

Letters to the Editor

Oxygen Administration During Carotid Endarterectomy

To the Editor:

Stoneham et al.¹ presented data from patients who breathed supplemental oxygen while undergoing carotid endarterectomy (CEA) under regional anesthesia. The patients received 28% oxygen via a Venturi face mask until 10 min after carotid cross-clamping at which the Fio_2 was increased to 1.0. No patients had signs of cerebral ischemia. Although administration of 100% oxygen increased the blood oxygen content, it was not clinically needed. The authors suggest that 100% oxygen should be administered to all patients undergoing CEA because "it is certainly unlikely to do any harm for the duration of the cross clamp period."¹

Recently, a practice advisory on the prevention of operating room fires was published.² Consultants strongly agreed that the concentration of oxygen delivered to the patient should be kept as low as clinically possible when electrocautery is used in surgery around the head, neck, and face because of the high risk of fire. Locally, we are aware of a patient whose oxygen mask was ignited during an "awake" CEA and who suffered severe burns of the face.

We suggest that higher than clinically necessary inspired oxygen concentration in patients without a laryngeal mask airway or endotracheal tube administered during head and neck surgery is a risk for significant morbidity. To minimize this risk, the presence of an enriched oxygen environment under the drapes should be disclosed to the surgeons and an oxygen administration strategy jointly planned that minimizes oxygen concentration during electrocautery use.

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Warning: Increased Risk of Surgical Fire

To the Editor:

Stoneham et al.¹ demonstrated that administration of 100% O_2 to patients during carotid cross-clamping resulted in a mean ipsilateral 6.9% increase in regional cerebral oxygen saturation compared with when they were receiving 28% O_2 . They suggested "this intervention could therefore be added to the list of possible interventions available to anesthesiologists who are concerned about the adequacy of cerebral oxygenation in patients undergoing CEA" and that "It is certainly unlikely to do any harm for the duration of the cross-clamp period (up to 1 hour)."¹ However, if the Fio_2 is increased then the risk of a high (>30%) oxygen concentration in an immediately adjacent surgical field is then present. Among the fire triangle of heat, fuel, and oxygen, an oxygen enriched atmosphere is the major risk factor in surgical fires in 74% of all cases.² Electrosurgical equipment has been a major ignition source (68%). The head or face is the second most common fire location (28%). There were 145 claims (2.2%) for burn injury among the 6449 total claims in the American Society of Anesthesiologists Closed Claims Project database by the year 2004.³ Cautery fires ($n = 27$) made up 19% of total burn claims. The majority of cautery fires occurred during monitored anesthesia care, and the use of supplemental oxygen was most often listed as an inciting event.

The Sentinel Event Alert from the Joint Commission on the Accreditation of Health Care Organizations (JCAHO) recommended "that staff should question the need for 100% O_2 for open delivery during facial surgery and, as a general policy, use air or Fio_2 at <30% for open delivery (consistent with patient needs)."² The authors do not describe their delivery as open and, in fact, specify that it is by close-fitting facemask, but it is our experience that it is difficult to reliably have a facemask with a perfect seal for any length of time.

Fires in the operating room are rare occurrences, but the consequences are severe. Based on the Food and Drug Administration and Emergency Care Research Institute estimates, there are still about 100 surgical fires per year in the United States with 20% resulting in serious wounds to the patient.⁴ If the team in the operating room believes it is important to the patient to increase the Fio_2 during carotid cross-clamp in a case done under regional anesthesia, then it is critical that the surgeon and nurse are aware and that cautery is not used during this time.

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