Lin YW, Fan SZ, Chang KH, Huang CS, Tang CS (2010) A novel inspection protocol to detect volatile compounds in breast surgery electrocautery smoke. J Formos Med Assoc 109(7):511–516

LINK - https://www.ncbi.nlm.nih.gov/pubmed/20654790

Abstract

BACKGROUND/PURPOSE:

Electrocautery procedures generate malodorous smoke. This study quantified five volatile organic compounds detected in the smoke produced during breast surgery, and elucidated the factors that affect their chemical production.

METHODS:

All samplers were assembled in an acrylic chamber with a Tygon tube attached to the tip of a diathermy pencil. The electrocautery smoke was quantified by gas chromatography/mass spectrometry.

RESULTS:

In all samples, toluene was identified in concentrations of 2.48-5.50 mg/m(3). Higher concentrations were observed during modified radical mastectomy procedures. Patients with high body mass index revealed high toluene concentrations. Longer duration of electrocautery tended to produce more toluene.

CONCLUSION:

The sampling protocol enabled acquisition of smoke samples near the source without interrupting surgery. The findings suggest that type of surgery, patient body mass index and duration of electrocautery are factors that can alter production of chemicals.