

Ruth Zaslansky,^{1*} Philipp Baumbach,^{1*} Ruth Edry,² Sean Chetty,³ Lim Siu Min,⁴ Isabelle Schaub,⁵ Jorge Jimenez Cruz,⁶ Winfried Meissner,¹ Ulrike M. Stamer⁷

Depts of Anaesthesiology and Intensive Care, ¹ Uni Hospital Jena, Jena, Germany; ³ Stellenbosch Uni, Cape Town, South Africa; ⁴ Uni of Malaya, Kuala Lumpur, Malaysia; ⁵ Clinique St Jean, Brussels, Belgium | ² Acute Pain Service, Dept of Anaesthesiology, Rambam Health Care Campus, Haifa, Israel | ⁶ Dept of Obstetrics and Gynaecology, Bonn Uni Hospital, Bonn, Germany | ⁷ Dept of Anaesthesiology and Pain Medicine, Inselspital, Bern, Switzerland



After Caesarean Section only 20% of a cohort of 5182 women received 3 recommended treatments for pain. However, this was associated with better pain-related patient reported outcomes. These elements should be straightforward & inexpensive to integrate into routine care after CS.

Questions we wished to address:

1. Do women undergoing Caesarean Section in the clinical routine receive evidence-based care ?
2. If they did, would this be associated with improved pain-related Patient Reported Outcomes (PROs) ?

Methods

PAIN OUT, an international perioperative pain registry and network provided tools for collecting data about pain related patient reported outcomes and management on the first day after Caesarean Section.

We reviewed literature, including guidelines, addressing perioperative pain management of CS and surgery, in general. From these, we selected elements with communality. We assessed whether CARE consisted of **(1) regional anaesthesia with a neuraxial opioid OR general anaesthesia with wound infiltration or TAP block, (2) a full daily dose of a non-opioid analgesic and (3) if pain was assessed by a member of staff.**

Credit for care was given ONLY if ALL 3 elements were administered (=FULL), otherwise, it was MISSING. We used linear mixed models to evaluate the effect of implementing the CARE elements with a Pain Composite Score, evaluating pain intensity, its interference with function and side-effects, as the dependent variable.

Results

Between 2010 and 2020, 5182 women from 21 hospitals and 15 countries, qualified for inclusion. Of these: 85.4 % (n=4428) underwent surgery with Regional Anesthesia (RA); 12.4% (n = 641) were operated with General Anesthesia (GA) ; 2.2% (n=113) RA and GA. Women provided assessment of the pain outcomes **23:00 (19:05-26:06) hours after surgery.**

Question 1: Do women undergoing Caesarean Section in the clinical routine receive evidence-based care? As a general rule, NO

Recommendations:	
A	Intrathecal morphine is the gold standard for post-cesarean pain, providing excellent and prolonged postoperative analgesia. [1,2]
B	Scheduled, full daily doses of paracetamol & NSAID, as a key component of multimodal analgesia after CSection, is strongly recommended, based on high-quality procedure-specific evidence. [2]
C	Use opioids for rescue or when other recommended strategies are not possible. [2]



In our sample:	
Of women receiving neuraxial opioids, fentanyl was administered to 63%, alone or in combination with morphine.	
A	Morphine or sufentanil, as sole opioids, were administered to 18% and 10% of women, respectively.
B	87% of women received at least one non-opioid.
B	80% of these women did not receive a full daily dose of the non-opioid.
C	39% of women reporting worst pain
C	≥ 7/10 NRS received an opioid.

Question 2: Was administering the 3 elements associated with improved pain related PROs? Yes, this was a small to medium effect size

FULL care in the complete cohort was associated with significantly better outcomes in the Pain Composite Score compared to women receiving MISSING care ($\beta_z = -0.36$ [95% CI -0.49 to -0.23, $p < 0.001$). The same applied to the RA group ($\beta_z = -0.36$ [95% CI -0.51 to -0.22, $p < 0.001$). In the RA group, administration of neuraxial morphine was associated with a lower Pain Composite Score, a small effect size.

We assessed dichotomized patient reported outcomes in FULL vs MISSING care groups.
Time in severe pain $\geq 50\%$ on POD1 was reported by 27.5% in FULL vs 54% of women in MISSING care.
Anxiety & helplessness due to pain $\geq 4/10$ were reported by 24-27% vs 50% of women in FULL vs MISSING.
Satisfaction $\leq 6/10$ was reported by 14% in FULL vs 35% in MISSING.
'Would have liked to receive more pain treatment' was reported by 25% in FULL vs 46% in MISSING.
However, a high proportion of women reported poor outcomes in BOTH groups. Further work is needed seeking for strategies to improve this.

References

[1] Sutton & Carvalho B. Optimal Pain Management After Cesarean Delivery. Anesthesiol Clin. 2017 Mar;35(1):107-24
 [2] Roofthoof et al PROSPECT guideline for elective caesarean section. Anaesthesia. 2021 May;76(5):665-80.