

Anesthesia for Liposuction Surgery

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Liposuction Surgery

- Most commonly performed cosmetic surgery procedure in the world
- 1999--600,000 procedures performed in the US

History of Liposuction

- 1921 - Dijarrier curetted calves on a ballerina.
 - ◆ Gangrene
 - ◆ Amputation
- 1980s technique developed using large cannula and no local anesthesia
- 1990 - Klein developed tumescent technique

Dry Technique (non-tumescent)

- Significant blood loss
 - ◆ 18% in women
 - ◆ 23 % in men
- Significant third space fluid loss
- Autologous blood frequently given

Tumescent Technique

- Subcutaneous infiltration
- Lidocaine 1%
- Epinephrine 1 mg
- Diluted in Lactated Ringers or NSS 1000 ml

Pharmacology and Pharmacokinetics of Local Anesthetics

- Recommended maximum dose of lidocaine in 7 mg/kg
- Tumescent local doses reported as
 - ◆ 35 mg/kg to 55mg/kg

Explanation of higher doses (deJong)

- 1 gm of subdermal tissue can bind and sequester up to 1 mg of lidocaine
- Over 1 gm leaves the extra lidocaine molecules unbound and free to absorb rapidly
- Liver's maximum clearance is approximately 250 mg of lidocaine per hour
 - ◆ Hepatic function is critical

Peak Plasma Lidocaine Levels

- 12 -14 hours post infiltration
- Clinical anesthesia for 18 hours

Plasma Epinephrine levels

- 4 times physiologic
- 3 hours post infiltration

Anesthesia Techniques

- Areas to be suctioned
- Patient's position may determine technique
- Limitations of facility

General Anesthesia

- No special technique
- Endo tube, mask or LMA
- Concerns regarding PONV
- No need for muscle relaxation

Conscious Sedation

- Patient' Understanding
- May be able to assist with moving

Regional Anesthesia

- Popular technique for lower body suction
- Single dose epidural

Hypnosis

Fluid Replacement

TOTAL ASPIRATE	IV FLUID REPLACEMENT
Small volume (less than 4 liters)	Maintenance fluid + subcutaneous wetting solution
Large volume (4 liters or more)	Maintenance fluid + subcutaneous wetting solution + 0.25 cc of intravenous crystalloid per cc of aspirate removed after 4 liters.

Positioning

Temperature Control

Complications

- Pulmonary Embolism
 - ◆ Type
 - ◆ Thromboembolism
 - ◆ Fat Embolism
 - ◆ Causation
 - ◆ Venous stasis
 - ◆ Caval Compression
 - ◆ Procedural Fat mobilization

Complications

- Lidocaine Toxicity
 - ◆ Cardiovascular
 - ◆ Convulsions
 - ◆ Hepatic enzyme saturation
- Causation
 - ◆ Condition/contraction depressor (rare)
 - ◆ Drug interaction
 - ◆ Relative Overdose

Pulmonary Edema

- Overhydration
- Hypodermoclysis
- Causation
 - ◆ IV fluid overdose
 - ◆ Tumescant fluid absorption

Organ Perforation

- ◆ Abdominal wall and/or viscera
- ◆ Causation
 - ◆ Suction cannula misdirection
- 50-80% mortality rate

Hemorrhage

- Intraoperative
- Postoperative
- Causation
 - ◆ Major vessel perforation
 - ◆ Coagulopathy
 - ◆ Surgical Technique

Third Space Fluid Shifts

- Excessive Aspiration
- Causes Extensive subsurface “burn”

Epinephrine Toxicity

- Hypertension and tachycardia
- Causation
 - ◆ Undocumented (in-situ metabolism)

Post-operative Care
