

Argon laser trabeculoplasty in triamcinolone acetonide induced ocular hypertension refractory to maximal medical treatment

F. RICCI¹, F. MISSIROLI¹, M. PARRAVANO²

¹Department of Ophthalmology, University of Roma "Tor Vergata"

²Fondazione G.B. Bietti per lo studio e la ricerca in Oftalmologia-IRCCS, Roma - Italy

PURPOSE. To report two cases of intraocular hypertension after intravitreal injection of triamcinolone acetonide (iTAA) that were refractory to maximal medical therapy and were successfully treated with argon laser trabeculoplasty (ALT).

METHODS. Two patients with history of primary open angle glaucoma were treated with intravitreal injection of triamcinolone acetonide for chronic macular edema secondary to branch retinal vein occlusion. Both patients (Case 1 after 2 months and Case 2 after 5 days) developed intraocular hypertension that did not respond to maximal medical therapy. Despite medical therapy, intraocular pressure (IOP) was 45 mmHg in Case 1 and between 34 and 37 mmHg in Case 2. ALT was performed in the inferior 180° angle using the following parameters: 50 µm size, 700 mW, 0.50 sec, 100 spots.

RESULTS. In both patients IOP returned to normal level a few days after ALT.

CONCLUSIONS. ALT seems to be effective at reducing IOP in patients with intraocular hypertension secondary to iTAA that does not respond to maximal medical treatment. (*Eur J Ophthalmol* 2006; 16: 756-7)

KEY WORDS. Argon laser trabeculoplasty, Intraocular hypertension, Triamcinolone

Accepted: May 7, 2006

INTRODUCTION

Steroid-induced elevation of intraocular pressure (IOP) is one of the two most common side effects of intravitreal injection of triamcinolone acetonide (iTAA).

After intravitreal administration of 20 mg of triamcinolone acetonide, an IOP elevation can develop in about 50% of eyes, starting about 1 to 2 months after the injection (1, 2). In the vast majority, IOP can be normalized by topical medication and returns to normal values without further medication within 6 to 9 months after the injection. In few cases (1.0%) filtering surgery is necessary in eyes that show an elevation of IOP to values up to 35 mmHg despite maximal

topical and systemic antiglaucoma therapy (1-3). Argon laser trabeculoplasty (ALT) is an additional therapeutic option for the treatment of open-angle glaucoma and it is often recommended when medical therapy alone is insufficient in controlling pressure and the progression of glaucoma (4, 5). We report two cases in which elevation of IOP after iTAA injection did not respond to topical and systemic antiglaucoma medications and was successfully treated by ALT.

Case 1

A 77-year-old man with primary open angle glaucoma (POAG) was on topical medication with latanoprost with a well-controlled IOP of 18 mmHg in both eyes. Four weeks

after uneventful cataract surgery in both eyes he developed branch retinal vein occlusion (BRVO) in his left eye and best-corrected visual acuity (BCVA) dropped from 20/25 to 20/200. Three months later 20 mg iTAA injection was performed to reduce macular edema. His vision remained stable at 20/200 at the last follow-up 4 weeks later and IOP was 12 mmHg in his left eye with timolol 0.5% + dorzolamide fixed combination bid. Two months after injection the IOP started to rise up to 45 mmHg despite the medical therapy. Latanoprost qd, apraclonidine tid, and acetazolamide 250 mg tid were added to initial therapy lowering the IOP down to 32 mmHg. ALT was considered before taking the risk of a filtering procedure and it was performed in the inferior 180° angle using the following parameters: 50 µm size, 700 mW, 0.50 sec, 100 spots. Three days after ALT IOP returned to 12 mmHg. In the follow-up visits at 1 and 2 months after ALT vision was 20/40 and IOP remained stable at 16 mmHg with timolol 0.5% + dorzolamide fixed combination bid.

Case 2

A 65-year-old man with history of POAG was well compensated with timolol 0.5% bid in both eyes with IOP of 16 mmHg bilaterally. He received a single 20 mg intravitreal injection of triamcinolone acetonide for a chronic progressive macular edema secondary to BRVO in his left eye. Five days after injection IOP was 16 mmHg in his right eye and 36 mmHg in his left eye with timolol 0.5% bid bilaterally. The therapy was changed in his left eye with timolol 0.50% + dorzolamide fixed combination bid, latanoprost qd, and acetazolamide 250 mg tid. At the 1 and 4 weeks follow-up examinations IOP was ranging between 34 and 37 mmHg in his left eye. ALT was performed using the same parameters as Case 1 in inferior 180° angle.

IOP normalized in 5 days and at 4 weeks and 2 months

after ALT it was ranging between 12 and 17 mmHg with the initial therapy of timolol 0.5% bid.

DISCUSSION

Intravitreal triamcinolone has been already used in glaucoma patients (1). Glaucoma is not an absolute contraindication for iTAA injection. The elevation of IOP in these patients is more frequent after the injection compared to non glaucomatous patients. As a surgical procedure presents some risk and the IOP elevation after iTAA injection is usually temporary, ALT seems to be a safe and effective approach to manage those patients who do not respond successfully to maximal medical treatment before performing filtering surgery. Viola et al recently reported three patients who developed elevated IOP after iTAA injection, uncontrolled by topical antiglaucomatous medication, treated with argon laser trabeculoplasty (6). With our two cases we confirmed this experience and report that ALT seems to be effective also in patients with diagnosis of glaucoma before the iTAA injection. Furthermore the treatment of the inferior 180° angle has been as effective as the treatment performed over 360° by Viola et al.

However, a larger number of treated patients will be needed to assess whether ALT permanently reduces the IOP in these patients.

The authors have no proprietary interest in this report.

Reprint requests to:
Filippo Missiroli, MD
Cattedra di Ottica Fisiopatologica
Via Montpellier 1
00133 Roma, Italy
f.missiroli@mclink.it

REFERENCES

1. Jonas JB, Kreissig I, Degenring R. Intraocular pressure after intravitreal injection of triamcinolone acetonide. *Br J Ophthalmol* 2003; 87: 24-7.
2. Jonas JB, Kreissig I, Degenring RF. Secondary chronic open angle glaucoma after intravitreal triamcinolone acetonide. *Arch Ophthalmol* 2003; 121: 729-30.
3. Jonas JB, Degenring RF, Kampeter BA. Outcome of eyes undergoing trabeculectomy after intravitreal injections of triamcinolone acetonide. *J Glaucoma* 2004; 13: 261.
4. Chung PY, Schuman JS, Netland PA, Lloyd-Muhammad RA, Jacobs DS. Five-year results of a randomized, prospective, clinical trial of diode vs argon laser trabeculoplasty for open-angle glaucoma. *Am J Ophthalmol* 1998; 126: 185-90.
5. Shingleton BJ, Richter CU, Dharma SK, et al. Long-term efficacy of argon laser trabeculoplasty. A 10-year follow-up study. *Ophthalmology* 1993; 100: 1324-9.
6. Viola F, Morescalchi F, Staurenghi G. Argon laser trabeculoplasty for intractable glaucoma following intravitreal triamcinolone. *Arch Ophthalmol* 2006; 124: 133-4.