

电子壁报模板供参考

Realtime, Dynamic, Intraocular Pressure during microaxial phacoemulsification using two phacoemulsification systems : Randomized, clinical trial

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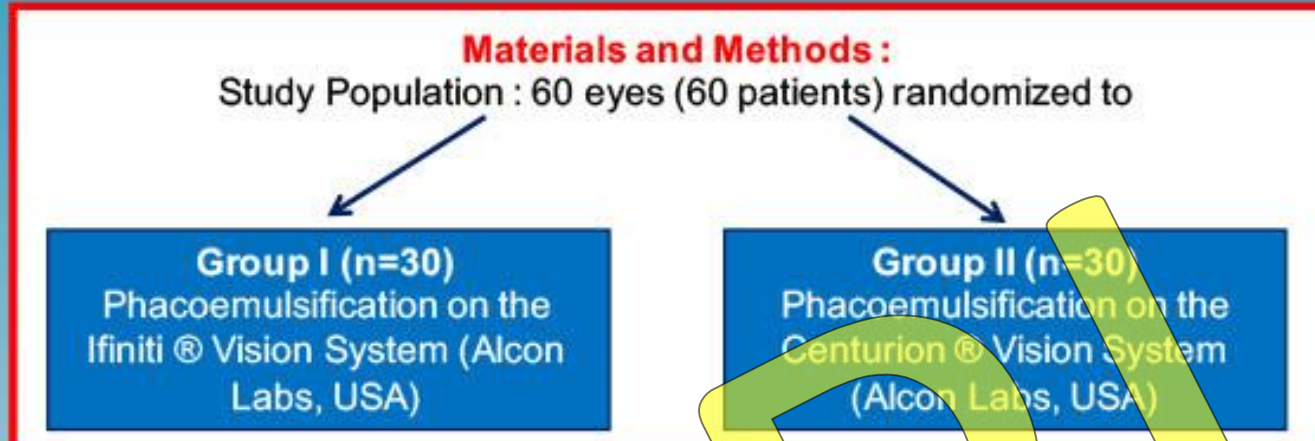


Introduction :
Higher aspiration flow rate and bottle heights are associated with high intraoperative IOPs of upto 85mmHg. Prolonged, elevated IOP during cataract surgery was found to have more anterior segment inflammation and more edematous corneas.

Introduction :
Peristaltic phacoemulsification systems can have :
1) Gravity based fluidics (eg, Infiniti, AlconLabs, Stellaris, B&L, Signature, Aboott)
2) Active fluidics (Centurion Vision Systm, AlconLabs, USA)
Ability to set target intraocular pressure (IOP) during surgery with active fluidics

Aim :
* To record real-time, dynamic IOP during phacoemulsification and compare it vis-à-vis preset IOP value in a phacoemulsification system that uses active fluidics
* To determine the differences in absolute IOP values and IOP fluctuations when comparing Gravity Based fluidics versus Active fluidics in two different phacoemulsification systems

Materials and Methods :
Study Design : Prospective, randomized, clinical trial
Study Population : 60 eyes of 60 patients undergoing microcoaxial phacoemulsification for uncomplicated, age-related cataracts at Raghudeep Eye Hospital
Inclusion criteria :
- Uncomplicated, age related cataracts
- Nuclear sclerosis grades II to IV (LOCS III classification)
Exclusion criteria :
- Co-existing ocular morbidities
- Pupillary dilatation < 6mm
- Previous intraocular surgery / trauma



Materials and Methods :
• Single surgeon, standardized surgical technique
• 2.2mm clear corneal, temporal incision
• Standardized ultrasound and fluidic parameters in both groups

Outcome Measures :
• Fluid used, Cumulative Dissipative Energy (CDE) compared
• Document IOP during nuclear fragment removal and compare vis-à-vis preset IOP
• IOP monitored and compared during nuclear fragment removal in both groups as : **Maximum IOP, Minimum IOP**
% Reduction of IOP (maximum IOP – minimum IOP x 100) / maximum IOP

Results - Table :
Ultrasound and Fluidic Parameters during Nuclear Fragment Removal

	Group I (Infiniti®)	Group II (Centurion®)
Torsional U/S amplitude (burst mode, burst width 200ms)	50-60 (depending on density of nuclear sclerosis)	50-60 (depending on density of nuclear sclerosis)
Vacuum (mmHg)	300	300
Aspiration Flow Rate (cc/min)	20	20
Bottle Height (cm)	90	-
Preset IOP (mmHg)	-	50

Results – Intraoperative Measures:
• Fluid used = Group I-110±25ml, Group II-100±23ml (P=0.66)
• CDE = Group I-78±2.3, Group II-5.7±2.7 (P=0.56)

IOP Measurements during Phacoemulsification (mmHg)

	Maximum (± SD)	Minimum (± SD)	% Reduction of IOP
Group I – Infiniti Vision System®	62.6 ± 6.14	28.5 ± 4.43	54
Group II – Centurion Vision System®	51.6 ± 7.21	34.7 ± 6.28	35
P Value (Kruskal Wallis Test)	0.03		



Realttime IOP trace correlating with surgical steps in Groups I and II

Conclusions :
* Validated preset IOP – matches with target IOP
* Absolute IOP, percentage reduction of IOP significantly lower with Active Fluidics (Centurion Vision System®) as compared to Gravity Based Fluidics (Infiniti Vision System®)

Implications :
• Ability to preset lower IOPs important in special situations – High Myopia, Glaucomatous eyes
• Minimal IOP fluctuations are advantageous to eye

References :
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*Vasavada AR, et al. Impact of high and low aspiration parameters on postoperative outcomes of phacoemulsification. J Cataract Refract Surg 2010;36:588-93.