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Anesthetic agents and elderly

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Background

The elderly (≥65 yr) are more sensitive to anesthetic agents and generally require smaller doses for the same clinical effect, and drug action is usually prolonged [1].

Minimum alveolar anesthetic concentration (MAC), decreases approximately 6% for every decade. There is altered activity of neuronal ion channels associated with acetylcholine, nicotinic and GABA receptors [2].

The elderly require less doses for pain relief. Morphine clearance is decreased in the elderly. Sufentanil, alfentanil, and fentanyl are twice as potent in the elderly, due to an increase in brain sensitivity to opioids with age. There are changes in pharmacokinetics and pharmacodynamics of remifentanil, which is more potent in geriatric patients. Clearance and the volume of the central compartment decrease with age and the infusion rates should be titrated [3]. Cisatracurium undergoes Hofmann degradation and is unaffected by age [4]. In the peripheral nerve blocks the duration of analgesia may be prolonged with age depending on the baricity of the bupivacaine solution. When using 0.75% ropivacaine for nerve blocks, age is a major factor in determining the duration of motor and sensory block. When general anesthesia carries great risk for the patient, administrating regional anesthesia if possible could provide an excellent solution [5].

Conclusions

Age-associated change of the physiological systems results in impaired function and reserve, which affects most of the organs (there is of course variability of such decline between patients). The importance of this, when it comes to anaesthesia is that such a patient is less able to respond to perioperative stress and more likely to suffer from an adverse postoperative outcome.

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