Citation:

Uppal M, Posner K, Roth S. Visual Loss Complicating Surgery: Review of 21 Cases. Anesthesiology, A-1136, 2000.

Abstract

Introduction

Postoperative vision loss is a rare but devastating complication following non-ophthalmological surgery. Its incidence is reported to be between 0.1% to 1%.[1,2] We report 21 cases of blindness following surgery.

Methods

After IRB approval, we reviewed all post-operative blindness cases collected through our international Postoperative Visual Loss Registry established in July 1999. Registry case inclusion criteria are blindness within 7 days after surgery and availability of full relevant medical records for review. No case identifying information (patients, providers, and hospitals) is collected. Blindness following ophthalmic surgery is excluded. Cases are reported on a standardized form available on the registry website [http://depts.washington.edu/asaccp].

Results

Case characteristics are shown in Table 1. Twenty had diagnoses of ischemic injury; 1 case was central retinal artery occlusion with unilateral blindness. Twelve cases involved back surgery in the prone position, usually in the lumbar region, mostly involving multiple levels with fusions. Four of these cases which had bilateral ischemic optic neuropathy (ION) had a mean blood loss of 6 L (range 2.2 L to 15 L). Of the 8 back cases with unilateral blindness, only one had a significant amount of blood loss (6 L). The mean blood loss in these cases was 2 L (range 0.1-6 L). All 12 back cases were long in duration (6 to 12 hours). Hypotension was involved in 5 of 12 cases with 4 of 5 of these being controlled hypotension. Seven of 12 patients were obese and 5 of 12 had a history of hypertension.

There were 6 cases of blindness following cardiopulmonary bypass, including left atrial to femoral bypass. Four of these 6 cases resulted in bilateral ION. One patient had partial improvement of vision. There were 2 cases of bilateral vision loss following liver transplants. Both involved large amounts of blood loss (>6.8 L) and one had prolonged (>3 hours) hypotension.

Discussion

Mechanisms of post-operative ION remain theoretical and research is undergoing to elucidate its causes. The development of post-operative ION is a devastating and unanticipated injury. A variety of factors have been suggested to contribute, including intraoperative hypotension,

anemia, massive fluid shifts and direct or indirect pressure on the globe. Most cases of postoperative-ischemic optic neuropathy do not show improvement. Preservation of normotension and hematocrit seems prudent but certainly other as yet unclear factors are involved in the pathophysiology of post-operative ION. Prevention and treatment strategies remain elusive.

[1]Williams, Anesth Analg 1995; 80:1018-29
[2]Myers, Spine 1997; 22:1325-1329

Funding for this project is provided by the ASA Committee on Professional Liability. The opinions expressed herein are those of the authors and do not reflect policy of the ASA.

Table: Postoperative Blindness Case Characteristics

Surgery:	Spine	12 (57%)
	Cardiopulmonary Bypass	6 (29%)
	Liver Transplant	2 (10%)
	Neck	1 (5%)
Sex:	Male	16 (76%)
Medical History:	Obesity	11 (52%)
	Smoking	10 (48%)
	Hypertension	8 (38%)