



<b>Title</b>	<b>Argon laser peripheral iridoplasty (ALPI) versus systemic intraocular pressure lowering medications as the immediate management for phacomorphic angle closure</b>
<b>Author(s)</b>	<b>Lee, WYJ; Lai, JSM; Yick, DW; Yuen, CY</b>
<b>Citation</b>	<b>The 10th European Glaucoma Society (EGS) Congress, Copenhagen, Denmark, 17-22 June 2012</b>
<b>Issued Date</b>	<b>2012</b>
<b>URL</b>	<b><a href="http://hdl.handle.net/10722/208661">http://hdl.handle.net/10722/208661</a></b>
<b>Rights</b>	<b>Creative Commons: Attribution 3.0 Hong Kong License</b>

# Argon Laser Peripheral Iridoplasty (ALPI) versus Systemic Intraocular Pressure (IOP) Lowering Medications as the Immediate Management for Acute Phacomorphic Angle Closure

Dr. Jacky W.Y. Lee, Professor Jimmy S.M. Lai  
The Eye Institute, The University of Hong Kong

**Purpose:** To compare the efficacy and safety of **ALPI versus systemic IOP lowering medications** in the immediate management of acute phacomorphic angle closure (a secondary angle closure caused by the anterior protrusion of an intumescent cataract resulting in pupil block and irido-trabecular angle closure).

**Patients and Methods:** This was a **prospective randomized controlled study** conducted in Hong Kong, China from 2009 to 2010. Patients were randomized to receive **intravenous (IV) and oral carbonic anhydrase inhibitor** or **ALPI** as the initial treatment. IV mannitol was administered in both groups for presenting IOP>60mmHg or IOP>40mmHg 2 hours post treatment. All cases received topical Timolol, Atropine, and steroids prior to definitive cataract extraction.

## Results:

ALPI offered better results in:

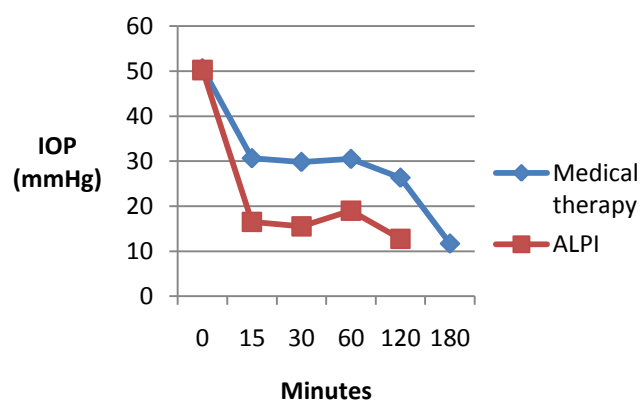
- 1) **The time taken to lower IOP to 25mmHg** (115.0±97.0 mins in the medical group vs. 18.8±7.5 mins in the ALPI group; t test p=0.06, **F test p=0.001**)
- 2) **The reduction of IOP within the first 30 minutes** (20.8±13.5mmHg in the medical group vs. 34.8±3.2mmHg in the ALPI group; t test p=0.06, **F test p=0.04**)
- 3) **The post attack CDR** (0.60±0.20 in the medical group and 0.50±0.02 ALPI group; t test p=0.2, **F test=0.002**)

The following parameters were comparable in both groups: the degree of peripheral anterior synechiae (PAS) formation, angle, retinal nerve fibre layer, endothelial cell count, post-op visual acuity and post-op IOP

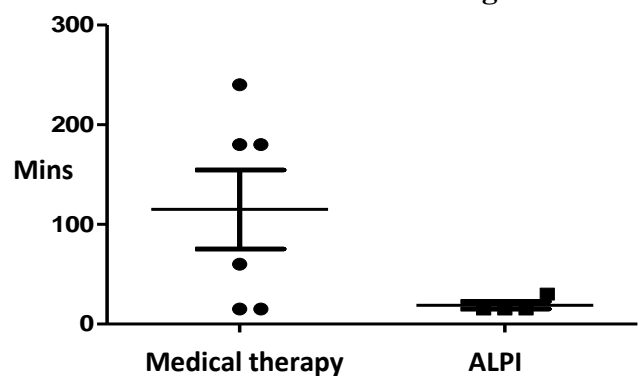
## Comparison between medical therapy vs. ALPI

	Medical therapy (n=6)	ALPI (n=4)
Age	79.7±7.2 years	78.3±11.0 years
Presenting IOP (mmHg)	50.7±8.4 mmHg	50.25±6.9 mmHg
Presenting VA	HM to LP	HM to LP
Duration of phacomorphic angle closure	2.8±3.5 days	0.9±0.25 days
IOP 15 mins after treatment	30.1±15.6mmHg	16.5±11.4mmHg
IOP 30 mins after treatment	29.8±13.5mmHg	15.5±5.3mmHg
IOP 60 mins after treatment	30.5±14.4mmHg	19±1.7mmHg
IOP 120 mins after treatment	26.3±13.4mmHg	12.8±7.5mmHg
IOP 180 mins after treatment	11.7±5.9mmHg	Not recorded (all IOP<25mmHg)
Percent requiring IV mannitol	50%	0
IOP at Day 1 after treatment	15.8±4.2mmHg	16.7±9.0mmHg
Time from treatment to cataract extraction	1.7±0.8 days	1.3±0.5 days
IOP at 3 months after attack	11.2±4.2	9.5±2.3mmHg
IOP at 9 months after attack	11.2±3.3mmHg	11.5±3.1mmHg
Percent requiring topical glaucoma medication	16.7%	0
BCVA at 1 months after attack (Snellen)	0.4±0.2	0.4±0.2
Angle at 3 months after attack	35.9±4.6°	38.8±3.6°
PAS at 3 months after attack	45±45.3°	22.5±45°
Endothelial count at 3 months after attack	1928.5±529.1 cells/mm <sup>2</sup>	2379.3±573.3 cells/mm <sup>2</sup>
RNFL at 3 months after	88.7±21.6um	102.9±24.4um
RNFL at 9 months after	78.3±20.5um	96.1±19.1um
VCDR by OCT 3 months after attack	0.6±0.2	0.5±0.02

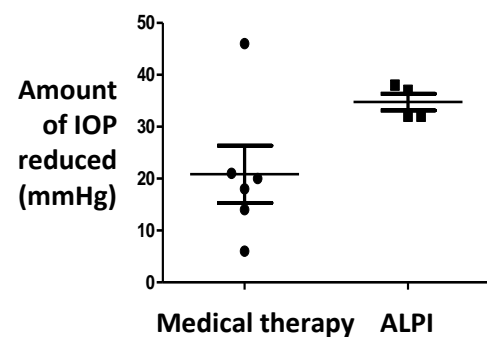
## Change in IOP: medical vs. ALPI



## Time to IOP < 25mmHg



## The amount of IOP reduction within the first 30 minutes of treatment



## Conclusion:

ALPI is **more consistent, safer, and more effective** than systemic carbonic anhydrase inhibitor and hyperosmotic agents in lowering the IOP during an acute attack of **phacomorphic angle closure**.