Laparoscopic surgical smoke absorbed into bloodstream

Surgical smoke from laparoscopic surgery has harmful byproducts that are absorbed into the patient’s bloodstream, reaching toxic levels, new research shows.

Patients treated by laser or electro-surgery through a scope had acutely higher levels of methemoglobin and carboxyhemoglobin in their blood than control patients who had surgery using nonthermal methods.

These compounds are not capable of carrying oxygen to tissues. “Seventy-six percent of patients showed statistically elevated levels of methemoglobin after five minutes of surgery,” said the researcher, Douglas E. Ott, MD, of Macon, Ga, who presented the findings at the American Society for Laser Medicine and Surgery meeting in Toronto in April. At 15 minutes, 96% of subjects had increased levels, and at 30 minutes, 100% had.

Surgeons are advised to keep smoke to a minimum.

Normal levels are less than 1% for methemoglobin and less than 2% for carboxyhemoglobin, but smoke exposure raised levels to 4.2% and to as high as 18%, respectively.

“That is an elevation that makes your eyes open wide,” Dr Ott said. Levels in controls remained below 1% for methemoglobin and 3% for carboxyhemoglobin.

After surgery, about two-thirds of patients returned to preoperative levels within 60 to 120 minutes.

Patients who’ve had smoke-generating surgery also showed what Dr Ott called “soft signs.” Compared to controls, they had more postoperative headaches, double vision, muscle weakness and nausea vomiting. All patients had the same anesthetic and were matched for age and sex.

“Heathead is so ubiquitous that it’s not easy to say it’s cause and effect. But my belief is that it is.”

Dr Ott noted that pulse oximetry does not detect the elevated methemo-