Anesthesiology
52:99, 1980

In reply:—Blood pressure was recorded throughout the study, and no significant increase was seen with pretreatment or the full dose of succinylcholine or with tracheal intubation. The intraocular pressure during intubation can be affected by inadequate depression of laryngeal and tracheal reflexes, overextension of the head, time taken for intubation, hypoxia, hypercarbia, coughing, or straining. Goldsmith[1] reported increases in intraocular pressure in 57 per cent of cases after intubation without topical anesthesia and slight decreases in 83 per cent of cases when the larynx and tracheal were sprayed with local anesthetic prior to tracheal intubation. Thus, coughing and straining are important factors affecting intraocular pressure. Overextension of the head may prevent venous return and thus produce engorgement of the choroid plexus, leading to an increase in intraocular pressure. In our series, intubation was performed with slight extension of the neck and within 1 min. Therefore, in a well-oxygenated patient with adequate depth of anesthesia and muscular relaxation, there should not be an increase in intraocular pressure during tracheal intubation. A Schiötz tonometer was used because an applanation tonometer was not available. We were aware that frequent measurements with a Schiötz tonometer may decrease intraocular pressure by expressing aqueous fluid from the anterior chamber.

R. S. VERMA, M.S.
Lecturer
Department of Anaesthesiology
J. L. N. Medical College and Hospital
Ajmer-305001, Rajasthan, India

REFERENCE

1. Goldsmith E: An evaluation of succinylcholine and gallamine as muscle relaxants in relation to intraocular tension. Anesth Analg (Cleve) 46:557–561, 1967

(Accepted for publication July 31, 1979.)

Anesthesiology
52:99–100, 1980

Factors Affecting Measurement of Intraocular Pressure

To the Editor:—The recent article by Verma[1] concerning succinylcholine-induced fasciculations and intraocular pressure deserves some clarifications. Many variables influence intraocular pressure during anesthesia. Choice of drugs, depth of anesthesia, timing of measurement, venous and arterial pressures, sympathetic response, head position, and airway patency are only some of these. Verma does not record the blood pressures associated with each intraocular pressure measurement. Rapid changes in systolic blood pressure, which may occur during endotracheal intubation, may affect intraocular pressure. It is, therefore, important to record blood pressure responses during intraocular pressure measurements. The observation by Verma that intraocular pressure did not change with endotracheal intubation is at variance with previously published results,[2–4] and requires more of an explanation than the general statement that coughing and straining will increase intraocular pressure. Finally, the Schiotz tonometer measures corneal indentation and requires normal corneal elasticity. This technique, used so often in studies of intraocular pressure, is accurate only to within ±2 torr (M. W. Grant, personal communication*). Frequent measurements (requiring weighted indentation of the cornea) may decrease intraocular pressure by expressing aqueous humor from the anterior chamber. The Perkins applanation tonometry technique does not rely on gross corneal indentation or normal corneal elasticity, and is accurate to within ±0.5 torr.[5]

Verma also fails to discuss his findings in relation to two recent articles by Bowen *et al.*[3] and Meyers *et al.*[4] that suggest that eliminating succinylcholine-induced fasciculations does not prevent increases in intraocular pressure.

JOHN V. DONLON, JR., M.D.
Assistant Clinical Director
Anesthesia Department
Massachusetts Eye and Ear Infirmary and
Instructor in Anaesthesia
Harvard Medical School

* Professor of Ophthalmology, Harvard Medical School, and Surgeon, Massachusetts Eye and Ear Infirmary, Boston, Massachusetts.