

RELATIONSHIP BETWEEN DRY EYES SYNDROME WITH CATARACT SURGICAL TECHNIQUES IN PATIENTS AFTER CATARACT SURGERY AT H. ADAM MALIK HOSPITAL MEDAN AND NETWORK

Ayrika Yuliani*, T. Siti Harilza Z. *

*Departement of Ophthalmology, Faculty of Medicine University of North Sumatera
Adam Malik General Hospital Medan

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Abstract

Background : Dry eye syndrome (DES) is an aggregate of symptoms that include disorders of the tear film caused by decreased tear film production or increased evaporation of tears, causing symptoms of discomfort in the eye and can lead to diseases of the eye surface. The prevalence increases with age which is about 5% of the population in the fourth decade. One of the risk factor that caused dry eye syndrome is involves corneal surgery (LASIK), intracapsular and extracapsular cataract extraction. The corneal incision may lead to instability of the tear film that can trigger dry eye syndrome.

Aim : The purpose of this study to investigate the effect of cataract surgery techniques to the occurrence of dry eye syndrome.

Method : This study was a cross sectional descriptive and analytical. The number of samples in each technique are 28 people on ECCE, SICS, and phacoemulsification. The total sample was 84 and already had cataract surgery for one week and to came to outpatient clinic Haji Adam Malik Hospital and co, in Lens and Cataract Sub Division. Each patient was examined visual acuity and anterior segment examination with slitlamp to get rid of any signs of infection after cataract surgery. Then examined the tears volume using Schirmer paper stripes. Then recorded the value on schirmer paper stripes.

Result : Distribution by sex the most subjects were male as many as 54 people (64.3%), the age of most cataract patients are aged 60-79 years as many as 57 people (67.9%). The most age who suffer from DES with ECCE cataract surgery technique is the age of 60-79 years as many as 14 people (50.0%) and most who suffer dry eyes syndrome after cataract surgery with ECCE technique are male as many as 17 people (60.7%), The most age who suffer dry eyes syndrome after- cataract surgery with SICS technique are age 60-79 years as many as five people (17.9%) and most who suffer gender DES post cataract surgery with SICS techniques are women as much as 4 people (14.3%), The most age who suffer from dry eye syndrome after cataract surgery with phacoemulsification technique are age 60-79 years as many as 8 people (28.6%) and most who suffer dry eyes syndrome after cataract surgery with phacoemulsification technique are male 5 people (17, 9%).

Conclusion : No relationships between the technique or type of incision cataract surgery (ECCE, SICS, and phacoemulsification) with the occurrence of dry eye syndrome
Keywords: dry eyes syndrome, ECCE, SICS, phacoemulsification

I. INTRODUCTION

Dry eye syndrome (SMK) is a collection of symptoms that include disturbances in the tear layer caused by decreased tear production and or increased evaporation of tears, resulting in symptoms of discomfort in the eyes and can cause disease on the surface of the eye (*American Academy of Ophthalmology*, 2010 Smolin G, Thoft RA, Lippincott Williams and Wilkins, 2005)^{1,22,23}

Dry eye syndrome is a disease with various causes that affect the tear layer and the ocular surface with symptoms of ocular discomfort, visual impairment and teardrop instability that cause ocular surface damage with increased osmolarity of the tear layer and the inflammation of the ocular surface (*Dry Eye Workshop*, 2007)⁷

Tear layer on the surface of the eye serves to moisten and lubricate the eye to feel comfortable. Teardrop consists of 3 layers of the outermost layer of lipid produced by meibom glands, a layer of aqueous produced by the lacrimal gland and the innermost layer of the mucin layer produced by conjunctival goblet cells (*American Academy of Ophthalmology*, 2011-2012 a)¹

Tear secretion is influenced by the neural system involving a complex unit of lacrimal function. Stimulation on the surface of the eyeball will stimulate lacrimation reflexes. The lacrimation reflex is important primarily as a protection against the eyeball (*American Academy Ophthalmology*, 2011-2012 b)²

The prevalence of dry eye syndrome increases with age, about 5% of the adult population during the fourth decade of life and increases by 10-15% at age over 65 years. The highest prevalence is found in women (60%) and 40% in men. In the United States of 4,910,000 the population of 3.230 million million women and 1.680 million million men, aged ≥ 50 years. In Indonesia the prevalence of dry eye is 27.5%. (Gayton, 2009)⁸.

One of the risk factors for dry eye syndrome is surgical action involving the cornea (LASIK), intracapsular and extracapsular cataract extraction. Disorders caused by incisions in cataract surgery can lead to tear drop instability that can trigger dry eye syndrome.

Cataract is the main cause of blindness and the most visible impairment and treatment through surgery. From WHO (2002) data of 17 million (47.8%) of the 37 million blind people worldwide due to cataracts. This number is expected to increase to 40 million by 2020. Indonesia is the third country with the highest number of blindness in the world and the highest first rank in Southeast Asia (*American Academy of Ophthalmology*, 2010-2011; Depkes RI Survey Kesehatan Indera Penglihatan 1998; Hutasoit H, 2010)^{4,6,10}

Until now the main handling of cataract patients is through surgery techniques. Along with the development of time and time, more and more developed techniques of cataract surgery. Begin with cataract surgery technique with corneosklera incision in Extra Capsular Cataract Extraction (ECCE) involving cutting of conjunctiva and sclera to phacoemulsification with transcorneal incision with superior and temporal incisional location variation. The incision will cause damage from the eye, among others, on the cornea, conjunctiva, and tear layer that trigger the occurrence of some complications post cataract surgery, among others, can occur dry eye syndrome (SMK) (*American Academy of Ophthalmology*, 2010-2011; Zhang S and Li YZ, 2010)^{2,25}

The results of Cho (2009) study that the incision in phacoemulsification can lead to the occurrence of SMK in patients who previously did not suffer from SMK. Similarly, Roberts (2007) reported that there is a clinically significant proportion in some post-phacoemulsification sufferers who experience vocational symptoms, as many as 73% of patients have complaints of foreign body sensation in the eyes. While 27% never experienced the complaint. It was also revealed by Barabino (2010), that most post-phacoemulsification patients who had been diagnosed with previous SMK experienced significant increases in clinical complaints and clinical features of SMK. From the results of research conducted by Ratna (2008) found the difference of examination results of tear layer quality and subjective complaints on the first postoperative day between phacoemulsification and ECCE (*American Academy of Ophthalmology*, 2010 Javadi MA and Feizi S, 2011; Smolin G, Thoft RA, Lippincott Williams and Wilkins, 2005; Sitompul R, Sancoyo GS, Hutauruk JA, and Gondhowiardjo TD, 2008; Smolin G, Thoft RA, Lippincott Williams and Wilkins, 2005)^{1,15,21,22}

II. METHODS

This research is observational with cross sectional measurement method by taking data in patient of Rejection Eye Poly at H Adam Malik Hospital Medan from September 2016 until sample fulfilled.

Inclusion criteria were all post-cataract patients 1 week who visited the eye polyclinic of RSUP H. Adam Malik Medan and Hospital Hospital, and were willing to take part in the study. Exclusion criteria were patients with post-cataract surgery and patients with corneal burn post cataract surgery.

The study sample identity data consisted of patients post-cataract surgery one week and no signs of postoperative infection. All samples are examined sharply with Snellen Chart. Examination of the anterior segment with slitlamp biomicroscopy. Then tested

Schirmer1: a thin strip of paper (5mm width, 35mm long) placed in the inferior fornix near the lateral cantina with the eyes closed. Wetting ≤ 10 mm for 5 minutes is a diagnostic for dry eye syndrome.

Assessment and interpretation of dry eye syndrome degree in post-cataract surgery patients from the examination was recorded as research data to be the result of the study.

III. RESULT

This research is a cross sectional observational that aims to find out the relationship of dry eye syndrome incidence in post cataract surgery patients by taking data in patients of Rejection Eye Poly at H Adam Malik Hospital Medan. Patients with ECCE technique were 28 people, patients with SICS technique were 28 people and patients with phacoemulsification technique were 28 people.

Table 4.1.1 Distribution subjects by sex and age

Variabel	Frekuensi
Sex	
Man	54 (64.3 %)
Woman	30 (35.7%)
Total	84 (100%)
Age 40-59	21 (25.0%)
Age 60-79	57 (67.9%)
Age ≥ 80	6 (7,1%)
Total	84 (100 %)

In the table above shows that the subjects of most research are male (54.3%) and most of them are 60-79 years old (57.9%).

Table 4.1.2 Distribution of Dry Eye Syndrome With ECCE Techniques Based on Age and Sex

		ECCE				Total	
		(+) SMK		(-) SMK		N	%
		N	%	N	%		
Age	40-59	10	35.7	2	7.1	12	42.9
	60-79	14	50.0	0	0.0	14	50.0
	≥ 80	2	7.1	0	0.0	2	7.1
	Total	26	92.9	2	7.1	28	100
Sex	Man	17	60.7	0	0.0	17	60.7
	Woman	9	32.1	2	7.1	11	39.3
	Total	26	92.9	2	7.1	28	100.0

In table 4.1.2 above obtained the most age who suffer from dry eye syndrome post ECCE surgery is on 60-79 years about 14 people (50.0%) and male sex as many as 17 people (60.7%).

Table 4.1.3 Distribution of Dry Eyes Syndrome with SICS Techniques based on Age and Sex

		SICS					
		(+) SMK		(-) SMK		Totals	
		N	%	N	%	N	%
Age	40-59	0	0.0	4	14.3	4	14.3
	60-79	5	17.9	17	60.7	22	78.6
	≥ 80	1	3.6	1	3.6	2	7.1
Totals		6	21.4	22	78.6	28	100
Sex	Man	2	7.1	18	64.3	20	71.4
	Woman	4	14.3	4	14.3	8	28.6
	Totals	6	21.4	22	78.6	28	100

In table 4.1.3 above obtained the most ages who suffer from dry eye syndrome post SICS surgery is in 60-79 years about 5 people (17.9%) and female sex as many as 4 people (14.3%).

Tabel 4.1.4 Distribution of Dry Eye Syndrome With Facoemulsification Technique By Age and Sex

		Fakoemulsifikasi					
		(+) SMK		(-) SMK		Totals	
		N	%	N	%	N	%
Age	40-59	0	0.0	5	17.9	5	17.9
	60-79	8	28.6	13	46.4	21	75.0
	≥ 80	1	3.6	1	3.6	2	7.1
Totals		9	32.1	19	67.9	28	100
Sex	Man	5	17.9	12	42.9	17	60.7
	Woman	4	14.3	7	25.0	11	39.3
	JUMLAH	9	32.1	19	67.9	28	100

In table 4.1.4 above obtained the most age who suffer from dry eye syndrome post operation Facoemulsifikasi is on 60-79 years about 8 people (28.6%) and the most male sex as many as 5 people (17.9%).

Tabel 4.1.5 Relationship incision technique in Cataract extraction and Dry Eyes Syndrome

Incision Techniques	SMK		Total	P-Value
	Tidak SMK(-)	SMK (+)		
Cataract extraction	2 (7.1%)	26 (92.9%)	28	0.483
SICS	22 (78.6%)	6 (21.4%)	28	0.998
Fakoemulsifikasi	19 (67.9%)	9 (32.1%)	28	0.791
Total			84 (100%)	

In table 4.1.5 above obtained P value on ECCE is 0.48, P value on SICS is 0.998 and P value on Phacoemulsification is 0.791 based on Chi-Square diatas menyatakan bahwa P value pada ECCE adalah 0.483, lalu P value pada SICS adalah 0.998 dan P value pada fakoemulsifikasi adalah 0.791, berdasarkan uji chi-square menunjukkan tidak ada hubungan sama sekali antara

teknik atau tindakan operasi katarak dengan terjadinya sindroma mata kering.

IV.CONCLUSION

It is recommended that a subjective complaint anamnesa be used with the Ocular Surface Disease Index (OSDI) questionnaire criteria, and additional checks such as ferning and Tear Break UpTime (TBUT) tests before and after surgery as a diagnostic standard in dry eye syndrome.

V. DISCLOSURE

Patients have been approved prior to the study conducted and cost involved in this research is borne by researcher

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First author:

Ayrika Yuliani, Department of Ophthalmology, Medical Faculty, University of Sumatera Utara

Email: ayrika_y@yahoo.com

Second Author:

T. Siti Harilza Z., Department of Ophthalmology, Medical Faculty, University of Sumatera Utara

Email: ct_ab2204@yahoo.co.uk

Correspondence Author

Ayrika Yuliani, Department of Ophthalmology, Medical Faculty, University of Sumatera Utara

Email: ayrika_y@yahoo.com

Contact No: +62 813 70393300