Editorial Note
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Neurosurgical Anesthesia

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Editorial

Neurosurgical anesthesiology is a subspecialty of anesthesiology devoted to the anesthetic management of people with the disease of the Central Nervous System (CNS) including the brain and the spine. The field has undergone extensive development since the late 1960s and early 1970s correlating with the ability to measure Intracranial Pressure (ICP), Cerebral Blood Flow (CBF), and Cerebral Metabolic Rate (CMR) Anesthetic techniques must be modified in the presence of intracranial hypertension and marginal cerebral perfusion. In addition, many neurosurgical procedures require patient positions (eg. sitting, prone) that further complicate management. This chapter applies the principles developed into the anesthetic care of neurosurgical patients. Intracranial hypertension is defined as a sustained increase in Intracranial Pressure (ICP) above 15 mmHg. Intracranial hypertension may result from an expanding tissue or fluid mass, a depressed skull fracture if it compresses a venous sinus, inadequate absorption of Cerebrospinal Fluid (CSF), excessive Multiple factors may be present. For example, tumors in the posterior fossa usually not only are associated with some degree of brain edema and mass effect but also readily obstruct CSF outflow by compressing the fourth ventricle (obstructive hydrocephalus).

Journal of Clinical Anesthesiology gives the month to month 3 types of anesthesia are:

- General anesthesia: The patient is unconscious and feels nothing. A patient receives medicine by breathing it or through an IV
- Local anesthesia: The patient is wide awake during surgery. Medicine is injected to numb a small area
- Regional anesthesia : The patient is awake, and parts of the body are asleep. Medicine is injected

Two factors make obtaining a detailed description of how these agents act difficult. The first is that volatile anesthetics, unlike most of the drugs used in medicine, bind only very weakly to their site(s) of action. A second problem is that volatile anesthetics tend to partition into lipids and exert their primary effects on synaptic neurotransmission by interacting with proteins in a lipid environment. Genetic tools are providing promising results regarding the molecular mechanism of anesthetic action. For example, researchers can alter specific protein functions and then determine whether this protein can be linked to sensitivity or resistance to anesthetic action in lower organisms. Thus the simple answer to the question "How does anesthesia work?" is that, although we know a great deal about the physiologic effects and macroscopic sites of action, we don't yet know the molecular mechanism(s) of action for general anesthetics. Many of the tools necessary to answer these questions now exist and we can look forward to new insights into how this great boon to humanity works at the molecular level.

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