

# Spinal Anaesthesia

Spinal anaesthesia also called subarachnoid anaesthesia is a type of regional neuraxial blockade. It is application of local anesthetic to subarachnoid space.

## Anatomy

Subarachnoid space is space between dura mater and spinal cord. This space contains liquor. Risk of spine cord damage is low, because it is performed under L3 level and the spine cord ends at level of L2-L3.

## Performance

Spinal blockade should be always performed under level of L3. Patient lies on his side, we start with disinfection of low back area and application of local anesthetic. After local anesthetic starts work, we can perform a thin needle (G25 or thinner). Needles for spinal blockade are much thinner than needles for epidural catheterization and their tip is blunt. We need to get through skin, subcutaneous space, space between vertebrae, ligamenta flava, and dura mater. To make us sure, that we are in subarachnoid space, we can let drop the liquor. We apply 2-4 ml of local anesthetic and remove the needle.

## Used Medicaments

The most often used drug worldwide is **bupivacaine**. It is very often combined with vasoconstrictor as epinephrine (adrenalin), which can prolong duration period of local anesthetic.

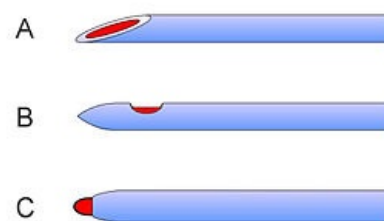
## Effect of Spinal Blockade

- sensitive and motoric blockade
- sympathetic blockade (!) which will cause:
  - vasodilatation
  - decreased venous return
  - hypotension – which is final effect.

Sympathetic blockade consequences can be handled by fluids (crystalloids and colloids) and vasopressor agents like norepinephrine (noradrenalin) or ephedrine (preferred in pregnancy).



Spinal anaesthesia



Spinal needles design, preferred is type "B".

## Indications

Neuroaxial blockade is preferred in patients with risk of complicated or impossible intubation or/and ventilation (general anesthesia is contraindicated). It is performed in operations under level of umbilicus:

- orthopaedics: lower extremity operations,
- urology: transurethral prostatic resection (TURP), cystoscopy,
- gynaecology: vaginal hysterectomy, sectio caesarea, and others.

## Complications

Complications are very rare, spinal anesthesia has less complications than epidural anesthesia - because of thinner needle. Possible complications are:

- postpuncture headache - based on hypotension in subarachnoid space (liquor escape to epidural space), the risk grows with needle size,
- bleeding,
- infection,
- spinal haematoma formation,
- anaphylactic or toxic reaction on anesthetic.

## Links

## Related Articles

- Epidural Anaesthesia

## Bibliography

- MÁLEK, J - DVOŘÁK, A, et al. *Základy anesteziologie*. 1. edition. Praha. 2009.
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