



New Femto Plus Method to Cure Patients Diagnosed with Astigmatism

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Abstract

Today, Femto Lasik surgery is considered to be one of the most common among all keratorefractive surgeries. Despite the significant success of refractive surgery, patients have complains of an asthenopic nature after surpassing the procedure of laser vision correction.

Purpose: The main purpose of this work was to study the speed of rehabilitation of visual functions after Femto Lasik surgery among patients with astigmatism after a six-day course of Femto Plus apparatus treatment.

Methodology: We have created 2 groups in order to conduct the analysis. Each group included 60patients (120eyes). All participants were diagnosed with astigmatism before the surgery. Patients included in the second group went to the six-day course of the Femto Plus apparatus treatment on the second day after the surgery.

Results: The visual indicators in patients of the first group after Femto Lasik increased by 34%. Among the patients of the second group, visual indicators (uncorrected visual acuity) after the Femto Lasik surgery with the application of Femto Plus method increased by 60.7%.

Conclusion: The new Femto Plus method allows restoring visual functions quickly and effectively after Femto Lasik surgery among patients with astigmatism.

Keywords: Femto Lasik Surgery; Astigmatism; Femto Plus Method; Keratorefractive Surgery; Visual Functions; Golovin-Sivtsev chart

Introduction

Keratorefractive surgery with the usage of the femtosecond laser is one of the rapidly developing areas in ophthalmology. Foreign scientists have proved that the surgery of Femto Lasik is an effective, safe and predictable method of correcting refractive errors with the stable visual and refractive results. The main targets of this surgery are young and socially active individuals, for whom, in addition to improving visual acuity, it is also essential to restore fine visual functions quickly. The visual functions include contrast sensitivity, vision in the conditions of reduced illumination, fusion abilities, etc [1].

Today, Femto Lasik surgery is considered to be one of the most common among all keratorefractive surgical operations. Despite the significant success of refractive surgery such as the achieved high visual result, flawless healing of the cornea, the absence of the 'dry eye' syndrome or its mild degree, patients with astigmatism might have asthenopic complaints after they surpass through the procedure of laser vision correction. Visual discomfort, rapid fatigue and the lack of clear vision at close and intermediate distances can lead to a reduction in work efficiency as well as negatively affect the number of achievements in professional and personal life. In this regard, the question of rehabilitation of patients with astigmatism in the postoperative period has gained

relevance [2,3].

Purpose

Patients with astigmatism have become the target of our work since the restoration of visual indicators among patients with myopia occurs rather quickly after the surgery of Femto Lasik. The primary purpose of this work was to study the speed of rehabilitation of the visual functions after Femto Lasik surgery among patients with astigmatism after a six-day course of Femto Plus apparatus treatment [4].

Methodology

We have created 2 groups in order to conduct the analysis. Each group included 60 patients (120 eyes). All participants were diagnosed with astigmatism before the surgery. The amount of astigmatism was 3.5D-4.0D in both groups. Each patient has undergone all the standard diagnostic examinations that are accepted in ophthalmology, as well as pachymetry, keratopography and determination of posterior corneal elevation. After completing all examinations, the patients underwent keratorefractive surgery with the application of femtosecond laser (Femto Lasik). The surgery was performed with the help of Femto LDV Crystal Line Femtosecond laser. The recovery period passed without any complication. Patients included in the

second group went to the six-day course of the Femto Plus apparatus treatment on the second day after the surgery [5].

The Femto Plus method developed by us is mainly consisted of pleoptic and diploptic exercises. We have used Visotronic devices, the Amo-Atos device with the attachments called "Cascade" and "Amblio-1", the "Palette" and "Volume" computer programs, and the Aist-PIK treatment through the game program. All devices mainly include magneto therapy, binocular treatment programs and exercises with red and green lights [6].

All patients were diagnosed with uncorrected visual acuity (by Golovin-Sivtsev chart) on the 2nd, 7th and 14th days and one month after the surgery [7].

Results

The new method called Femto Plus has shown positive results after the Femto Lastik surgery. The visual indicators in patients of the first group after Femto Lasik increased by 34%. Among the patients of the second group, visual indicators (uncorrected visual acuity) after the Femto Lasik surgery with the application of Femto Plus method increased by 60.7%. Moreover, the patients of the second group showed an expansion of fusion reserves and an increase in contrast sensitivity (Tables 1-3) [8].

	Group 1	Group 2		Group 1	Group 2		Group 1	Group 2
1	0.60	0.90	41	0.90	1.00	81	0.60	0.90
2	0.60	0.90	42	0.70	1.00	82	0.70	0.80
3	0.70	0.80	43	50	0.80	83	0.50	0.70
4	0.50	0.70	44	0.70	1.00	84	0.50	0.60
5	0.50	0.60	45	0.70	0.80	85	0.70	1.00
6	0.70	1.00	46	0.90	1.00	86	0.90	1.00
7	0.90	1.00	47	0.80	1.00	87	0.90	1.00
8	0.90	1.00	48	0.90	1.00	88	0.90	1.00
9	0.70	0.80	49	0.60	1.00	89	0.90	1.00
10	0.60	0.70	50	0.60	0.80	90	0.70	1.00
11	0.80	1.00	51	0.70	0.90	91	0.50	0.80
12	0.70	1.00	52	0.40	0.60	92	0.70	1.00
13	0.80	1.00	53	0.40	0.90	93	0.70	0.80
14	0.30	0.60	54	0.30	0.90	94	0.50	0.70
15	0.80	1.00	55	0.30	0.80	95	0.50	0.60
16	0.30	0.60	56	0.90	1.00	96	0.70	1.00
17	0.80	1.00	57	0.50	1.00	97	0.90	1.00
18	0.60	1.00	58	0.60	0.80	98	0.90	1.00
19	0.90	1.00	59	0.80	1.00	99	0.70	0.80

20	0.80	1.00		60	0.90	1.00		100	0.70	0.80
21	0.70	1.00		61	0.70	0.80		101	0.90	1.00
22	0.90	1.00		62	0.60	0.70		102	0.80	1.00
23	0.90	1.00		63	0.80	1.00		103	0.90	1.00
24	0.80	1.00		64	0.70	1.00		104	0.60	1.00
25	0.90	1.00		65	0.80	1.00		105	0.80	1.00
26	0.90	1.00		66	0.30	0.60		106	0.90	1.00
27	0.40	0.60		67	0.80	1.00		107	0.90	1.00
28	0.40	0.60		68	0.70	1.00		108	0.90	1.00
29	0.90	1.00		69	0.60	1.00		109	0.60	0.90
30	0.70	1.00		70	0.80	1.00		110	0.70	0.80
31	0.60	1.00		71	0.90	1.00		111	0.50	0.70
32	0.80	1.00		72	0.90	1.00		112	0.50	0.60
33	0.90	1.00		73	0.90	1.00		113	0.70	1.00
34	0.90	1.00		74	0.60	1.00		114	0.90	1.00
35	0.70	1.00		75	0.60	0.80		115	0.60	1.00
36	0.50	0.80		76	0.70	0.90		116	0.60	0.80
37	0.70	1.00		77	0.40	0.60		117	0.70	0.90
38	0.70	0.80		78	0.40	0.90		118	0.80	1.00
39	0.90	1.00		79	0.70	1.00		119	0.70	1.00
40	0.80	1.00		80	0.50	0.80		120	0.90	1.00

Table 1: Uncorrected visual acuity (diagnosed by Golovin-Sivtsev chart) of patients on 7th day after Femto Lasik.

N	Valid	Group 1	Group 2
			120
	Missing	0	0
Mean		0.7033	0.9075
Median		0.7	1
Std. Deviation		0.167	0.13483
Range		0.6	0.4
Minimum		0.3	0.6
Maximum		0.9	1

Table 2: Statistics of 120 patients of each group considering uncorrected visual acuity.

		Group 1	Group 2
Group 1	Person Correlation	--	
	N	120	
Group 2	Pearson Correlation	.760**	--
	Sig. (2- tailed)	0	
	N	120	120

** Correlation Significant at the 0.01 level (2- tailed).

Table 3: Correlation of the statistics of two groups with uncorrected visual acuity.

The test is statistically significant as the p value is low than 0.05 and is equal to .000

Conclusion

The new Femto Plus method allows restoring visual functions quickly and effectively after Femto Lasik surgery among patients with astigmatism [9,10].

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