

Intravenous Hypertonic Saline to Lower Intraocular Pressure in Ocular Hypertension and Primary Open-angle and Exfoliation Glaucoma

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PURPOSE: The purpose of this article was to quantitate the effect of intravenous hypertonic saline (IVHTS) on elevated intraocular pressure (IOP) among 3 groups of glaucoma patients or suspects.

MATERIALS AND METHODS: Among the forty-four patients with IOP 24 to 30 mm Hg included in this study, 13 had ocular hypertension (OHT) , 14 primary open-angle glaucoma (POAG) , and 17 exfoliation glaucoma (ExG) . Participants received a bolus of 23.4% IVHTS (1.0 mmol/kg) through an antecubital vein. We measured IOP, heart rate, and blood pressure before the bolus, thereafter every minute for 10 minutes, and less frequently for 2 hours.

RESULTS: The median baseline IOP was 24 mm Hg (range, 24 to 30 mm Hg) , 26.5 mm Hg (range, 24 to 30 mm Hg) , and 26 mm Hg (range, 24 to 30 mm Hg) in OHT, POAG, and ExG patients, respectively. Sixteen minutes after the bolus, IOP was a median of 9 mm Hg (range, 4 to 12 mm Hg) , 10 mm Hg (range, 6 to 12 mm Hg) , and 10 mm Hg (range, 4 to 14 mm Hg) lower in OHT, POAG, and ExG groups ($P=0.70$) , respectively. After 1 hour, the median IOP reduction was similar between ExG (9 mm Hg; range, 4 to 14 mm Hg) and POAG patients (9.5 mm Hg; range, 6 to 12 mm Hg) but lower in OHT patients (6 mm Hg; range, 2 to 9 mm Hg; $P=0.006$) . Heart rate decreased by a median of 7 beats/min. Blood pressure increased within 3 minutes (median, mm Hg; 15 systolic; 5 diastolic) , but returned to baseline at 10 minutes. Within 1 to 3 minutes of treatment, 36 (82%) patients felt pain in the infusion arm, and 29 (66%) reported a feeling of warmth in their head.

CONCLUSIONS: IVHTS reduced IOP effectively in all groups.

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