptive designs · Structural equations modelling and longitudinal data analysis

Packed with the most up-to-date recommendations, this invaluable preparatory handbook is a trusted resource for all levels of providers that care for laboring patients. Gain confidence in managing patients from when they present to triage all the way through labor, delivery and the postpartum period. Gives providers critical clinical algorithms for routine and emergency situations and procedures. Includes: detailed description of common obstetric procedures and examinations, evidence-based practice recommendations for labor management and pain control options, sample notes, orders, and operative dictations for cesarean section, multiple illustrations and treatment algorithms that clarify and explain details students and residents are most likely to encounter during obstetric rotations. Written by an experienced Maternal Fetal Medicine physician, this book fills practical knowledge gaps left by conventional textbooks. It provides comprehensive insights for labor management, including emergencies, and improves provider confidence resulting in better care of obstetric patients.

The New Edition of this comprehensive, highly respected reference encompasses the entire current state of knowledge about obstetric anesthesia. Edited by a leading authority in the field, it covers everything from basic science...through the various

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anesthesia techniques for labor and delivery...to the full range of anesthetic and obstetric complications, as well as medical disorders during pregnancy. Emphasizes the treatment of the fetus and the mother as separate patients with distinct needs. Delivers contributions from many leaders in the fields of obstetric anesthesia and maternal-fetal medicine in the U.S., Canada, and Great Britain. Offers abundant figures, tables, and boxes that illustrate the step-by-step management of a full range of Presents key point summaries in each chapter for quick, convenient reference. Covers all the latest guidelines and protocols for safe and effective practice. Explores hot new topics such as laparoscopic surgery and assisted-reproductive surgery. Features comprehensive updates throughout, with references as recent as 2003. Includes several chapters rewritten in their entirety by completely new contributors. With over 65 contributors

This book offers an in-depth examination of labor pain and analgesia with the aim of promoting natural childbirth without pain. All aspects of the subject are covered, including the latest techniques of delivering labor analgesia. Importantly, emphasis is placed on a holistic approach, detailed attention being paid to the humanization of childbirth and behavioral aspects in addition to evidence-based medicine. Potential future developments are also addressed, with discussion of opportunities that have yet to be realized. In order to ensure that the text is easily readable for trainees as well as established practitioners, chapters have been restricted to a manageable length and information is presented clearly and succinctly. Step-by-step tutorials and boxes highlighting practical points are used to clarify technical aspects. The authors include both well-established experts and young emerging professionals from various European countries, ensuring an intercultural perspective.

A practical handbook for mothers-to-be sheds new light on the diverse forms of both medical and non-medical pain relief available for women in labor, discussing such topics as different forms of epidurals, selecting the right birth environment, and the effectiveness of alternative approaches including Lamaze, water births, hypnosis, aromatherapy, and more. Original. 20,000 first printing.

The leading reference on anesthesia during pregnancy and delivery is now in its thoroughly updated Fourth Edition. This volume provides complete information on anesthesia for vaginal delivery, cesarean section, obstetric complications, anesthetic complications, anesthesia for nonobstetric disorders during pregnancy, and management of the fetus and newborn. This edition provides expanded coverage of infectious diseases during delivery, including HIV, herpes, chorioamnionitis, labor epidural fever, and sepsis. The section on anesthetic complications includes a new chapter on the difficult airway, failed intubation, and cardiac arrest. There is a revised chapter on evaluation of the neonate and more information about CT, ultrasound, and MRI.

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