Labor analgesia and anesthesia

Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage and is always subjective. **Analgesia** is the loss of the ability to feel pain without loss of consciousness. **Anesthesia** is the elimination of all perception, both sensory and pain perception (general anesthesia), or the numbing of a certain part of his body (regional, local anesthesia).**Cite error: Invalid <ref> tag; invalid names, e.g. too many**

Almost every spontaneous birth is accompanied by pain of varying intensity. It is an acute pain in which combined pathophysiological mechanisms (visceral, nociceptive and neuropathic) intertwine. For some women, labor pain is unbearable. In the absence of adequate pain treatment, the mother may become mentally and physically exhausted, with the risk of harming the health of the mother and/or the child. There may be a malfunction of the uterine muscles, a malfunction of the acid-base balance and stress of the fetus/newborn, or a long-term mental trauma for the woman. Every pregnant woman has the right to adequate pain treatment.**Cite error: Invalid <ref> tag; invalid names, e.g. too many**

"Obstetric analgesia" is given at the beginning of labor and therefore one of the goals is to minimally affect the course of labor. On the contrary, '*obstetric anesthesia* is administered to end childbirth or to deal with childbirth or postpartum complications.

All analgesics and anesthetics *cross the placenta* to some extent, usually by a mechanism of passive diffusion. Most of these drugs are well soluble in fats, have a low molecular weight and variable binding to proteins. These properties allow them to quickly cross the placenta.[1]

Analgesia for vaginal birth

Non-pharmacological methods

- Psychological methods: prenatal preparation, audioanalgesia, hypnosis;
- Electroanalgesia: TENS (transcutaneous electrical nerve stimulation);
- Hydroanalgesia: relaxing bath, water birth, intradermal injections (sprays) with sterile water;
- Alternative positions;
- Phytotherapy, aromatherapy, homeopathy, acupuncture, acupressure.**Cite error: Invalid <ref> tag; invalid names, e.g. too many**

Pharmacological methods

- Systemic analgesia: inhalation analgesia (50% N_2O : 50% O_2 – nitrous oxide, "paradise gas"), intramuscular or intravenous analgesia (nalbuphin, remifentanil) ;
- Regional analgesia: pudendal analgesia, paracervical analgesia, epidural analgesia, spinal analgesia, combined spinal and epidural analgesia.**Cite error: Invalid <ref> tag; invalid names, e.g. too many**
  - epidural analgesia lasting > 4 hours is associated with a (benign) increase in maternal temperature of up to 1 °C.[1]

Anesthesia for caesarean section

- from lat. *caedo, caedere* – to cut;
- regional and general anesthesia are equally safe for caesarean section;
- regional anesthesia is generally preferred;
- the choice of anesthesia for a planned caesarean section takes into account the mother's preference;[2][3]

Regional anesthesia (neuroaxial blockade)

- advantages compared to general anesthesia: less blood loss and less post-operative tremor;
- spinal (subarachnoid, SAB – most common; technically simpler than epidural anesthesia), epidural (EDA; slower onset of blockade) or combined spinal-epidural (CSE);
  - with spinal anesthesia, the mother's hypotension is more common (than with general or epidural), which can cause insufficient uteroplacental perfusion and thus have a negative effect on the fetus - treatment: volume therapy, vasopressors: ephedrine or phenylephedrine.[2][1]

General Anesthesia (CA)

- the method of choice in critical conditions of the mother (maternal bleeding) or in the immediate threat to the life of the fetus (fetal bradycardia), when it is necessary to equip the fetus within 5 minutes;
- indicated when regional anesthesia is contraindicated: coagulopathy of the mother, neurological problems, sepsis, infection;
- if the birth is completed within 3-4 minutes after induction of general anesthesia, in the vast majority of cases postpartum adaptation of the newborn is the same as when using neuraxial methods;
- the length of the time interval between the incision of the uterus and the equipment of the fetus is important;

incision of the uterus and its manipulation leads to reflex vasoconstriction of the uterine vessels, therefore, at an interval > 90 s, the Apgar score decreases (fetal hypoxia → impaired postpartum adaptation);
- the risk of unsuccessful intubation with failure to ensure breathing or aspiration during induction of general anesthesia;
- the risk of impaired postpartum adaptation of full-term newborns (effect of anesthetics given to the mother); lack of information on the effect on severely immature newborns.[2][3]

Method

- oxygen therapy (mask with high FiO_2) is given before introduction to CA - the aim is to denitrogenate the lungs (not to improve the current saturation) and to prolong the time interval until the start of desaturation during apneic intubation – women at the end of pregnancy have a physiologically increased metabolism, higher oxygen consumption and reduced pulmonary functional residual capacity (FRC);[2]
- introduction to anesthesia – the so-called lightning introduction (*rapid sequence induction*; RSI) – thiopental or propofol or ketamine; myorelaxation – succinylcholine;
- intubation is performed in an apneic pause (without breathing through a face mask – risk of gastric insufflation, regurgitation and aspiration);
- administration of anesthesia: initial dose of anesthetics with possible bolus supplements and inhalation mixture O_2/N_2O (1 : 1) with volatile anesthetic (isoflurane, sevoflurane, desflurane);
- other anesthetics and opioid analgesics are administered up to the ligation of the umbilical cord, only non-depolarizing relaxants can be administered immediately after intubation (it will improve the hemodynamic and vegetative stability of the mother in labor as well as the operating conditions);
- oxytocin – to prevent uterine atony during caesarean section (uterotonic agent of first choice).[3]

Template:Stump

References

Related Articles

- Epidural anesthesia in obstetrics
- General anesthesia • Regional anesthesia

External links

- ANALGESIA IN VAGINAL CHILDBIRTH Recommended ČGPS procedure (https://www.gynultrazvuk.cz/data/clanky/6/dokumenty/p-2018-analgezie-u-vaginalniho-porodu.pdf)
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