

# 가

1 . 1 . 1 . 2 . 2 . 3  
 4 . 5 . 6 . 7 . 7 . 8

가  
 1 , 2  
 3 , 4  
 5 , 6  
 7 , 8

: 가

가  
 : 1997 4 6 14 389 ,  
 3~4 12  
 : (Phacoemulsification) 85% , (ECCE) 14% ,  
 11 가 201 가  
 12 (PCO) 11 20/200  
 20/40  
 :  
 < 42(3):420 - 427, 2001 >

가 1 56

가 4.2 가

- (cost-effectiveness)

가

. Roos

가

2

가

가

3

< : 2000 10 20 , : 2001 4 10 >

가

134

4,5

가

6-8

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\* 1996-1997

가

9-12

가  
가  
, Steinberg  
(Cataract Patient Out-comes Research Team, PORT)

2.

13

3~4 , 12 ( , )

1)

1~10 , 11  
50~200 , 201

1.

14 20  
1997 4 6

2)

50

(minimum angle resolution, MAR)<sup>14</sup> MAR

389  
344(88.4%) , 3~4  
343(88.2%) 12  
2 106 가 281  
(72.2%)

(count fingers), (hand motions), 가 (light perception) 1000, 2000, 4000

3)

(phacemulsification) 가 ,

1 1  
, 2 ,  
가 , 3  
3~4 , 4 12

가  
(multiple logistic regression analysis) ,  
12

12 , 3~4

(multiple regression analysis) ,  
(extracapsular cataract extraction, ECCE)

3~4 , 12

(Table 1). 10 5 ,  
 11 15 , 가 200 200 .  
 5 , 201 15 . 11  
 2

**Table 1.** Number of participating ophthalmologists by year of practice and volume stratum

Ophthalmologists(n=20)	
Ophthalmologist's year of practice, yrs	
1-10	5
11-35	15
Ophthalmologist's volume stratum, per yr	
50-200	5
>=201	15

가 201 , 10 가  
 2 가  
 Table 2 . 63 가  
 54%, 가 46% .  
 20/100  
 20/50 . 가  
 (cortical and posterior subcapsular cataract)  
 가  
 (cortical cataract) .  
 (Diabetic retinopathy), (age-related macular degeneration, AMD), (Glaucoma), (Uveitis) (Table 2).  
 (Phacoemulsification)  
 85%, (ECCE) 14% ,

**Table 2.** Preoperative characteristics of study population(n=389)

Characteristics		Value	
Age, yrs	Mean±SD	63±13	
	Range	24-91	
Sex, %	female	54	
Operated eye visual acuity	Median(Range)	20/100(20/20-HM)	
Fellow eye visual acuity	Median(Range)	20/50(20/10-NLP)	
<b>Cataract type</b>		<b>No.</b>	<b>%</b>
		<b>263</b>	<b>67.7</b>
	Cortical and posterior subcapsular cataract	163	41.9
	Cortical cataract alone	43	11.1
	Nuclear cataract alone	28	7.2
	Nuclear, Cortical and posterior subcapsular cataract	17	4.4
	Nuclear and Cortical cataract	12	3.1
<b>Preoperative ocular comorbidity</b>		<b>63</b>	<b>16.2</b>
	Prior intraocular surgery	23	5.9
	Diabetic retinopathy	13	3.3
	AMD	7	1.8
	Glaucoma/ocular hypertension	6	1.5
	Uveitis/Keratitis	5	1.3
	Retinal detachment	4	1.0
	Dry eye/external disease	3	0.8
	Amblyopia	1	0.3
	Corneal disease	1	0.3
	Nonglaucomatous optic nerve disease	0	0.0

HM: hand motions, NLP: no light perception, AMD: age-related macular degeneration

**Table 3.** Operative procedure(n=389)

Operative procedures	No.	%
<b>Anesthesia</b>		
Retrobulbar	173	51.2
Topical	84	24.9
Pinpoint	72	21.3
Peribulbar	7	2.1
General	2	0.6
<b>Extraction technique</b>		
Phacoemulsification	290	85.1
ECCE	49	14.4
Endocapsular aspiration	2	0.6
<b>Capsulotomy</b>		
Capsulorhexis	131	39.1
Continuous tear capsulotomy	102	30.4
Scissors capsulotomy	61	18.2
Can opener	41	12.2
<b>Iris surgery</b>		
None	333	97.9
Peripheral iridectomy	4	1.2
Peripheral iridotomy	2	0.6
Sector iridectomy	1	0.3
<b>IOL</b>		
Standard PC IOL directed to capsular bag	161	55.7
Foldable PC IOL	108	37.4
Standard PC IOL directed to sulcus	10	3.5
AC IOL	3	1.0
Planned suturing PC IOL	1	0.3
Unplanned suturing PC IOL	1	0.3

ECCE=extracapsular cataract extraction.  
AC IOL=anterior chamber intraocular lens.

(CCC)가 69.5%, (can opener) 12.2%, (scissor capsulorrhexis) 18.2%, (retrobulbar anesthesia)가 51.2%, (topical anesthesia)가 24.9%, (pinpoint anesthesia)가 21.3%, 97.9%, 55.7%가 PMMA lens, 37.4%가 (foldable lens) 3.5% (sulcus) PMMA lens (Table 3).

**Table 4.** Multiple logistic regression analysis of the association between patient and ophthalmologist characteristic and the likelihood of performance of phacoemulsification(n=389)

Predictors	Odd Ratio	95% CI
<b>Patient characteristics</b>		
Age, yrs(ref. 50~74)		
>=75	0.41	0.14~1.17
Female(ref. male)	2.10	0.83~5.28
<b>Baseline operated eye VA (ref. 20/40 or better)</b>		
20/50~20/70	3.08	0.69~13.81
20/80~20/100	0.89	0.29~2.66
20/200 or worse	0.87	0.26~2.84
<b>Type of cataract (ref. other cataract)</b>		
nuclear cataract	1.35	0.52~3.46
<b>Ocular comorbidity(ref. no)</b>		
	0.75	0.28~2.05
<b>Ophthalmologist characteristics</b>		
<b>Years of practice, yrs(ref. 1~10)</b>		
>=11	3.64	1.07~12.40
<b>volume of surgery, per yr (ref. 50~200)</b>		
>=201	4.74	1.45~15.55

CI=confidence interval. Model chi-square(significance=46.21, p<0.001). VA=visual acuity.

가 11 가 3.64 가 201 가 200 4.74 (Table 4). 13.8%(47 ) 51.1% 24 3~4 (posterior capsular opacity, PCO) 48.9% 23 (Table 5). 14.8% 43 , 8.2% 4 (PCO) 12 11 10 0.02 (Table 6). 12



**Table 6.** Factors associated with occurrence of posterior capsule opacification within 12 months postoperatively(n=389)

Predictors	Odd Ratio	95% CI
<b>Patient characteristics</b>		
Age, yrs(ref. 50~74)		
>=75	4.42	0.89~21.90
Female(ref. male)	1.05	0.23~4.77
Baseline operated eye VA(ref. 20/40 or better)		
20/50-20/70	1.50	0.19~12.06
20/80-20/100	2.30	0.36~14.84
20/200 or worse	1.04	0.11~9.64
Type of cataract(ref. other cataract)		
nuclear cataract	3.48	0.77~15.78
Ocular comorbidity(ref. no)	3.99	0.82~19.31
<b>Ophthalmologist characteristics</b>		
Years of practice, yrs(ref. 1~10)		
>=11	0.02	0.01~0.71
volume of surgery, per yr(ref. 50~200)		
>=201	6.06	0.38~96.71
<b>Phacoemulsification(ref. ECCE)</b>	0.07	0.01~1.10

CI=confidence interval. Model chi-square(significance=14.97, not significant).

VA=visual acuity.

**Table 7.** Predictors of change in visual acuity and from preoperative to 12 months postoperative

Predictors	Coefficient	T-Value
<b>patient characteristics</b>		
Age(ref. 50-74 yrs)		
>=75	-0.02	-0.22
Female(ref. male)	-0.06	-0.77
Baseline operated eye VA(ref. 20/40 or better)		
20/50-20/70	0.21	1.89
20/80-20/100	0.30	1.87
20/200 or worse	0.97	7.24***
Any posterior subcapsular opacity(ref. other)	-0.06	-0.58
Ocular comorbidity(ref. no)	-0.21	-2.23*
<b>Ophthalmologist characteristics</b>		
Years of practice(ref. 1-10 yrs)		
>=11	0.04	0.17
volume of surgery(ref. 50-200)		
>=201	0.03	0.18
<b>Phacoemulsification(ref. ECCE)</b>	-0.13	-0.80

\*p<0.05, \*\*\*p<0.001. VA=visual acuity.

가 1997 , 5.5~6.0 mm 가 39%,  
PMMA 가 21%  
, , PMMA 55%

12

12

3-4

가

15

가 가

가

20,21

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= ABSTRACT =

## Variation in Cataract Surgery Practice and Clinical Outcomes

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**Purpose** : The purpose of this study was to examine the variations of the clinical outcomes of cataract surgery according to the characteristics of patients and surgeons and surgical technique.

**Methods** : The survey was conducted at 4 stages : preoperative period(389), perioperative period(344, 88.4%), postoperative 3~4 months(343, 88.2%), and postoperative 12 months(281, 72.2%).

**Results** : Eighty-five percent of surgery was performed by phacoemulsification and 14% by standard extracapsular (ECCE) techniques. The performance of phacoemulsification was associated with years of practice(11 years or more) and annual volume of cataract surgery(201 cases or more). The reported occurrence of posterior capsular opacification within 12 months of surgery was decreased in the patients operated by surgeons with years of practice(11 years or more).

**Conclusions** : The factors influencing to better outcomes at 12 months after surgery were visual acuity of baseline operated eye(20/200 or less) and the absence of ocular morbidity. In this study, although there were some variations with cataract surgery practice, but the variations with cataract surgery practice did not give much influence to the patient's outcomes.

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**Key Words** : Cataract surgery, Patient outcomes, Practice variation

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