



# Controversies in Anaesthesia Induced Developmental Neurotoxicity

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## DESCRIPTION

General anesthesia is a medical procedure that involves the administration of drugs to induce a temporary state of unconsciousness in a patient. It is typically used during surgeries or other medical procedures to help the patient remain still and pain-free. While general anesthesia is generally considered safe and effective, it is not without its challenges. In this article, we will explore some of the pharmacological challenges associated with general anesthesia. The pharmacology of general anesthesia involves the use of drugs to produce a state of unconsciousness in the patient. There are several different classes of drugs used in general anesthesia, including sedatives, hypnotics, analgesics, and neuromuscular blockers. Sedatives and hypnotics are used to induce a state of relaxation and drowsiness in the patient. These drugs are typically administered intravenously and act on the central nervous system to reduce anxiety and promote sleep. Examples of sedatives and hypnotics commonly used in general anesthesia include propofol, midazolam, and etomidate. Analgesics are used to control pain during and after surgery. These drugs act on the peripheral and central nervous systems to reduce the perception of pain. Commonly used analgesics in general anesthesia include fentanyl, morphine, and hydromorphone. Neuromuscular blockers are used to paralyze the muscles of the body, making it easier for the surgeon to perform the necessary procedures. These drugs act on the neuromuscular junction to prevent the transmission of nerve impulses to the muscles. Examples of neuromuscular blockers commonly used in general anesthesia include vecuronium, rocuronium, and atracurium. While general anesthesia is generally considered safe and effective, there are several challenges associated with its use. These challenges can arise from the pharmacology of the drugs used, as well as from the patient's medical history and other factors. One of the biggest challenges in general anesthesia is the potential for drug interactions. Many patients undergoing surgery are taking multiple medications for other medical conditions, and

these medications can interact with the drugs used in general anesthesia. For example, some medications can increase the effects of sedatives and hypnotics, leading to a deeper level of anesthesia than intended. Other medications can interfere with the metabolism of drugs used in general anesthesia, leading to prolonged effects or unexpected side effects. To minimize the risk of drug interactions, it is essential for anesthesiologists to carefully review the patient's medical history and current medications before administering general anesthesia. In some cases, it may be necessary to adjust the dose or timing of medications to avoid adverse drug interactions. In addition to drug interactions, there are several patient factors that can affect the safety and effectiveness of general anesthesia. These factors include the patient's age, weight, medical history, and current health status. For example, older adults may be more sensitive to the effects of sedatives and hypnotics, requiring lower doses to achieve the desired level of anesthesia. Patients with certain medical conditions, such as heart or lung disease, may require special monitoring or adjustments in the drugs used during general anesthesia. To minimize the risks associated with patient factors, anesthesiologists must carefully evaluate each patient's individual needs and tailor the anesthesia plan accordingly. This may involve additional monitoring, adjustments in drug dosages, or other interventions to ensure safe and effective anesthesia. Another challenge in general anesthesia is the emergence from anesthesia. After the surgery is complete, the patient must be brought out of the state of unconsciousness and allowed to wake up gradually. This process can be complicated by factors such as drug interactions, patient factors, and surgical complications.

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## CONFLICT OF INTEREST

The author declares there is no conflict of interest.

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