

Shake it off: a quality improvement project to reduce intraoperative shivering in obstetric patients under neuraxial anaesthesia

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Introduction

Intraoperative shivering (IOS) is a common side effect following central neuraxial anaesthesia for caesarean section, with an incidence in the literature ranging from 29-54% [1].

Sequelae include:

- patient discomfort
- increased oxygen consumption
- monitoring interference (particularly non-invasive blood pressure readings)
- delayed initiation of skin to skin and impaired bonding

This project aims to evaluate rates of IOS in our tertiary obstetric unit and explore methods to reduce its impact on our obstetric cohort.

Methods

IOS rates over two-weeks were recorded for patients undergoing obstetric operative procedures under spinal, combined spinal-epidural (CSE), or epidural top-up anaesthesia.

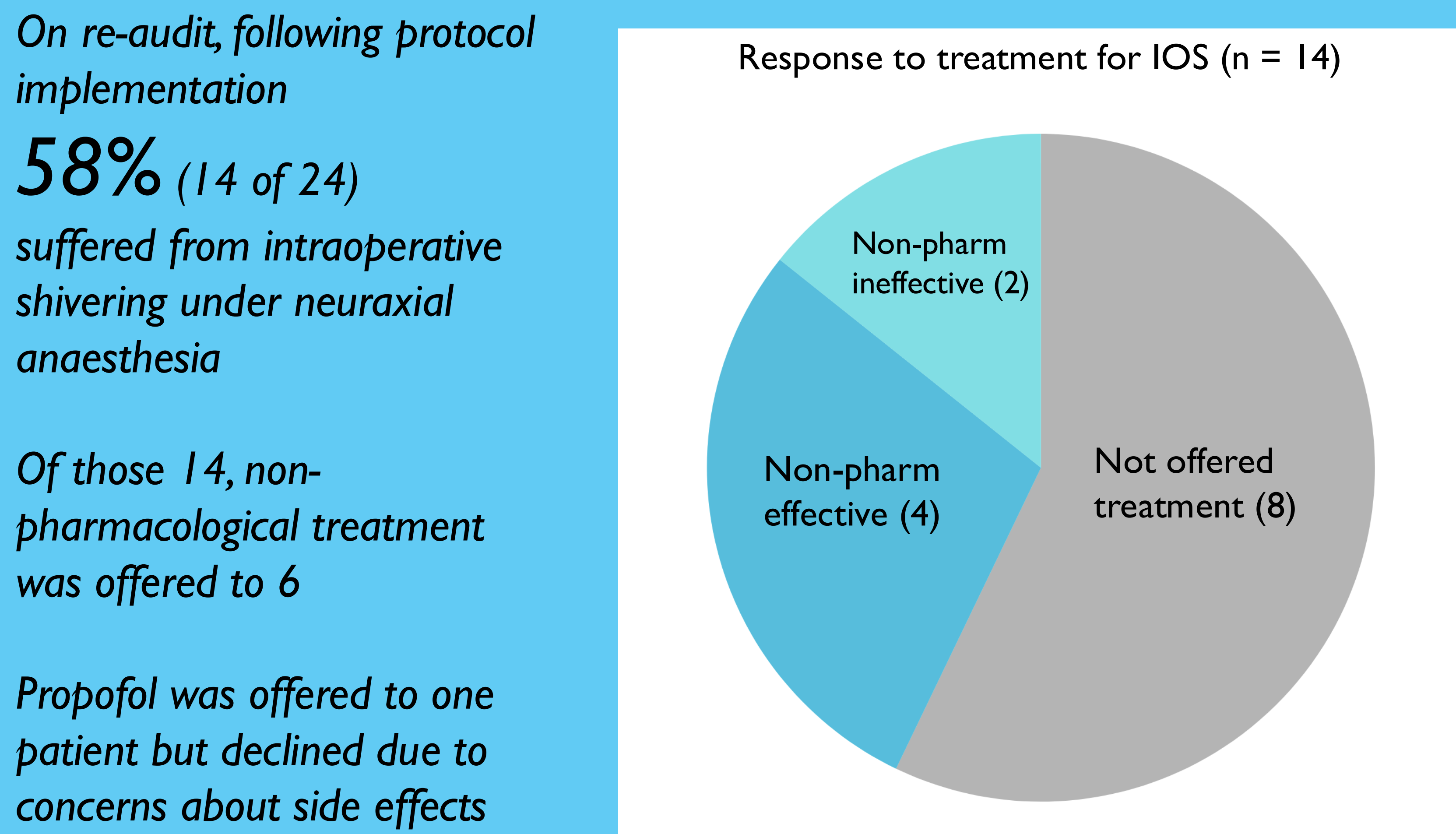
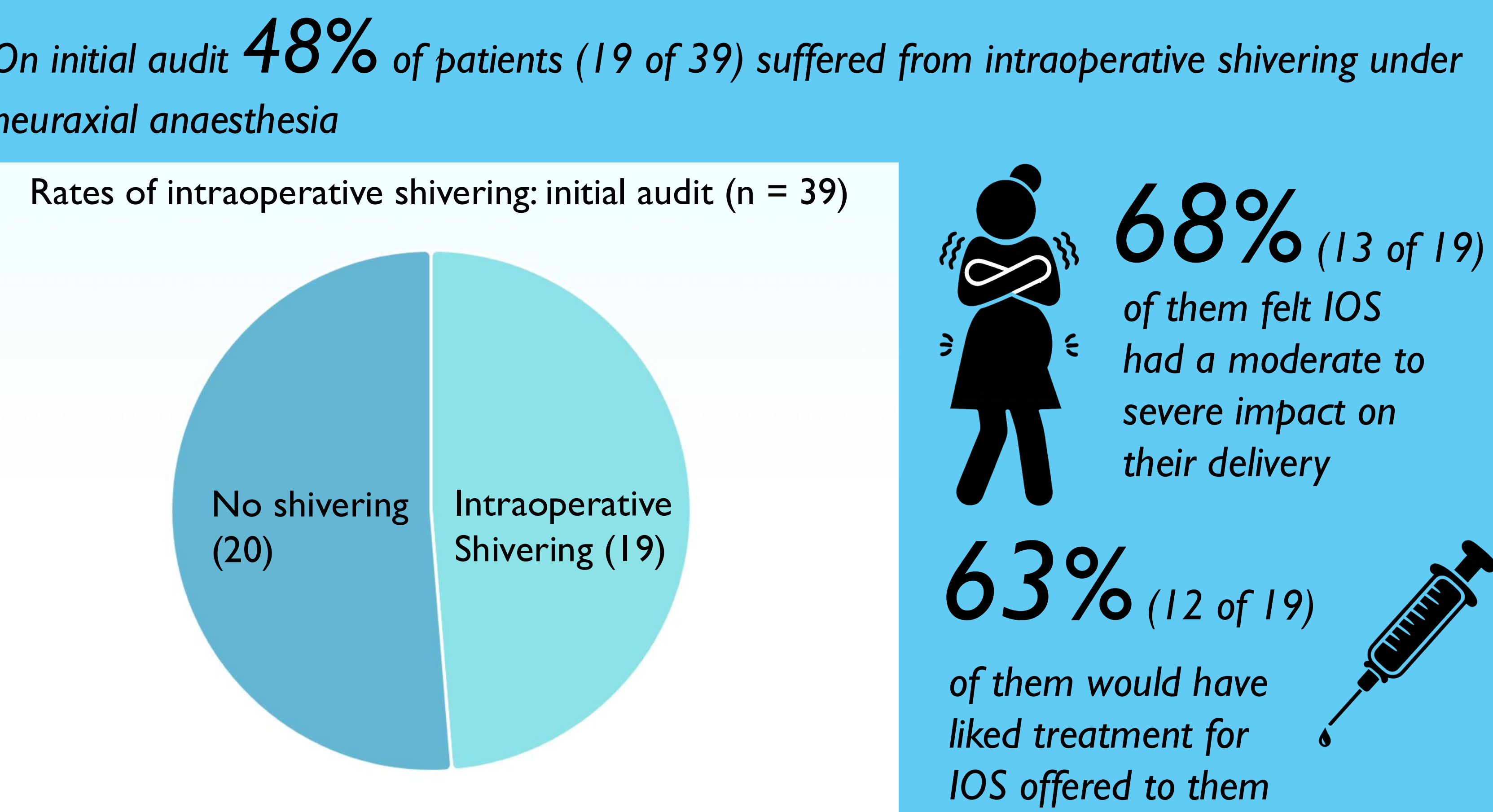
Severity of shivering and perceived impact on maternal experience were also recorded on a 1 – 5 Likert scale.

A protocol for IOS management with:

- **non-pharmacological treatment** (warm fluids, blankets, Bair huggers)
- **pharmacological treatment** (propofol 10–20mg i.v.)

was introduced and disseminated before re-audit of the same demographic over another two-week period.

Results



Discussion

- Our data corroborates the quoted rates of IOS under neuraxial anaesthesia in obstetric patients, with **roughly half of our cohort experiencing this side effect.**
- Whilst initial data suggests offering non-pharmacological interventions can be effective, **encouraging anaesthetists to do so remains pertinent.**
- Quoted reasons for not offering propofol included concern about side effects and anaesthetist scepticism regarding effectiveness.

Current developments in this project include introducing a protocol for **dexmedetomidine** (an a2-adrenergic agonist with a safer side effect profile than propofol, and greater evidence of efficacy [2]) pending pharmacy approval.

Proposed protocol for the use of dexmedetomidine for intraoperative shivering

B. Pharmacologic Treatment — Dexmedetomidine

Administer dexmedetomidine only **after delivery** and **clamping** of the umbilical cord.

Drug: Dexmedetomidine hydrochloride 200 µg/2ml (100 µg/mL) standard vial

Dose and Administration:

- Loading dose: **0.3 – 0.4 µg/kg IV** over 5 minutes, to a **maximum dose of 30µg.**
- Dilute in normal saline to 20 mL (giving a concentration of 10 µg/mL) and administer slowly under continuous monitoring.
- No maintenance infusion typically required for shivering control.

Expected onset: Within 3–5 minutes

Duration of effect: Approximately 30–60 minutes

References:

- [1] K Kumar, C Lin, T Symons, C Railton. Narrative review on perioperative shivering during caesarean section under neuraxial anaesthesia. Romanian Journal of Anaesthesia and Intensive Care. 2023;29(1):41-46.
- [2] S Mohammed, G Biyani, R Kalagara et al. Role of Intravenous Dexmedetomidine in the Prevention and Treatment of Shivering in Pregnant Patients Undergoing Cesarean Section Under Central Neuraxial Blockade: A Systematic Review and Meta-Analysis. Journal of Obstetric Anaesthesia and Critical Care. 2024; 14(1): 5-16.