

# Improvement in perioperative care of the day case patient; logistics and quality of care.

## Anaesthesia impact in Day Surgery

Akademisk avhandling

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien, Göteborgs universitet kommer att offentligen försvaras i R-aulan, Sahlgrenska Universitetssjukhuset/Mölnalds sjukhus  
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Avhandlingen baseras på följande delarbeten

- I. **Pelvic organ prolapse surgery: changes in perioperative management improving hospital pathway.**  
Sellbrant Irén, Pedroletti Corinne, Jakobsson Jan. *Minerva Ginecologica* 2017;69: 18-22
- II. **The choice between surgical scrubbing and sterile covering before or after induction of anaesthesia: A prospective study.**  
Sellbrant Irén, Brattwall Metha, Jildenstål Pether, Warrén-Stomberg Margareta, Jakobsson Jan. *F1000Research* 2017, 6:1019(p1-12)
- III. **Supraclavicular block with Mepivacaine vs Ropivacaine, their impact on postoperative pain: A prospective randomised study.**  
Iréen Sellbrant, Jon Karlsson, Jan G Jakobsson, Bengt Nellgård *BMC Anesthesiol.*2021 Nov 9;21(1):273. doi:10.1186/s12871-021-01499-z.
- IV. **Brace versus cast following surgical treatment of distal radial fracture; a prospective randomised study comparing quality of recovery.**  
Sellbrant I, Blomstrand J, Karlsson J, Nellgård B, Jakobsson JG. *Accepted Feb 2022 in F1000Research.* doi.org/10.12688/f1000research.52046.1

**SAHLGRENKA AKADEMIN**  
**INSTITUTIONEN FÖR KLINISKA VETENSKAPER**



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### Abstract

**Background:** The “Day surgery concept” is increasing and nowadays numerous of surgical procedures in patients of all ages, with different comorbidities are performed as day case surgery. Day surgery (DS) is a process; not a procedure. Anaesthetic method, multi-modal analgesia, new surgical minimally invasive techniques and a mind-set to facilitate a rapid recovery are all of importance. Thus, multiple factors influence a safe, effective and successful perioperative course combining high quality of care with rapid recovery, enabling patients to be safely discharged on the day of surgery.

**Aim:** To investigate how different parts of the perioperative care *per se* affects resource utilisation, logistics and quality of recovery in three common DS procedures.

**Methods:** *Paper I;* A retrospective observational study in patients scheduled for pelvic organ prolapse (POP) surgery assessing discharge on day of surgery, impact of “annual changes” (2012-14) and anaesthetic techniques in 4 different hospitals. *Paper II;* A prospective randomised study in male patients scheduled for open hernia repair assessing the impact of surgical scrub/sterile covering before vs. after induction of general anaesthesia on haemodynamic changes, medication, logistics and quality of care. *Paper III;* A prospective randomised study performed on patients scheduled for surgery of distal radial fractures (DRF) investigating the impact of 3 different anaesthetic methods on postoperative pain, postoperative opioid consumption and logistics the first postoperative week. *Paper IV;* A subgroup of study III patients, prospectively randomised to 2 different immobilisation methods, brace vs cast, assessing patients self-assessed Quality of recovery (QoR-15), postoperative opioid use and logistics the first postoperative week.

**Results:** *Paper I;* The use of local anaesthesia and sedation (LAS) significantly increased the by-passing of PACU to a step-down unit and discharge day of surgery during the study period. *Paper II;* No differences in vasoactive medications was found between groups, but there was a significant decrease in PACU-time in awake patients. Both patients and surgical nurses found the awake procedure acceptable. *Paper III;* The pain scores and postoperative opioid consumption were significantly higher in the supraclavicular block (SCB) group with long-acting local anaesthetic agent (long-LA) compared to short-acting (short-LA) 24-hours post-surgery and during the first 3 postoperative days. The long-LA-group also had most unplanned healthcare contacts postoperatively. Most SCB-patients could by-pass PACU. *Paper IV;* The median QoR-15 score increased over time from baseline to 1 week post-surgery with no significant differences between brace/cast-groups of patients.

**Conclusion:** The use of LAS in POP-surgery improved both theatre and PACU efficacy and increased discharge on day of surgery. Surgical scrub/sterile covering before induction can be performed without jeopardizing patient’ quality of care and probably improve the perioperative care. SCB with long-LA for surgical repair of DRF provide effective analgesia during early postoperative course, but the patients that received SCB with short-LA had less pain at 24-hours post-surgery, a better pain profile and consumed less opioids during the first 72 hours postoperatively. An immobilisation with brace instead of cast directly after DRF-surgery appears to be a feasible and attractive option.

**Keywords:** Day surgery, POP surgery, open hernia repair, distal radial fracture, anaesthetic technique, supraclavicular block, local, anaesthesia, long/short-acting local anaesthetic agent, logistics, pain, postoperative opioid consumption, quality of care, QoR-15