Drug Type	Examples	Induction Dose	Key Effects and Uses	Side Effects	Contraindications
Barbiturate	Thiopental, Methohexital	3-5 mg/kg	Rapid induction, depresses reticular activating system, interacts with GABA	Hypotension, respiratory depression, laryngeal spasm, bronchospasm, allergic reactions, tissue necrosis	Airway obstruction, porphyria, hypersensitivity
Etomidate	Etomidate	0.2-0.4 mg/kg	Mimics GABA effects, minimal cardiovascular effects, used for induction	Pain on injection, adrenocortical suppression, allergic reactions, may activate seizure activity	None specified
Propofol	Propofol	1.5-2.5 mg/kg	Facilitates inhibitory neurotransmitters, used for induction, sedation, maintenance	Respiratory depression, hypotension, pain on injection, bacterial growth, allergic reactions	None specified
Ketamine N-methyl-D-aspartae receptor antagonist	Ketamine	1-2 mg/kg (IV), 3-5 mg/kg (IM)	Dissociative anesthesia, analgesic effects, increases BP and HR, bronchodilator	Hallucinogenic effects, nightmares, increased intracranial pressure	Coronary artery disease, hypertension, heart failure
Benzodiazepines	Midazolam, Diazepam, Lorazepam	0.1-0.4 mg/kg (IV)	Enhances inhibitory effects of GABA, used for sedation, induction, seizure control	Respiratory depression, venous irritation, minimal cardiovascular effects, antegrade amnesia	None specified
Opioids	Fentanyl, Morphine, Remifentanil, Alfentanil, Pethidine	Varies by drug	Analgesia, respiratory depression, sedation, blocks stress hormone release	Chest wall rigidity, nausea, vomiting, histamine release	Hypersensitivity

Indication of propofol:

1. **Induction of anesthesia**
2. **Sedation**

3. **Maintenance of anesthesia**
4. **Antiemetic**
5. **Antipruritic**
6. **Anticonvulsant**
7. **Attenuation of bronchoconstriction**

Intravenous Anesthetic Drugs Schedule

MCQs on Intravenous Anesthesia

From *Morgan & Mikhail's Clinical Anesthesiology*

1. **What are the pharmacokinetic properties of propofol that make it an ideal intravenous induction agent for anesthesia?**
   a) Slow onset, high protein binding
   b) Rapid onset, short context-sensitive half-time
   c) High lipid solubility, prolonged elimination half-life
   d) Slow distribution phase, low bioavailability
   Answer: b

2. **Which of the following is a common side effect of propofol?**
   a) Hypertension
   b) Myoclonus
   c) Bradycardia and hypotension
   d) Hyperthermia
   Answer: c

3. **Which intravenous anesthetic has the least impact on cardiovascular function?**
   a) Propofol
   b) Etomidate
   c) Ketamine
   d) Thiopental
   Answer: b

4. **Ketamine is contraindicated in which of the following conditions?**
   a) Asthma
   b) Hypovolemia
   c) Increased intracranial pressure
   d) Chronic pain syndromes
   Answer: c

5. **Propofol infusion syndrome is characterized by which of the following?**
   a) Hypotension, metabolic alkalosis, and liver failure
   b) Hyperglycemia, renal failure, and cardiac arrest
   c) Metabolic acidosis, rhabdomyolysis, and cardiac dysfunction
   d) Seizures, hypertension, and hyperkalemia
   Answer: c

6. **Which of the following explains the unique pharmacokinetics of propofol?**
   a) Minimal hepatic metabolism
   b) Extensive redistribution to peripheral tissues
   c) Slow onset and prolonged duration of action
   d) High plasma protein binding with prolonged recovery
   Answer: b

7. **What is the most significant advantage of using etomidate in critically ill patients?**
   a) Excellent analgesia
   b) Minimal respiratory depression
   c) Hemodynamic stability
   d) Long duration of action
   Answer: c

8. **Which of the following anesthetic agents provides both anesthesia and analgesia?**
   a) Propofol
   b) Ketamine
   c) Thiopental
   d) Etomidate
   Answer: b

9. **What is the primary mechanism of action of propofol?**
   a) NMDA receptor antagonism
   b) Enhancement of GABA-A receptor activity
   c) Alpha-2 adrenergic agonism
   d) Dopaminergic receptor inhibition
   Answer: b

10. **What are the clinical features of ketamine-induced dissociative anesthesia?**
    a) Profound amnesia, paralysis, and hypotension
    b) Cataleptic state, nystagmus, and analgesia
    c) Sedation, muscle relaxation, and bradycardia
    d) Hyperalgesia, dysphoria, and hypertension
    Answer: b

From *Miller's Anesthesia*

11. **Which of the following differentiates midazolam from other benzodiazepines used in anesthesia?**
    a) It has the longest half-life.
    b) It is water-soluble at physiological pH.
    c) It has the strongest amnestic effects.
    d) It has the highest lipid solubility.
    Answer: b

12. **Dexmedetomidine provides sedation primarily through its action on which receptor?**
    a) GABA-A
    b) NMDA
    c) Alpha-2 adrenergic

d) Dopamine D2
Answer: c

13. What is the primary endocrine side effect of etomidate?
a) Increased cortisol production
b) Inhibition of adrenal steroidogenesis
c) Thyroid suppression
d) Hyperaldosteronism
Answer: b

14. Which of the following is a key characteristic of ketamine?
a) Causes severe respiratory depression
b) Produces dissociative anesthesia
c) Has a very short duration of action
d) Lacks analgesic properties
Answer: b

15. The context-sensitive half-time of an intravenous anesthetic agent depends on which of the following?
a) Patient age
b) Total dose administered and infusion duration
c) Liver and kidney function only
d) Volume of distribution
Answer: b

16. What is the primary mechanism of action of dexmedetomidine?
a) GABA-A receptor agonism
b) Alpha-2 adrenergic agonism
c) NMDA receptor antagonism
d) Serotonin receptor antagonism
Answer: b

17. Which agent is best suited for rapid sequence induction in patients with unstable cardiovascular status?
a) Propofol
b) Etomidate
c) Ketamine
d) Midazolam
Answer: b

18. What is the main limitation of thiopental in modern anesthesia practice?
a) Lack of amnestic properties
b) High risk of cardiovascular instability
c) Slow onset of action
d) Prolonged recovery due to redistribution
Answer: d

19. Which of the following properties makes remimazolam unique compared to other benzodiazepines?
a) Non-hepatic metabolism by plasma esterases
b) Long duration of action
c) Potent analgesic effects

d) Minimal amnestic properties
Answer: a

20. What factor primarily affects the clearance of propofol in patients with hepatic or renal dysfunction?
a) Hepatic microsomal enzyme activity
b) Redistribution to peripheral tissues
c) Clearance is minimally affected due to extrahepatic metabolism
d) High protein binding decreases clearance
Answer: c