

ELECTIVE CAESAREAN SECTION

SUMMARY RECOMMENDATIONS

Notes on PROSPECT recommendations

PROSPECT provides clinicians with supporting arguments for and against the use of various interventions in postoperative pain based on published evidence and expert opinion. Clinicians must make judgements based upon the clinical circumstances and local regulations. At all times, local prescribing information for the drugs referred to must be consulted.

Grades of recommendation and levels of evidence

Grades of recommendation are assigned according to the overall level of evidence on which the recommendations are based, which is determined by the quality and source of evidence: [Relationship between quality and source of evidence, levels of evidence and grades of recommendation](#).

Pain after caesarean section and aims of the PROSPECT review

Caesarean section is associated with moderate-to-severe postoperative pain in a significant proportion of women, which may delay recovery and return to activities of daily living; impair mother-child bonding; impact maternal psychological well-being; and complicate breastfeeding ([Gamez 2018](#)). Furthermore, inadequate postoperative pain relief may lead to hyperalgesia and persistent postoperative pain ([Kainu 2010](#)).

Pain after caesarean section is often under-treated due to unfounded fears that analgesic drugs or interventions might induce maternal and neonatal side-effects and because the severity of post-caesarean section pain is often underestimated ([Huang 2019](#)).

The procedure-specific postoperative pain management (PROSPECT) recommendations for pain management after caesarean section were published in 2014 ([PROSPECT: C-Section 2014](#)); however, an update was necessary given developments in clinical practice.

The aim of this systematic review was to provide updated recommendations based on recent literature assessing the impact of analgesic and surgical approaches on pain after elective caesarean section performed under neuraxial anaesthesia. These recommendations should not be applied to other patient populations such as emergency or unplanned caesarean section or surgery performed under general anaesthesia.

Summary recommendations

Recommended: Pre-operative interventions

- 'Pre-operative' refers to interventions applied before surgical incision
- Analgesics should be administered at the appropriate time (pre- or intra-operatively) to provide sufficient analgesia in the early recovery period

Intrathecal or epidural opioid	<ul style="list-style-type: none"> • Addition of intrathecal long-acting opioid (e.g. morphine 50–100 µg or diamorphine up to 300 µg) to spinal anaesthesia is recommended (Grade A) <ul style="list-style-type: none"> ○ The safety of intrathecal morphine has been confirmed in patients undergoing caesarean section (Sharawi 2018). Doses lower than 100 µg result in adequate analgesia with a reduced incidence of side-effects compared with higher doses ○ Basic analgesics (i.e. paracetamol and NSAIDs) and IV dexamethasone should be used with intrathecal morphine ○ Of note, the National Institute of Health and Care Excellence guidelines in the UK recommend intrathecal diamorphine as an alternative to intrathecal morphine (NICE 2019) • Epidural morphine 2–3 mg or diamorphine up to 2–3 mg may be used as an alternative, for example, when an epidural catheter is used as part of a combined spinal-epidural technique (Grade A)
Paracetamol	<ul style="list-style-type: none"> • Oral paracetamol is recommended (Grade A)

Recommended: Intra-operative interventions (administered after delivery)

Paracetamol	<ul style="list-style-type: none"> • Intravenous paracetamol is recommended, if not administered pre-operatively (Grade A)
NSAIDs	<ul style="list-style-type: none"> • Intravenous NSAID is recommended, started intra-operatively (after delivery) (Grade A)
Dexamethasone	<ul style="list-style-type: none"> • A single dose of intravenous dexamethasone is recommended after delivery (Grade A) for positive effects on pain scores and opioid consumption as well as anti-emetic prophylaxis; caution is required in patients with glucose intolerance
Local/regional techniques	<ul style="list-style-type: none"> • If intrathecal morphine is not used, local anaesthetic wound infiltration (single-shot) or continuous wound infusion and/or regional analgesia techniques (fascial plane blocks such as TAP blocks and quadratus lumborum blocks) are recommended (Grade A) for their effect in reducing pain scores and opioid requirements

Recommended: Postoperative interventions

- 'Postoperative' refers to interventions applied at or after wound closure

Paracetamol	<ul style="list-style-type: none"> • Oral or intravenous paracetamol is recommended (Grade A), continued regularly postoperatively <ul style="list-style-type: none"> ○ Regular administration of basic analgesics is important to limit the need for rescue opioid analgesia
NSAIDs	<ul style="list-style-type: none"> • Oral or intravenous NSAID is recommended (Grade A), continued regularly postoperatively <ul style="list-style-type: none"> ○ Several studies demonstrated equally good pain control with NSAIDs compared with opioids
Opioids	<ul style="list-style-type: none"> • Opioids are recommended for rescue or when other recommended strategies are not possible (e.g. contra-indications to regional anaesthesia) (Grade D) <ul style="list-style-type: none"> ○ Strategies should be implemented to reduce unnecessary opioid consumption after elective caesarean section
Analgesic adjuncts	<ul style="list-style-type: none"> • Analgesic adjuncts including TENS are recommended when available (Grade A) <ul style="list-style-type: none"> ○ Analgesic adjuncts such as listening to music via headphones and use of TENS may be associated with improved pain relief

Recommended: Surgical interventions

Incision	<ul style="list-style-type: none"> • A Joel-Cohen incision is recommended (Grade A) for benefits in reducing postoperative pain scores
Non-closure of peritoneum	<ul style="list-style-type: none"> • Non-closure of the peritoneum is recommended (Grade A) for a reduction in pain scores
Abdominal binders	<ul style="list-style-type: none"> • Abdominal binders are recommended (Grade A) based on three studies showing clinically-relevant reduction in pain scores and rescue analgesia consumption

NSAIDs, non-steroidal anti-inflammatory drugs; TAP, transversus abdominis plane block; TENS, transcutaneous electrical nerve stimulation

Interventions that are NOT recommended

Analgesic interventions that are not recommended for pain management in patients undergoing elective caesarean section.

	Intervention	Reason for not recommending
Pre-operative	Gabapentinoids	Limited procedure-specific evidence and concerns of side-effects
Intra-operative	Intravenous ketamine	Limited procedure-specific evidence and concerns of side-effects
	Intravenous dexmedetomidine	Limited procedure-specific evidence and concerns of side-effects
	Intravenous tramadol and butorphanol	Limited procedure-specific evidence
	Neuraxial clonidine	Inconsistent procedure-specific evidence and concerns of side-effects
	Neuraxial dexmedetomidine	Inconsistent procedure-specific evidence and concerns for side-effects
	Intrathecal buprenorphine	Limited procedure-specific evidence
	Epidural hydromorphone	Limited procedure-specific evidence
	Intrathecal midazolam	Limited procedure-specific evidence and concerns of side-effects
	Intrathecal neostigmine	Concerns of side-effects
	Intrathecal ketamine	Limited procedure-specific evidence and concerns of side-effects
	Intraperitoneal local anaesthetic	Lack of procedure-specific evidence
	Topical skin analgesia	Lack of procedure-specific evidence
	Clonidine added to TAP	Lack of procedure-specific evidence
	Dexmedetomidine added to TAP	Limited procedure-specific evidence
	Fentanyl added to TAP	Lack of procedure-specific evidence
	Rectus sheath block	Lack of procedure-specific evidence
	Field block	Lack of procedure-specific evidence
Music	Limited procedure-specific evidence	
Postoperative	Skin-to-skin contact	Limited procedure-specific evidence
	Intravenous lidocaine	Lack of procedure-specific evidence
	Patient controlled epidural analgesia	Limited procedure-specific evidence and concerns of side-effects
Surgical technique	Method of incision: diathermy	Inconsistent procedure-specific evidence
	Absence of a bladder	Limited procedure-specific evidence

flap	
Blunt fascial opening	Limited procedure-specific evidence
Uterine exteriorisation	Inconsistent procedure-specific evidence
Skin incision lasering postoperatively	Limited procedure-specific evidence
Type of skin closure	Lack of procedure-specific evidence
Vaginal cleansing	Lack of procedure-specific evidence
Cervical dilation	Inconsistent procedure-specific evidence
Type of pyramidalis muscle dissection	Lack of procedure-specific evidence
Rectus muscle re-approximation	Limited procedure-specific evidence

TAP, transversus abdominis plane block

Overall PROSPECT recommendations

Overall recommendations for peri-operative pain management in patients undergoing elective caesarean section performed under neuraxial anaesthesia.

Pre-operative	<ul style="list-style-type: none"> Intrathecal long-acting opioid (e.g. morphine 50–100 µg or diamorphine up to 300 µg) (Grade A). Epidural morphine 2–3 mg or diamorphine up to 2–3 mg may be used as an alternative, for example, when an epidural catheter is used as part of a combined spinal-epidural technique (Grade A) Oral paracetamol (Grade A)
Intra-operative after delivery	<ul style="list-style-type: none"> Intravenous paracetamol if not administered pre-operatively (Grade A) Intravenous non-steroidal anti-inflammatory drugs (Grade A) Intravenous dexamethasone (Grade A) If intrathecal morphine not used, local anaesthetic wound infiltration (single-shot) or continuous wound infusion and/or regional analgesia techniques (fascial plane blocks such as transversus abdominis plane blocks and quadratus lumborum blocks) (Grade A)
Postoperative	<ul style="list-style-type: none"> Oral or intravenous paracetamol (Grade A) Oral or intravenous non-steroidal anti-inflammatory drugs (Grade A) Opioid for rescue or when other recommended strategies are not possible (e.g. contra-indications to regional anaesthesia) (Grade D) Analgesic adjuncts include transcutaneous electrical nerve stimulation (Grade A)
Surgical technique	<ul style="list-style-type: none"> Joel-Cohen incision (Grade A) Non-closure of peritoneum (Grade A) Abdominal binders (Grade A)

PROSPECT publication

PROSPECT guideline for elective caesarean section: updated systematic review and procedure-specific postoperative pain management recommendations.

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