

Ahmed Glaucoma Valve and Single-Plate Molteno Implants in Treatment of Refractory Glaucoma: A Comparative Study

Nader Nassiri et al. Ahmed Glaucoma Valve and Single-Plate Molteno Implants in Treatment of Refractory Glaucoma: A Comparative Study. Am J Ophthalmol. 2010 Jun;149(6):893-902.

STUDY OVERVIEW:

- Prospective, randomized comparative study with 24-month follow-up
- 92 patients randomized to the Ahmed Group (FP7, 184 mm²) or the Molteno[®] Group (134mm²)

STUDY FINDINGS:

- Authors noted more severe hypertensive phase in the Ahmed Group resulting from immediate exposure to glaucomatous aqueous i.e. “immediate aqueous filtration through the Ahmed valve can stimulate a fibrotic response to inflammatory factors in the subconjunctival space...”
- The most common postoperative complication was an encapsulated bleb, which occurred more frequently with the Ahmed Group.
- The Molteno[®] Group showed higher IOP at postoperative day 1 and week 1. From postoperative month 1 until the end of the trial, IOP remained significantly lower in the Molteno[®] Group than in the Ahmed Group. This is despite a comparable number of antiglaucoma medications between the two groups.
- Authors comment: “The Molteno[®] Group had better IOP control after the immediate postoperative period, and this device may be a better choice, especially in eyes with advanced glaucoma where more IOP reduction is required.”

EFFICACY OUTCOMES:

	Mean IOP (mmHg)		Mean Medication (n)	
	Baseline	24 months	Baseline	24 months
Molteno[®] (n=28)	33.0 ± 1.66	15.36 ± 0.33 (p<.001)	2.7 ± 0.11	1.41 ± 0.19 (p<.001)
Ahmed Glaucoma Valve[®] (n=29)	30.8 ± 1.67	17.00 ± 0.23 (p <0.001)	2.8 ± 0.11	1.03 ± 0.27 (p<0.001)

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INDICATIONS: The Molteno3® is indicated to reduce intraocular pressure in neovascular glaucoma and glaucoma where medical and conventional surgical treatments have not been successful, to control the progression of disease.

CONTRAINDICATIONS: Patients with the following conditions may not be suitable candidates for the Molteno3®: 1. intraocular infection, 2. rheumatoid arthritis, scleritis and immune corneal melt syndromes, 3. Scleral Buckle.

COMPLICATIONS: Possible complications with the use of the Molteno3® include, but are not limited to: choroidal detachment, retinal detachment, expulsive haemorrhage, pupillary block, lenticulo-ciliary block, shallowing and flattening of the anterior chamber, intraocular infection, diplopia, loss of central vision, hypotony and corneal endothelial damage.

ADVERSE EVENTS: Possible adverse events with the use of the Molteno3® include, but are not limited to: corneal endothelial damage when the tube touches the corneal endothelium, breakdown of the tissues overlying the bleb, diplopia when the placement of the implant interferes with the action of the extraocular muscles, corneal decompensation, progression of lens opacities, cystoid macular oedema, retinal detachment and intraocular infection

PRECAUTIONS: Caution should be taken with supra-Tenon implantation; erosion of the conjunctiva is known to result from the raised edge of the oval pressure ridge (Molteno3® G-Series) of surgical techniques, proper use of the surgical instruments, and post-operative patient management are considerations essential to a successful outcome.

