

Re: Raised intraocular pressure and perioperative visual loss in laparoscopic colorectal surgery: a catastrophe waiting to happen? A systematic review of evidence from other surgical specialties

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Sir,

I read with interest the recent review by Pinkney et al. [1] identifying the highest risk of postoperative visual loss (POVL) as attributable to steep head-down and/or prone positions (such as jackknife).

Ischaemic optic neuropathy (ION) is the most important diagnostic feature of POVL [2]. Although it is not clear what the precise mechanism that leads to ION is, an increase in intraocular pressure (IOP) is the most likely explanation [3]. The accepted view that ophthalmic circulatory autoregulation prevents elevation in IOP and maintains ocular perfusion pressure (OPP) has been challenged in patients undergoing surgery in a steep head-down position. Several studies have established that positioning patients in such a way causes a rise in IOP and consequently impairment of OPP [4]. There is also a linear correlation between the duration of surgery with a head-down position and the increase in IOP [5]. It has been shown that an increase in IOP for a prolonged period of time can cause permanent visual loss in monkeys. A study undertaken by Hollenhorst and colleagues on monkeys, which simulated elevation in IOP to 200 mm Hg for 60 min together with hypotension, caused retinal oedema and dilation of vascular channels. These monkeys developed structural retinal damage and optic nerve axon loss due to retrograde degeneration after death of retinal ganglion cells [3]. This might suggest that surgery with the patient in a position that causes a significant rise in IOP for a prolonged period of time could have a causal effect on the mechanisms that lead to POVL.

It appears that the sequence of changes in patient positioning for extralevator abdominoperineal resection may increase the risk of POVL. The patients are initially placed in a steep head-down position in order to complete the abdominal dissection and then in a prone position to complete the perineal dissection. Regular measurement of IOP during operations like this might be a reasonable proposition. The position can then be abandoned if a critical threshold is reached. This threshold has been proposed to be greater than 40 mm Hg, at which physical signs of eye damage such as eyelid oedema and chemosis could be seen. This, in addition to universal precautions taken by anaesthetists, might go some way to preventing POVL [6].

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