

Noradrenaline is the primary catecholamine released by postganglionic adrenergic nerves. It is a potent α_1 -adrenergic agonist with relatively good beta-agonist activity. It causes marked vasoconstriction with some direct inotropic effects. Administration results in a higher heart rate than with comparable doses of phenylephrine [3]. Note: *safe experiences with its prophylactic administration in the delivery room is mainly associated with its continuous administration, not bolus! At the same time, there are concerns about tissue necrosis following extravasation of norepinephrine with peripheral continuous administration, and many departments only allow its infusion via a central venous catheter. In addition, its powerful but very brief effect leads to rapid fluctuations in BP during bolus administration and thus to discomfort for the parturient.* In obstetrics, therefore, noradrenaline is still reserved primarily for emergent hypotensive states inadequately responsive to other vasopressors [6].

Adjunctive prophylactic measures

Prevention of aortocaval compression through the uterus by using a tilt table or wedge to achieve at least a 15 degree pelvic tilt, preferably with a leftward tilt. Although recent data show that the preventive effect of pelvic tilt or operating table tilt is overestimated, especially in overweight or obese women, it should not be neglected [14–16]. Previous recommendations for a lower incidence of hypotension when SAB is administered in the supine versus sitting position are not confirmed; thus, the ideal position for administration should be chosen primarily based on the preferences and individual circumstances of the parturient and the anaesthesiologist [17].

Intravenous fluid administration: data clearly show that prophylactic administration of crystalloids prior to SAB (fluid preload) is ineffective compared with co-loading for reducing hypotension [18]. The most effective fluid prophylaxis would be preloading with colloid solutions, however, there are several reasons for not automatically administering them routinely to everyone [1]. Thus, the current standard is to administer a rapid infusion of 1000 ml of crystalloids immediately after subarachnoid administration and during the onset of SAB, using a pressurised bag if necessary [19].

Interdisciplinary Task Force Statement on the management of hypotension after spinal anaesthesia in the delivery room.

The process of developing the statement

Due to the established common practice, which does not align with current recommendations and evidence, the authors of the text considered it appropriate to formulate an opinion on the correct management of hypotension after SAB in parturients in the delivery room. In the majority of maternity units in the Czech Republic, there is no adequate alternative to the predominantly used ephedrine for the management of hypotension in the delivery room. Thus, there is relatively little clinical experience with other vasopressors and alternative procedures, which has made it impossible to nominate a sufficient number of physicians with expert experience to formulate an opinion using, for example, the Delphi method. Therefore, a format reflecting the current limited state of expert evidence was chosen. The interdisciplinary working group was formed

from members of the Obstetric Anaesthesia and Analgesia Section of ČSARIM and, after inviting relevant sections of medical societies and other professionally recognised experts, included all authors of the article. The text, including the position paper, was submitted to the Czech Society of Anaesthesiology, Resuscitation and Intensive Care Medicine, the Section of Perinatology and Foetomaternal Medicine, and the Section of Obstetric Analgesia and Intensive Care Medicine of the Czech Gynaecological and Obstetric Society and the Czech Society of Neonatology, with a request to grant formal endorsement of the text. The endorsement granted by the addressed professional societies allows us to consider the opinion formulated in the article on the use of hypotension management after SAB in labour wards as supported by them.

OPINION

Preventive measures

- 1) We recommend active prevention of hypotension after spinal anaesthesia during caesarean section, not just reactive treatment. The goal is to prevent systolic pressure from falling below 80% of the baseline value.
- 2) We recommend prophylactic administration of a vasopressor; currently, phenylephrine is the drug of first choice.
- 3) We recommend continuous infusion of phenylephrine (initially 0.25–0.5 $\mu\text{g/kg/min}$) initiated along with SA administration. If continuous administration is not available, we recommend titrated phenylephrine boluses (e.g., 50 μg every 20–30 s).
- 4) Consider the use of ephedrine (5 mg boluses) in parturients with bradycardia or where its inotropic effect is desirable. Alternatively, phenylephrine can be combined with atropine.
- 5) If both phenylephrine and ephedrine have failed, a bolus of norepinephrine (10 μg) can be considered, followed by continuous administration as soon as possible.

Fluid therapy and positioning

- 6) We recommend administering 1000 ml of balanced crystalloids as fluid co-loading. In cases of higher risk of the development or more severe course of hypotension, consider administration of synthetic colloid (gelatine, 500 ml)
- 7) We recommend avoiding excessive volume therapy in patients with signs of preeclampsia and cardiac dysfunction.
- 8) Consider using a pressure infusion cuff and placing a second venous access.
- 9) We recommend tilting the table or wedge to the left ($\sim 15^\circ$) to prevent aortocaval compression. For women in labour with low initial BP, SA administration in the left lateral position is recommended.
- 10) Consider compression bandaging of the lower extremities as an additional preventive procedure.
- 11) We recommend elevating the lower extremities as a quick and easy manoeuvre to improve cardiac preload.

Further measures

- 12) After BP has normalised, it is advisable to wait approximately 5 minutes before delivering the foetus, if the situation allows, for