

HISTORY

Horace Wells (Dentist) - Father of Anesthesia

"Straight" N₂O (no oxygen)

Pt. was asphyxiated - remained unconscious about 2 min.

Sedative - mixed with O₂

LEVELS OF SEDATION / GENERAL ANESTHESIA**Conscious**

Stage I - INDUCTION - sedated, able to respond to commands

Unconscious

Stage II - DELIRIUM/EXCITEMENT - amnesic, agitated, irregular breathing, pupils dilate

Stage III - SURGICAL ANESTHESIA - protective reflexes gone

Stage IV - RESPIRATORY PARALYSIS – reversible death

RATIONALE

Many types of pharmacosedation are available:

1. Oral
2. Rectal
3. IM
4. IV
5. Inhalation

Advantages of N₂O-0₂ Sedation

1. rapid onset
2. rapid peak clinical effect: titration possible
3. sedation levels readily changed in either direction
4. duration of action variable
5. recovery time rapid and most complete: convenient for out-patient setting
- * 6. titration: increased safety
7. No injection required
8. Very few side effects = SAFE!
9. No adverse effects on: liver, kidneys, CVS, respiratory system
10. mild analgesic effect: local anesthetic may not be needed for some procedures

Disadvantages

1. Initial cost = high
2. Continuing cost = high
3. equipment bulky
4. Not potent - no sedative effect on some people
5. Patient cooperation required
6. Training for all dental staff
7. Possible deleterious health effects to health care personnel (not patient) with *chronic* trace exposure

INDICATIONS**Primary indications**

1. Anxiety
2. Medically compromised patient
 - Cardiovascular disease
 - Respiratory disease
 - Cerebrovascular disease
 - Hepatic disease
 - Epilepsy and seizure disorders

Pregnancy
Allergy
Diabetes

3. Gagging

Other indications

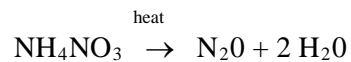
1. Procedures requiring short duration and light level of anesthesia

CONTRAINDICATIONS

1. **Absolute** Contraindications - **NONE!** Non-allergenic
2. **Relative** Contraindications
 1. Pt. with compulsive personality
 2. Claustrophobic
 3. Children with severe behavior problems
 4. Patients with severe personality disorders
 5. Upper respiratory tract infection or acute respiratory condition
 6. COPD - chronic obstructive pulmonary disease
 7. Pt. does not want N₂O-O₂
 8. Pregnancy ?

PHARMACOLOGY

Preparation:



Pharmacology of N₂O

1. Rapid uptake by CVS - up to 1000 ml / min.
2. Enters sinuses 35 times faster than N₂ leaves
- *3. Does not undergo biotransformation in the body
4. Diffusion hypoxia
5. Nonallergenic

Effects on organ systems by N₂O

1. CNS - depression
2. CVS
 - slight depression of myocardium
 - no drop in blood pressure
 - peripheral vasodilation
3. Respiratory - slight changes related to sedation level
4. GI - nothing
5. Kidneys - nothing

Effects on organ systems by 100% O₂

1. CNS - nothing
2. CVS
 - slight depression
 - vasoconstriction