LAPAROSCOPIC SLEEVE GASTRECTOMY

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.

Pain after laparoscopic sleeve gastrectomy

Following laparoscopic sleeve gastrectomy, the most frequently performed surgery for weight loss, postoperative pain may delay recovery and increase the risk of complications (Lazzati 2023; Iamaroon 2019; Barajas-Gamboa 2024). Standardised pain management protocols are needed to enhance patient recovery and ambulation, especially as the procedure is increasingly performed on an outpatient or overnight stay basis (Inaba 2018; Fortin 2020; Kaye 2019).

Aims and methods of the PROSPECT review

This review (Niels, Snijkers 2025) aimed to update the recommendations for pain management following laparoscopic sleeve gastrectomy, building upon the 2019 guidelines (Macfater 2019), which were based on data from 18 randomised controlled trials (RCTs).

The systematic review and formulation of the recommendations were performed using the unique PROSPECT methodology, available at https://esraeurope.org/prospect-methodology/. The methodology was first published in Joshi 2019 and updated in Joshi 2023. The updated literature search identified RCTs, systematic reviews and meta-analyses concerning analgesic, anaesthetic and operative interventions, with a focus on pain management for patients undergoing laparoscopic sleeve gastrectomy. EMBASE, MEDLINE, PubMed and Cochrane Databases were searched from 1 September 2018 until 4 February 2024. All included studies were critically assessed with regards to pain scores (the primary outcome), clinical relevance, effectiveness, the use of basic analgesics (paracetamol and NSAIDs/COX-2-specific inhibitors), adverse effects, and the invasiveness of the technique.

39 RCTs and two meta-analyses met the inclusion criteria.

This review is registered on PROSPERO: CRD42023487108.

Summary of recommendations and key evidence

Summary of recommendations and key evidence for pain management in patients undergoing laparoscopic sleeve gastrectomy
Systemic analgesia
Paracetamol and NSAIDs or COX-2-specific inhibitors, administered around-the-clock, pre- or intra-operatively and continued postoperatively. • Consistent with the PROSPECT methodology (Joshi 2023), studies that focused exclusively on these basic analgesics were excluded from the review; basic analgesics should be administered peri-operatively to all patients undergoing surgery.
Single dose of IV dexamethasone • Dexamethasone was previously recommended for laparoscopic sleeve gastrectomy by PROSPECT (Macfater 2019). • Perioperative dexamethasone has well-established antiemetic and analgesic effects in other procedures, which are not outweighed by side effects (Gan 2020; Laconi 2024; Waldron 2013). • PROSPECT does not recommend an exact dose of dexamethasone. However, a review (Myles, Corcoran 2021) concluded that an intermediate dose might offer benefits for postoperative analgesia.
Opioids should be reserved for rescue analgesia • The use of opioids should be reserved for rescue medication, as indicated in the previous recommendation (Macfater 2019), despite their potency as analgesics. • Opioids may cause side effects such as PONV, constipation, ileus, dizziness, and respiratory depression may delay recovery and discharge from the hospital, as well as having an abuse potential (Trescot 2008).
Regional techniques
TAP block • This update included seven additional studies on TAP blocks: five on USG blocks (Saber 2019; Mittal 2018; Aboseif 2023; Xue 2022; Abdelhamid 2020) and two on LG blocks (Tülübaş 2019; Okut 2022). • PROSPECT recommends either USG or LG TAP blocks based on positive analgesic effects: ○ The USG TAP block is considered the gold standard, with several different approaches available, including anterior, mid-axillary, and subcostal. The chosen

technique influences the affected area and the block duration (Desmet 2015; Tsai 2017).
  - The LG TAP block is performed by the surgeon during laparoscopy. Two studies comparing surgeon-delivered LG TAP blocks with anaesthetist-delivered USG TAP blocks in colorectal surgery indicated at least comparable safety and efficacy (Zaghiyan 2019; Park 2017).

Pre-incisional port-site local anaesthetic wound infiltration

- Since the previous PROSPECT recommendation (Macfater 2019), two additional studies on port-site local anaesthetic wound infiltration have been found, with one showing positive results (Alevizos 2020).
- Wound infiltration or port-site infiltration with local anaesthetics is a simple, inexpensive and commonly applied technique that provides adequate somatic pain blockade (Scott 2010; Stamenkovic 2021). It is crucial to carefully infiltrate all layers of the surgical wound under direct visualisation before closing the incision (Joshi, Machi 2019).
- PROSPECT proposes that wound infiltration should be considered a fundamental component of basic analgesia even though there is limited procedure-specific evidence for laparoscopic sleeve gastrectomy (Joshi, Kehlet 2019). The efficacy of wound infiltration has been well demonstrated in abdominal surgery (Bourgeois 2024).

➢ Transverse abdominal plane block and port-site local anaesthetic wound infiltration can be combined. However, care should be taken to avoid local anaesthetic systemic toxicity.

COX, cyclo-oxygenase; IV, intravenous; LG, laparoscopic-guided; NSAID, non-steroidal anti-inflammatory drug; PONV, postoperative nausea and vomiting; TAP, transverse abdominal plane; USG, ultrasound-guided.

Interventions that are NOT recommended

Analgesic interventions that are not recommended for pain management in patients undergoing laparoscopic sleeve gastrectomy.

Intervention	Reason for not recommending
Opioid free anaesthesia	Insufficient evidence and lack of uniformity in protocols
Vitamin C administration	Insufficient evidence
Dexmedetomidine	Lack of consensus
IV magnesium	Lack of consensus
Gabapentinoids	Risk of side effects
IV ketamine	Lack of evidence and the risk of side-effects
Aprepitant	Insufficient evidence
IV lidocaine	Insufficient evidence
Diphenhydramine	Insufficient evidence
Animation education program	Insufficient evidence
Virtual reality	Insufficient evidence
Electropress needle stimulation	Insufficient evidence
Total IV anaesthesia versus desflurane	Insufficient evidence
Mild hyperventilation for shoulder pain	Insufficient evidence
Peroperative alveolar recruitment	Lack of evidence
Quadratus lumborum block	Unfavourable risk-benefit ratio
Erector spinae block	Unfavourable risk-benefit ratio
Intraperitoneal local anaesthetics	Lack of consensus
Intraperitoneal dexmedetommidine	Insufficient evidence
Intraperitoneal magnesium	Lack of evidence
Paragastric autonomic neural blockade	Insufficient evidence
Laparoscopic linear endostaplers	Lack of evidence
Single port approach	Inconsistent evidence

IV, intravenous.

Overall PROSPECT recommendations table

Overall recommendations for procedure-specific pain management in patients undergoing laparoscopic sleeve gastrectomy	
Pre-operative and intra-operative	• Paracetamol and NSAIDs or COX-2-specific inhibitors • Single dose of IV dexamethasone • Transverse abdominal plane block • Pre-incisional port-site local anaesthetic wound infiltration ➢ Transverse abdominal plane block and port-site local anaesthetic wound infiltration can be combined. However, care should be taken to avoid local anaesthetic systemic toxicity
Postoperative	• Paracetamol and NSAIDs or COX-2-specific inhibitors administered around-the-clock • Opioids as rescue analgesia

COX, cyclo-oxygenase; IV, intravenous; NSAID, non-steroidal anti-inflammatory drug.

PROSPECT publication

Debel N, Snijkers E, Van de Velde M, Joshi GP, Sauter AR, Freys S, Pogatzki-Zahn E, Dewinter G on behalf of the PROSPECT Working Group of the European Society of Regional Anaesthesia and Pain Therapy (ESRA).

Pain management for laparoscopic sleeve gastrectomy: an update of the systematic review and procedure-specific postoperative pain management (PROSPECT) recommendations.

Eur J Anaesthesiol 2025 Oct 13. doi: 10.1097/EJA.0000000000002296. Online ahead of print.

PROSPECT recommendations for laparoscopic sleeve gastrectomy – infographic

prospect
procedure specific postoperative pain management

Recommendations for laparoscopic sleeve gastrectomy

A systematic review update with recommendations for postoperative pain management

Study design

432 articles → 39 RCTs, 2 SRs* → Recommendations

Inclusion criteria (update): RCTs and SRs published 1 September 2018 to 4 February 2024, assessing pain intensity in patients undergoing laparoscopic sleeve gastrectomy

Surgeons
Modified Delphi Process
Anaesthesiologists

Postoperative pain management after laparoscopic sleeve gastrectomy

Systemic (basic) analgesia

Paracetamol and NSAIDs or COX-2-specific inhibitors administered around-the-clock.

IV dexamethasone

Single dose of IV dexamethasone.

Regional analgesia

- TAP block.
- Pre-incisional port-site local anaesthetic wound infiltration.
- Both TAP block and port-site local anaesthetic wound infiltration can be combined. However, care should be taken to avoid local anaesthetic toxicity.

Opioids

Should be reserved for rescue analgesia.

Debel N, Snijkers E, et al. Pain management for laparoscopic sleeve gastrectomy: an update of the systematic review and procedure-specific postoperative pain management (PROSPECT) recommendations. Eur J Anaesthesiol 2025 Oct 13. doi: 10.1097/EJA.0000000000002296. Online ahead of print.

*This systematic review builds on the previous review, which included data from 18 RCTs.

COX, cyclo-oxygenase; IV, intravenous; NSAID, non-steroidal anti-inflammatory drug; RCT, randomised controlled trial; SR, systematic review; TAP, transverse abdominal plane.