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Are State Regulations for Liposuction Preventing Deaths? The Case of Los Angeles County

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INTRODUCTION: Numerous deaths due to liposuction have been reported since the technique was introduced in the US in 1982. Reported causes of death included bacterial infections, bleeding, perforation of abdominal viscera, pulmonary embolus (venous or fat), lidocaine toxicity and fluid overload. As a result, 20 states established regulations for liposuction. California's regulations began in 1999 and revised in 2003. These emphasize volume of fat removed, monitors and procedure duration. Are these regulations preventing deaths? We reviewed all deaths determined by the Los Angeles County Coroner's office to be from liposuction.

METHODS: Using the Coroner's data base, we searched for "liposuction" and pulled the available records. Records from 1999-2007 were incomplete, missing records of the procedure. Data collected from charts was patient demographics, date and site of the procedure, type of anesthesia, anesthesia practitioner, length of procedure, volume of tumescent fluid injected, volume of fat removed, time of death and autopsy and toxicology findings.

RESULTS: Nine cases were found. The first 2 deaths were in 1996; their records were not available. After 1996, years of death were 1999 (1), 2003 (1), 2004 (1), 2007 (1) and 2010 (3). Patient (pt) age ranged from 29 to 61 yrs (mean 46.4, median 46.5 yrs). Six were female, 1 was male. Pt weight was 150-206 lbs (mean 179, median 184 lbs) and BMI was 25-36 (mean 29.5, median 29). ASA PS mean was 2.0; only 1 pt was PS 3, because of sleep apnea.

No case was done in a hospital. Four were in MD offices, 3 were in an OPSU. Three pts had additional plastic procedures: 1 mammoplasty and 2 "buttock lifts."

General anesthesia was used in only 2 cases, one by an MDA. Type of the other practitioner giving G/A could not be determined. The other 5 pts were sedated by the MD doing the procedure or assisting. It was impossible to analyze sedation practice due to charting problems. Less than half the pts had all the required monitors. One pt had unknown monitors; the others (4) all had BP; 2 also had an EKG and 3 also had pulse oximeters. Only the pt having G/A by the MDA had an ET CO_2 monitor. Procedures in offices did not have the required ACLS-certified staff to monitor the pt.

All pts had tumescent liposuction. Solution volume ranged from 0.8 L to 7 L, with a mean of 4.4 L. Volume of fat removed was 1.4-5.5 L, mean was 3.7 L. Two pts were discharged home, where they died on the day of the procedure. One pt died in the MD's office. The others were transferred to a hospital and died. Interval until death ranged from 1-7 days. Blood lidocaine levels after death were <0.5 ugm/ml- 13 ugm/ml, mean 6.4 ug/ml. Other sedative meds were found on toxicology. Causes of death were drug intoxication (lidocaine and sedatives), fat and venous emboli and CAD. One pt having a buttock lift had massive fat emboli, and DIC was activated.

CONCLUSIONS:

1.California's liposuction regulations do not prevent patient deaths.

2.The requirements for monitoring are not being met.

3.The regulations specify requirements by volume of fat removed. These are too high; pts died with even lower volumes.

4.Emboli during liposuction can be either fat or venous clots.

5.DIC can be activated by fat emboli.