Results

The study included forty six eyes of thirty nine patients , twenty three male patients (58.97%), of which six patients had bilateral surgery. Their mean age was 55.35 with SD 7.60, ranging between 43 and 68 years. Sixteen females (41.03%), with one patient being operated for both eyes, with mean age 58.63 and SD 7.15, ranging between 47 and 68 years (Table 2, Figures 29&30).

Table 2: Age and sex distribution of 39 patients.

Sex / Age	Male		Female	
	n	%	n	%
40-49	5	12.82	2	5.13
50-59	12	30.77	6	15.38
60-69	6	15.38	8	20.51
Total	23	58.97	16	41.03
Mean	55.35		58.63	
SD	7.60		7.15	
Range	43-68		47-68	

According to laterality, half of the eyes (23) were right and half were left (23).

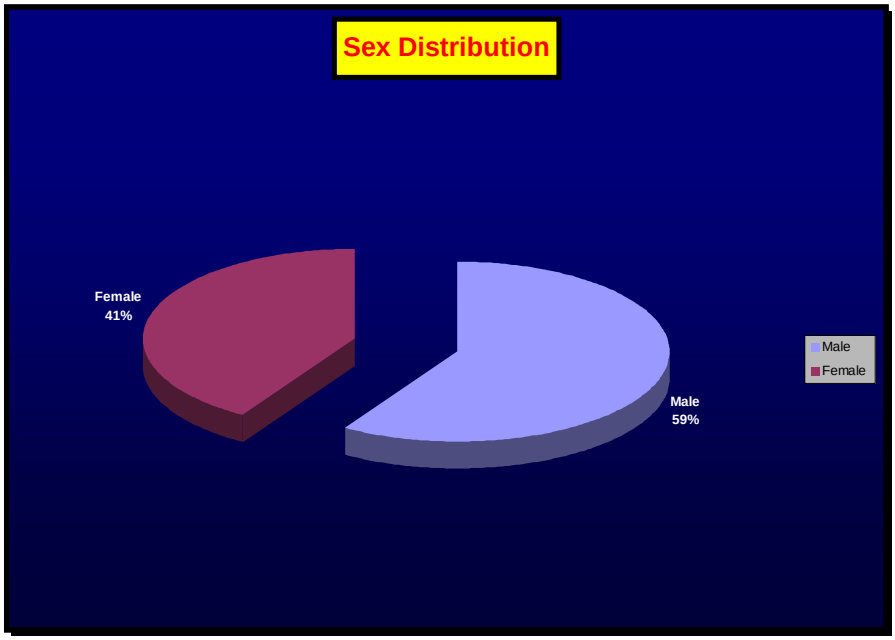

Fig.29: Sex distribution of 39 patients.

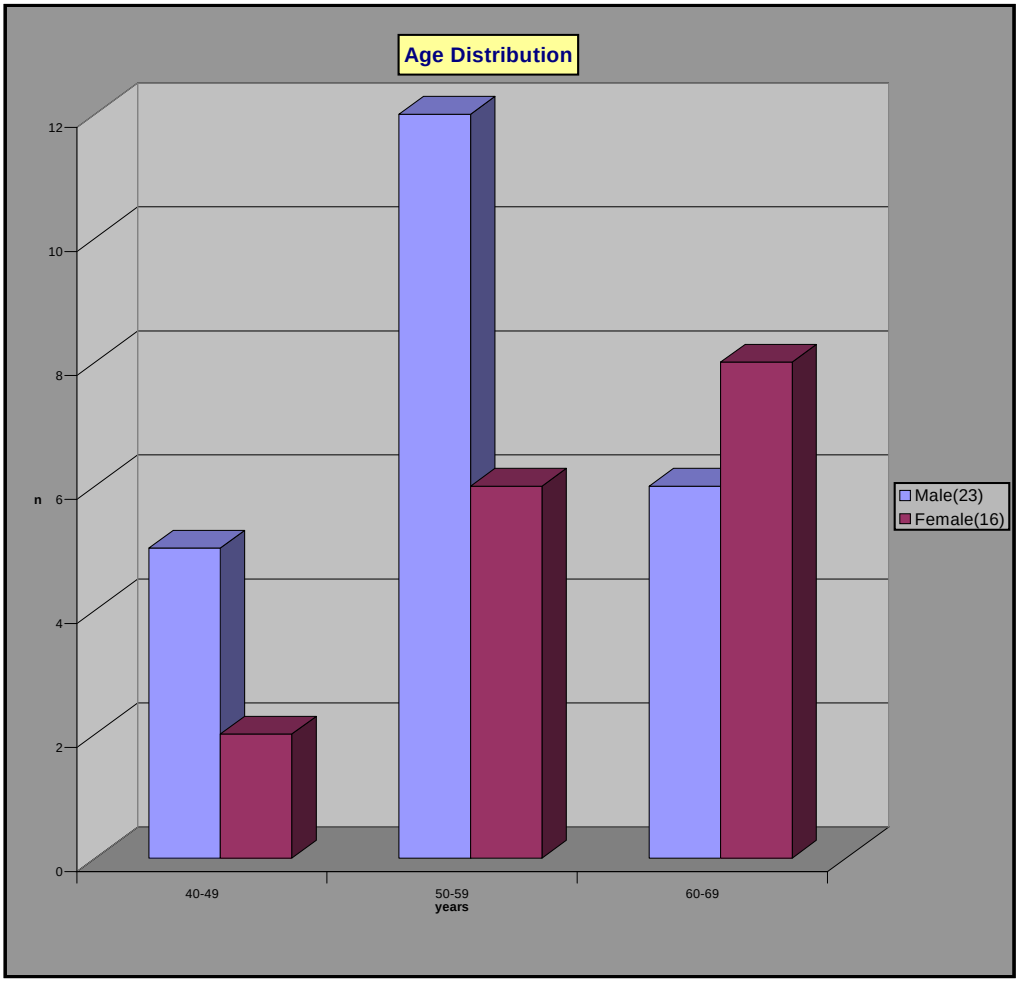

Fig.30: Age distribution of 39 patients.

Operative data

In three eyes (6.52%) in which the globe was sunken, the lateral approach allowed easy access to the A.C. This was also felt in seven eyes (15.22%) with prominent superior orbital margin.

No eyes of intraoperative iris prolapse or hyphaema occurred during the study.

Corneal oedema was obsreved in eight eyes (17.39%), while iris trauma occurred in three eyes (6.52%).

Prolonged phaco time (more than one minute) was experienced in seven eyes (15.22%) with hard nuclear cataract (NucIII).

Posterior capsular tear happened in nine eyes (19.57%), of which only six eyes (13.04%) had vitreous loss. Five eyes (10.87%) occurred during choping and emulsifying the last nuclear pieces, while two (4.35%) occurred during emulsifying the last quadrant. These were managed by limited anterior vitrectomy to remove vitreous escaping from the posterior capsular tear alternating with I/A of the remaining cortical lens matter, after lowering the irrigation bottle height. The other two eyes (4.35%) occurred during I/A, were managed by placing sodium hyaluronate 1% over the tear, completing the I/A with low irrigating bottle height, followed by IOL implantation.

In eighteen eyes (39.13%), difficulties with IOL implantation were experienced during folding, introduction through the tight clear corneal incision and unfolding inside the eye (Table 3, Figure 31).

Table 3: Operative difficulties in 46 eyes.

Operative difficulties	n	%
Corneal oedema	8	17.39
Iris prolapse	0	0
Iris trauma	3	6.52
Hyphaema	0	0
Posterior capsular tear:	9	19.57
* during chopping	5	10.87
* last quadrant	2	4.35
* bimanual I/A	2	4.35
Prolonged phaco time	7	15.22
Difficulties in IOL implantation	18	39.13
Vitreous loss	6	13.04

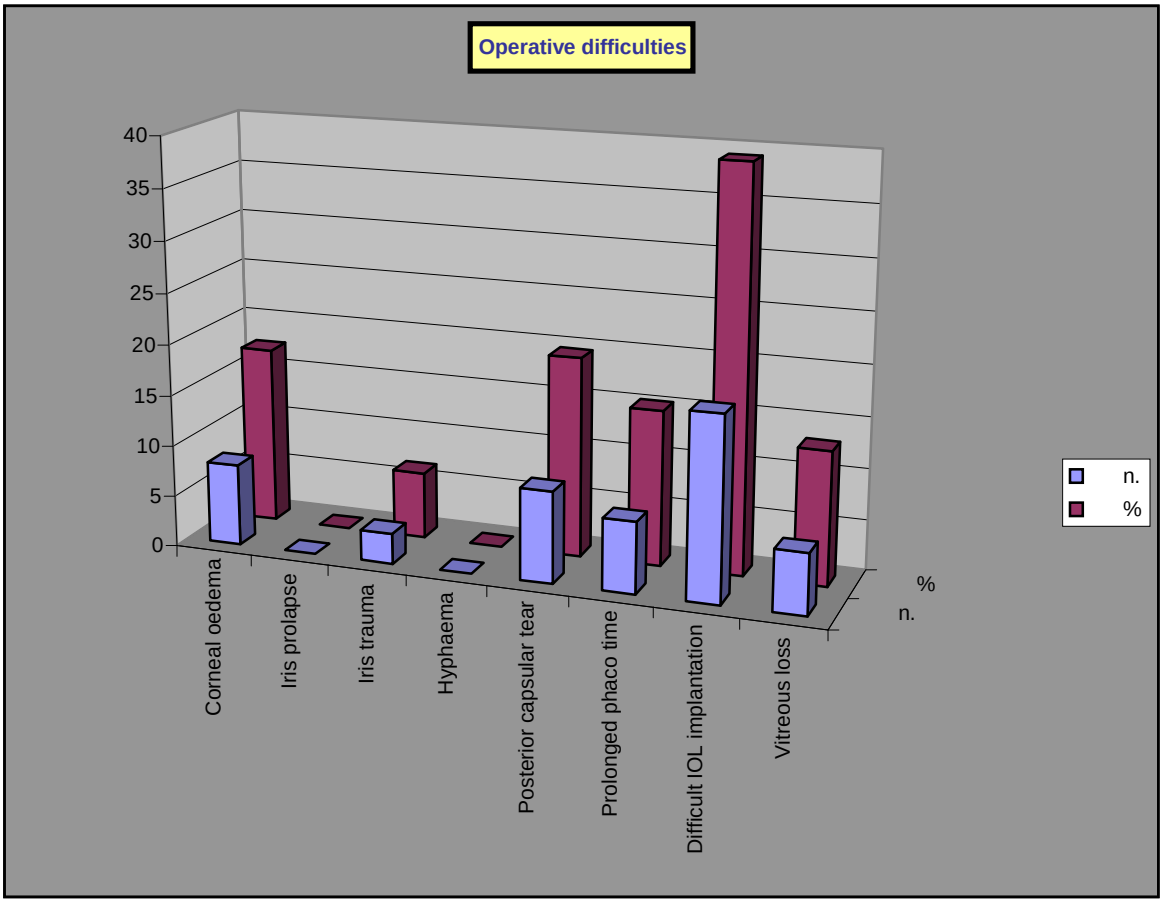

Fig.31: Operative difficulties in 46 eyes.

Postoperative data

Eight eyes (17.39%) showed postoperative corneal oedema which resolved partially within one week and completely by the end of first month follow up period.

No eyes showed wound leak, shallow A.C, hyphaema or eccentric pupil.

Moderate iritis was seen in three eyes (6.52%).

Inspite of the many difficulties during IOL implantation, only four eyes (8.70%) showed postoperative moderate decentration, two eyes (4.35%) had mild decentration. Twelve eyes (26.09%) showed scratch marks on the IOL surface along the line of folding and at the contact between the optic and the blades of the implantation forceps.

Regarding posterior capsular opacification, it was seen in six eyes (13.04%) in the last follow up visit. Three eyes showed mild opacification, and the other three eyes (6.52%) showed moderate opacification. Non of the patients required posterior capsulotomy.

In eight eyes (17.39%), minimal peripheral cortical lens matter could not be washed out completely during the operation. These eyes presented with after cataract in the first week and became absorbed in the next follow up visits (Table 4, Figure 32).

Table 4: Postoperative complications in 46 eyes.

Postoperative complications	n	%
Corneal oedema	8	17.39
Wound leak	0	0
Shallow A.C	0	0
Iritis	3	6.52
Hyphaema	0	0
Eccentric pupil	0	0
IOL decentration	4	8.70
Scratch marks on IOL	12	26.09
Posterior capsular opacification	6	13.04
After cataract	8	17.39
IOP rise	0	0

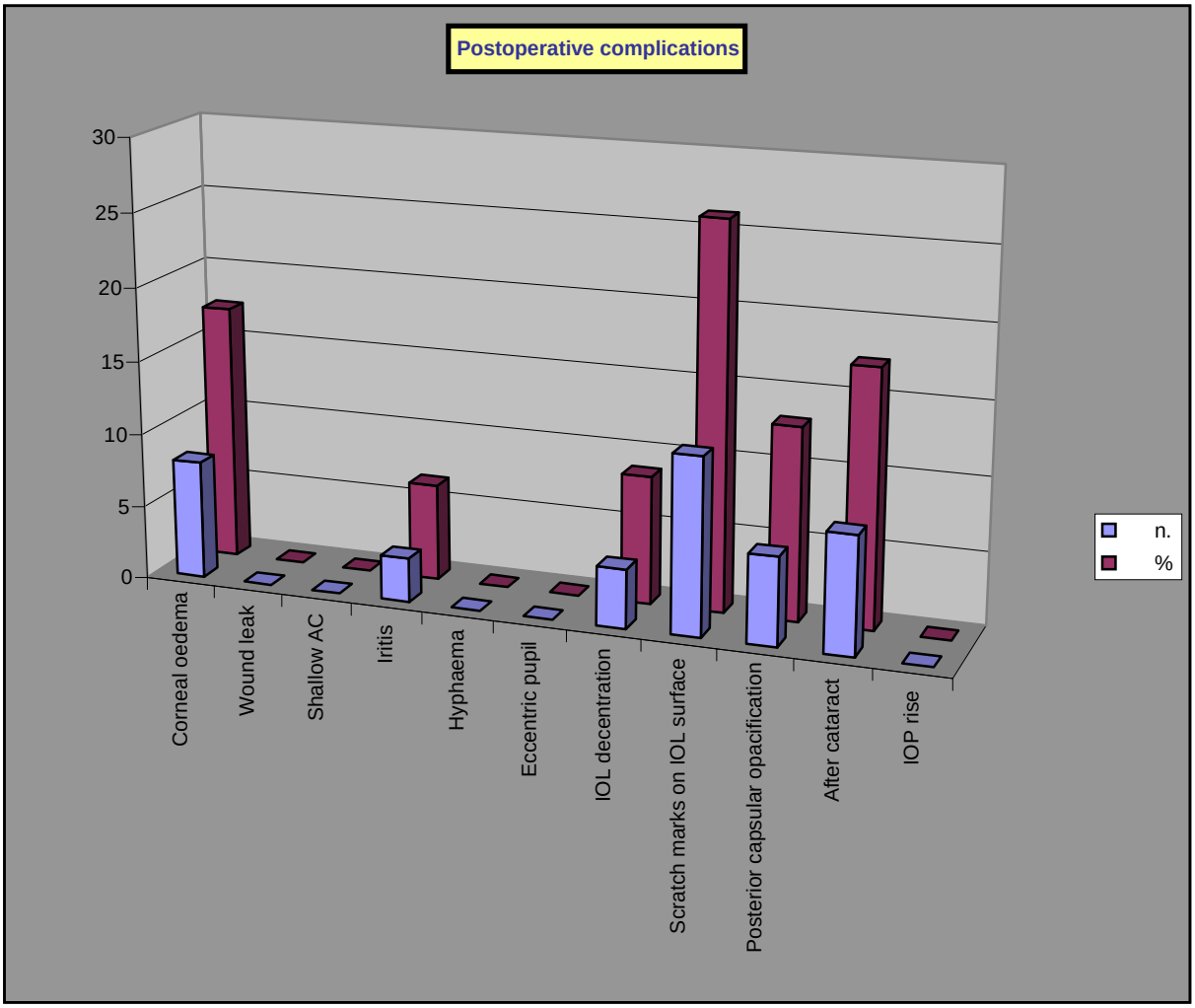

Fig.32: Postoperative complications in 46 eyes.

Visual acuity

Best corrected visual acuity (BCVA) in 46 eyes were recorded preoperatively, one week, one, three and six months postoperatively (Table 5, Figure 33 a&b).

Table 5: Best corrected visual acuity in 46 eyes.

BCVA	Preop.		1w post.		1m post.		3m post.		6m post.	
	n	%	n	%	N	%	n	%	n	%
3/60	6	13.04	0	0	0	0	0	0	0	0
4/60	5	10.87	0	0	0	0	0	0	0	0
5/60	9	19.57	0	0	0	0	0	0	0	0
6/60	12	26.09	3	6.52	0	0	0	0	0	0
6/36	9	19.57	4	8.70	0	0	0	0	0	0
6/24	4	8.70	6	13.04	1	2.17	0	0	0	0
6/18	1	2.17	15	32.61	7	15.22	2	4.35	0	0
6/12	0	0	14	30.43	19	41.30	4	8.70	8	17.39
6/9	0	0	4	8.70	13	28.26	25	54.35	15	32.61
6/6	0	0	0	0	6	13.04	15	32.61	23	50.00
Total	46		46		46		46		46	

The table shows that preoperatively twenty eyes (43.50%) had vision less than 6/60, and twenty-six eyes (56.50%) had vision of 6/60 or better. In the first week postoperative visit; no eyes had vision worse than 6/60, thirteen eyes (28.26%) had vision less than 6/18, and thirty-three eyes (71.74%) had visual acuity of 6/18 or better. At the last follow up visit (six months after surgery); half of the studied eyes got vision of 6/6, while the other half had vision of 6/9 in fifteen eyes (32.61%) and 6/12 in eight eyes (17.39%).

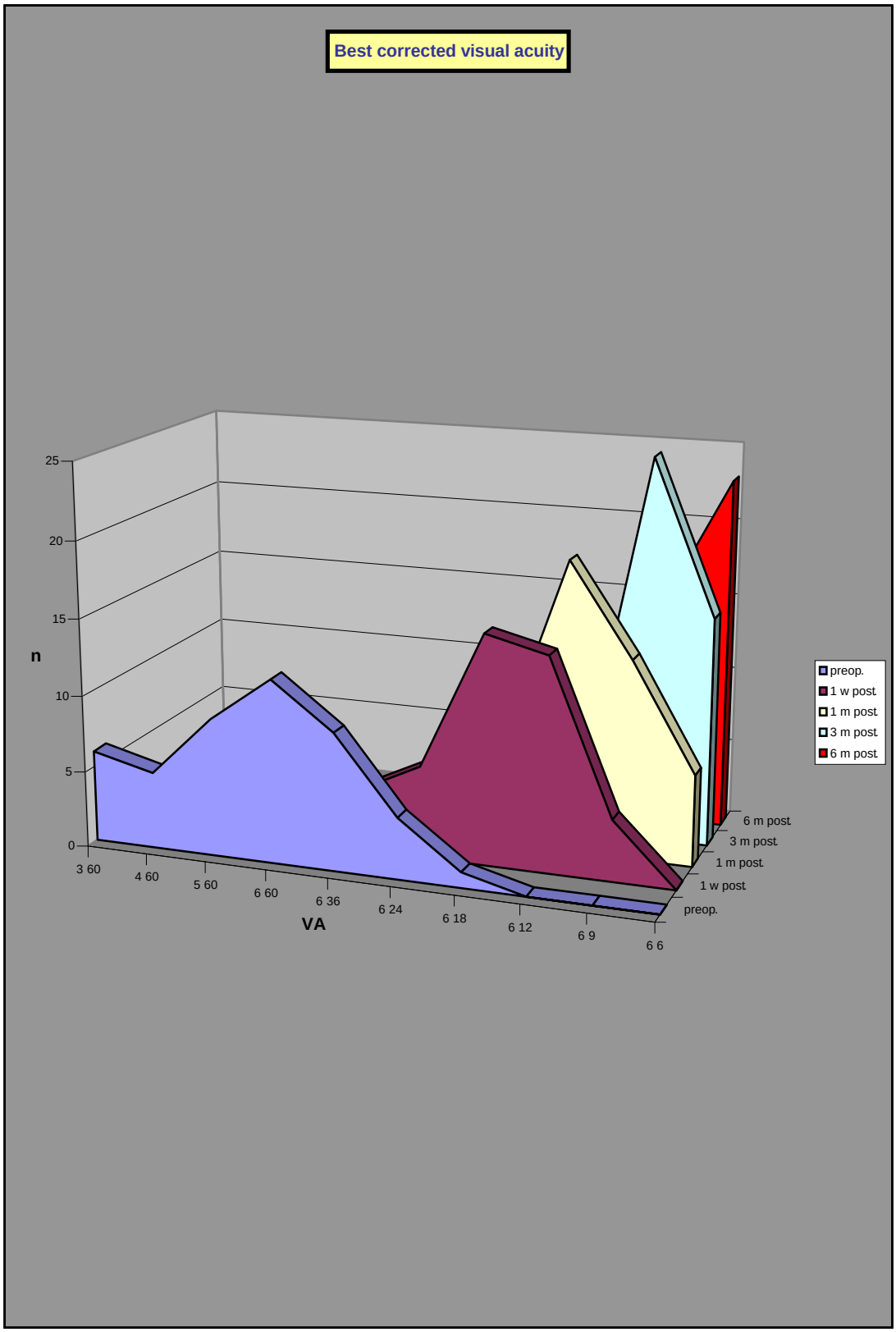

Fig.33(a): Best corrected visual acuity in 46 eyes.

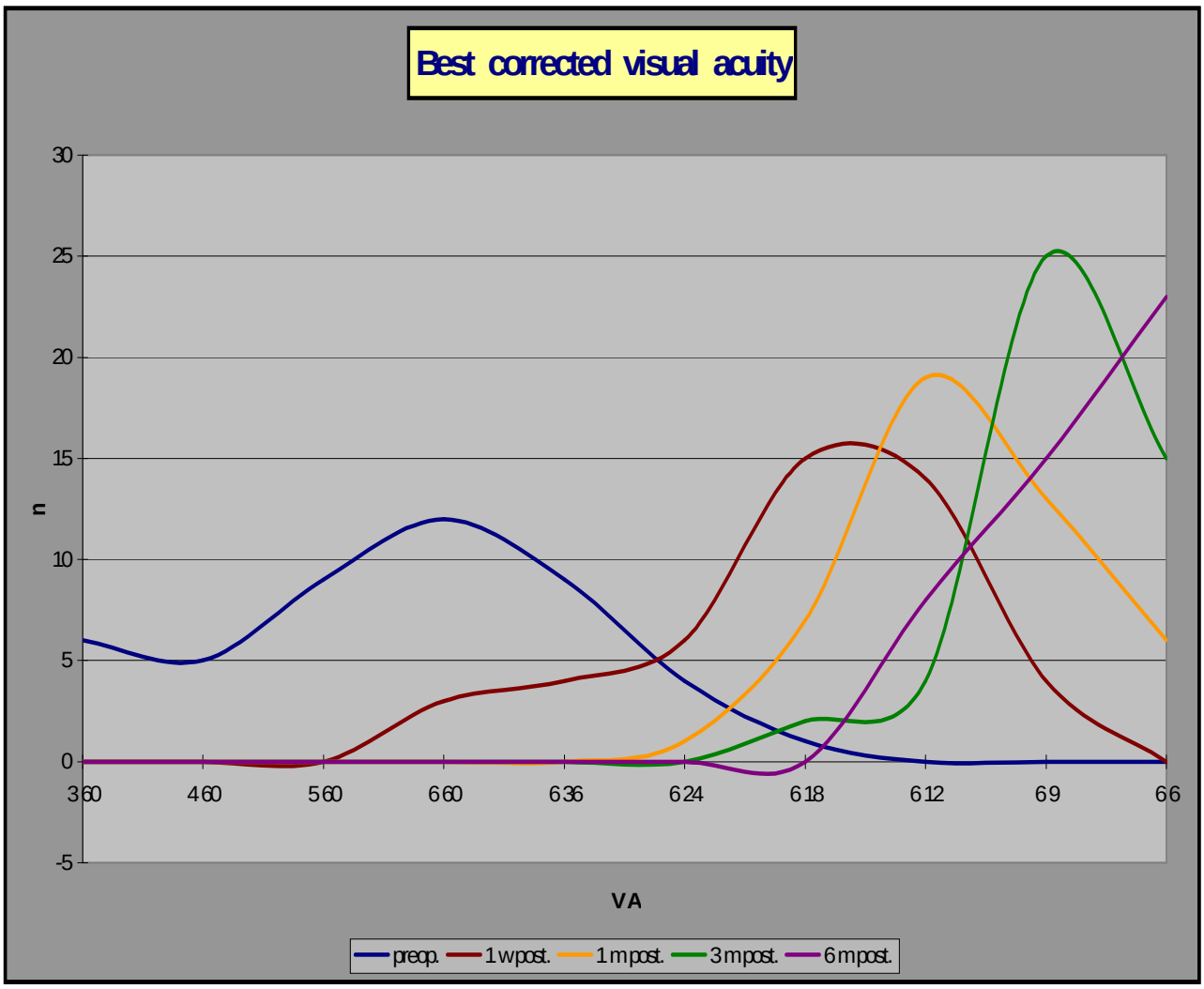

Fig.33(b): Best corrected visual acuity in 46 eyes.

In order to determine whether the difference between preoperative and postoperative BCVA is statistically significant or not, the BCVA measurements were presented in decimal notation. The following table can be used to convert from one to the other (Table 6).

Table 6: Visual acuity in Landolts' notation and their equivalent decimal ones.

Landolts' chart		Decimal
20 Feet	6 Meters	
20/1200	1/60	0.02
20/600	2/60	0.03
20/400	3/60	0.05
20/300	4/60	0.07
20/240	5/60	0.08
20/200	6/60	0.10
20/120	6/36	0.17
20/80	6/24	0.25
20/60	6/18	0.33
20/40	6/12	0.50
20/30	6/9	0.67
20/20	6/6	1.00

Statistical analysis was done using; mean, SD, and range, together with comparison of preoperative and postoperative results using the *paired two-tailed t-test* (Table 7).

Table 7: Statistical analysis of Best corrected visual acuity of 46 eyes.

	Preop.	1w Post.	1m Post.	3m Post.	6m Post.
Mean	0.12	0.38	0.58	0.75	0.81
SD	0.07	0.15	0.20	0.19	0.21
Range	0.05-0.33	0.10-0.67	0.25-1.00	0.33-1.00	0.50-1.00
Paired t-test	-------	13.7257	18.1490	23.3120	22.2329
P	-------	<0.01	<0.01	<0.01	<0.01

The table indicates that, 46 eyes had mean BCVA of 0.12 (0.07) preoperatively. These eyes showed significant improvement (P<0.01) on the first follow up visit with mean of 0.38 (0.15), which gradually increased till it reached 0.81 (0.21) at the sixth month visit. Analysis of variance (ANOVA) of the results of the four follow up visits all together, indicates a statistically significant difference (P<0.01) with improvement of results toward the end of the follow up interval.

According to mode of closure the studied 46 eyes were divided into two groups; ***group A***: sutureless closure which included 28 eyes (60.87%), and ***group B***: one 10/0 nylon interrupted radial stitch closure in 18 eyes (39.13%).

BCVA was reevaluated and analyzed statistically for each group separately and then they were compared using the student's t-test (Table 8, Figure 34). It indicates statistically insignificant difference (P > 0.05) between the two groups regarding preoperative BCVA. Both groups showed statistically highly significant (P < 0.01) improvement of vision, in comparison with the preoperative values, in all postoperative follow up visits. However, group A showed higher values than group B throughout the whole follow up period as indicated by student's t-test with significant P value (P < 0.05).

Table 8: Best corrected visual acuity preoperatively and postoperatively, with comparison between group A and B.

Interval	Group A (Sutureless) n = 28				Group B (One stitch) n = 18				t	P
	Mean (SD)	Range	Paired t	P	Mean (SD)	Range	Paired t	P		
Preop.	0.13(0.08)	0.05-0.33	--------	-----	0.10(0.04)	0.05-0.17	--------	-----	1.79	> 0.05
1w Post.	0.42(0.15)	0.10-0.67	13.09	< 0.01	0.31(0.13)	0.10-0.50	6.67	< 0.01	2.41	< 0.05
1m Post.	0.64(0.22)	0.33-1.0	15.10	< 0.01	0.49(0.13)	0.25-0.67	11.96	< 0.01	2.77	< 0.05
3m Post.	0.83(0.18)	0.50-1.0	21.86	< 0.01	0.62(0.15)	0.33-1.0	14.09	< 0.01	4.09	< 0.05
6m Post.	0.86(0.20)	0.50-1.0	18.07	< 0.01	0.72(0.19)	0.50-1.0	13.56	< 0.01	2.26	< 0.05

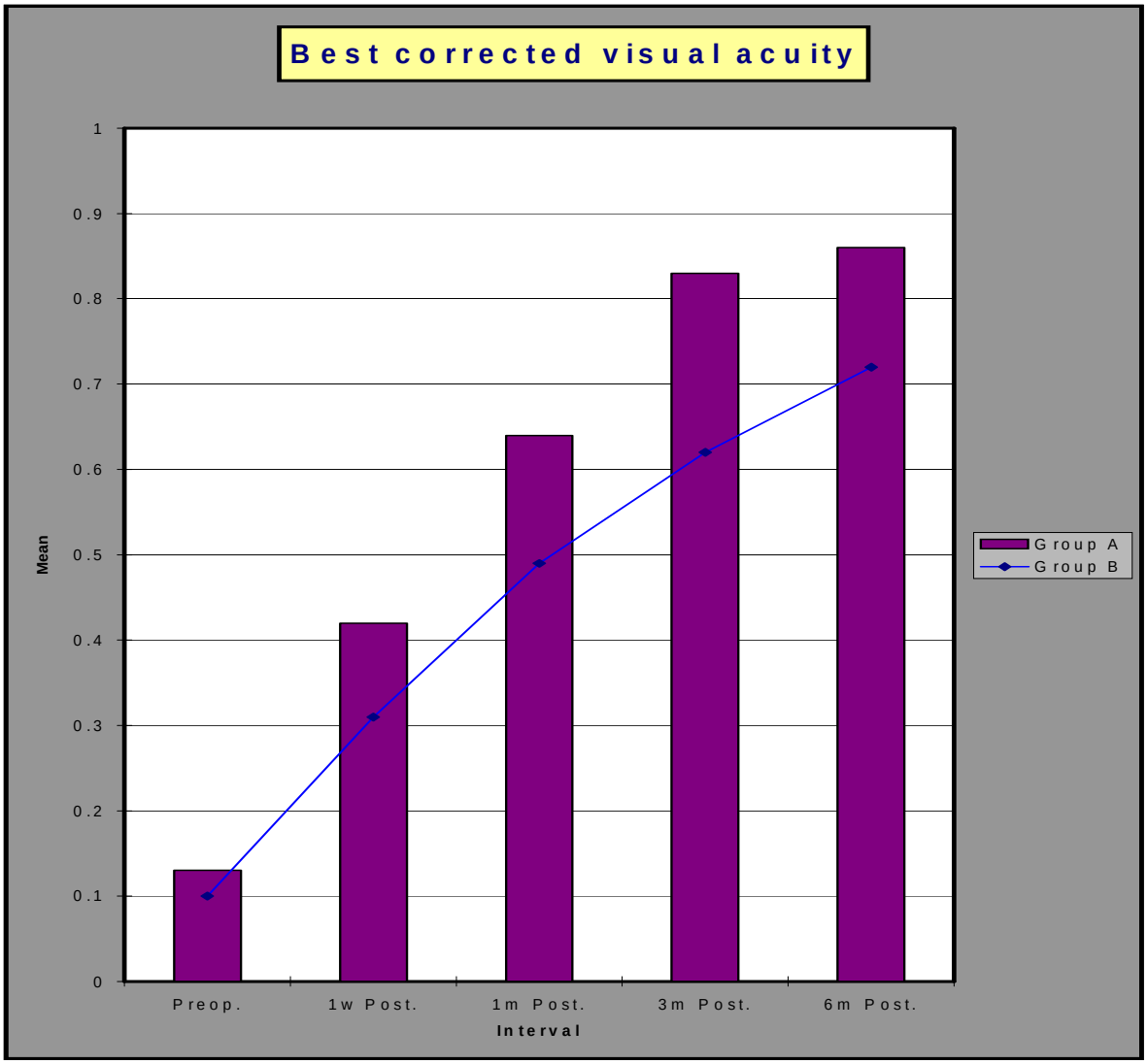

Fig.34: Mean best corrected visual acuity with comparison between group A & B.

Astigmatic study

For all eyes, keratometric readings were taken using Javal-Schiotz keratometer preoperatively, one week, and one, three and six months postoperatively. The keratometric readings were recorded and converted to Keratometric Astigmatic Cylinder "KAC". Keratometric data were stored and analyzed by a microcomputer data management system (Microstat program). Statistical analysis of these data included mean (X), standard deviation (SD) and range (minimum-maximum).

Preoperative flat and steep meridia, axis of the steep meridian and "K" of the two groups are shown (Tables 9 & 10).

Keratometric readings with positive cylinder between 60º and 120º were considered WTR, positive cylinder between 0º and 30º, 150º and 180º were established as ATR. Preoperative positive axes in between were considered oblique and those cases were not included for study, since the temporal incisions would be off axis.

The mean "K" was then calculated together with SD and range, for each group separately, and then the two groups were compared by "t" with P value for statistical significance (Table 11, Figure 35).

To quantitate the quality of result for each group, the percentages of eyes having magnitude of astigmatism "K" of 0.50 D or less, 1.0 D or less, and 2.0 D or less, preoperatively and at the four follow up intervals, were calculated. These data were compared statistically using Z test and P value for significance, regarding preoperative and postoperative values for each group alone (Tables 12 and 13, Figures 36 and 37).

Table 9: Preoperative flat and steep meridia, axis of the steep meridian, together with "K", of group A.

Serial n.	Preop. Flat	Preop. Steep	Axis	K
1	44.50	45.50	5	1.00
2	39.75	40.00	105	0.25
3	47.75	48.25	65	0.50
4	44.25	44.75	170	0.50
5	42.00	43.00	180	1.00
6	43.25	43.75	90	0.50
7	43.25	44.75	10	1.50
8	40.50	41.75	165	1.25
9	42.00	42.75	100	0.75
10	43.00	44.00	165	1.00
11	43.50	44.50	120	1.00
12	43.00	43.75	180	0.75
13	45.50	45.75	70	0.25
14	45.00	45.25	105	0.25
15	42.00	43.50	180	1.50
16	42.00	43.00	180	1.00
17	43.50	43.50	80	0.00
18	46.00	47.00	165	1.00
19	43.75	44.50	180	0.75
20	40.00	42.00	30	2.00
21	44.00	44.00	80	0.00
22	43.50	44.50	150	1.00
23	44.25	44.75	170	0.50
24	43.75	44.25	30	0.50
25	43.50	44.00	70	0.50
26	43.00	44.50	30	1.50
27	46.00	46.50	170	0.50
28	47.00	47.00	90	0.00
Mean	43.55	44.31	---------	0.76
SD	1.89	1.70	---------	0.50
Range	39.75-47.75	40.00-48.25	---------	0.0-2.0

Table 9 shows the mean for flat meridian: 43.55 (1.89), while that for the steep: 44.31 (1.70). The mean "K" (magnitude of astigmatism) in the 28 sutureless eyes (group A) was 0.76 (0.50) with a range between zero and two diopters.

Table 10: Preoperative flat and steep meridia, axis of the steep meridian, together with "K", of group B.

Serial n.	Preop. flat	Preop. Steep	Axis	K
1	42.75	43.50	90	0.75
2	45.50	46.50	120	1.00
3	44.00	45.50	60	1.50
4	44.50	44.75	10	0.25
5	42.75	44.25	15	1.50
6	42.50	43.50	180	1.00
7	47.00	47.50	10	0.50
8	42.00	43.00	95	1.00
9	47.00	47.50	90	0.50
10	45.00	46.00	120	1.00
11	41.50	42.00	25	0.50
12	42.00	43.00	80	1.00
13	43.50	43.50	160	0.00
14	42.75	44.25	75	1.50
15	43.50	44.00	90	0.50
16	46.00	48.00	180	2.00
17	44.00	45.00	65	1.00
18	43.50	43.75	70	0.25
Mean	43.88	44.75	--------	0.88
SD	1.67	1.74	--------	0.52
Range	41.50-47.00	42.00-48.00	--------	0.0-2.0

Table 10 shows the mean for flat meridian: 43.88 (1.67), while that for the steep: 44.75 (1.74). The mean "K" (magnitude of astigmatism) in the 18-sutured eyes (group B) was 0.88 (0.52) with a range between zero and two diopters.

Table 11: Magnitude of astigmatism "K", with comparison between group A and B.

Interval	Group A (Sutureless) n = 28				Group B (One stitch) n = 18				t	P
	Mean (SD)	Range	Paired t	P	Mean (SD)	Range	Paired t	P		
Preop.	0.76(0.50)	0.0-2.0	-------	----	0.88(0.52)	0.0-2.0	----------	-----	0.75	> 0.05
1w Post.	0.79(0.39)	0.0-1.50	0.26	> 0.05	1.04(0.78)	0.0-2.75	0.97	> 0.05	1.42	> 0.05
1m Post.	0.56(0.38)	0.0-1.25	1.45	> 0.05	0.64(0.58)	0.0-2.0	1.64	> 0.05	0.54	> 0.05
3m Post.	0.40(0.28)	0.0-1.0	2.99	< 0.05	0.54(0.49)	0.0-1.75	2.54	< 0.05	1.22	> 0.05
6m Post.	0.40(0.28)	0.0-1.0	3.33	< 0.05	0.47(0.39)	0.0-1.50	4.06	< 0.05	0.72	> 0.05

In (Table 11), the "paired t" showed statistically insignificant difference at first week and first month between preoperative and postoperative "K" of each group. On the contrary, there was statistically significant ($P < 0.05$) reduction of "K" at third and sixth month follow up visits. However, "t" didn't show significant difference between the two groups, regarding the magnitude of "K", in all follow up visits.

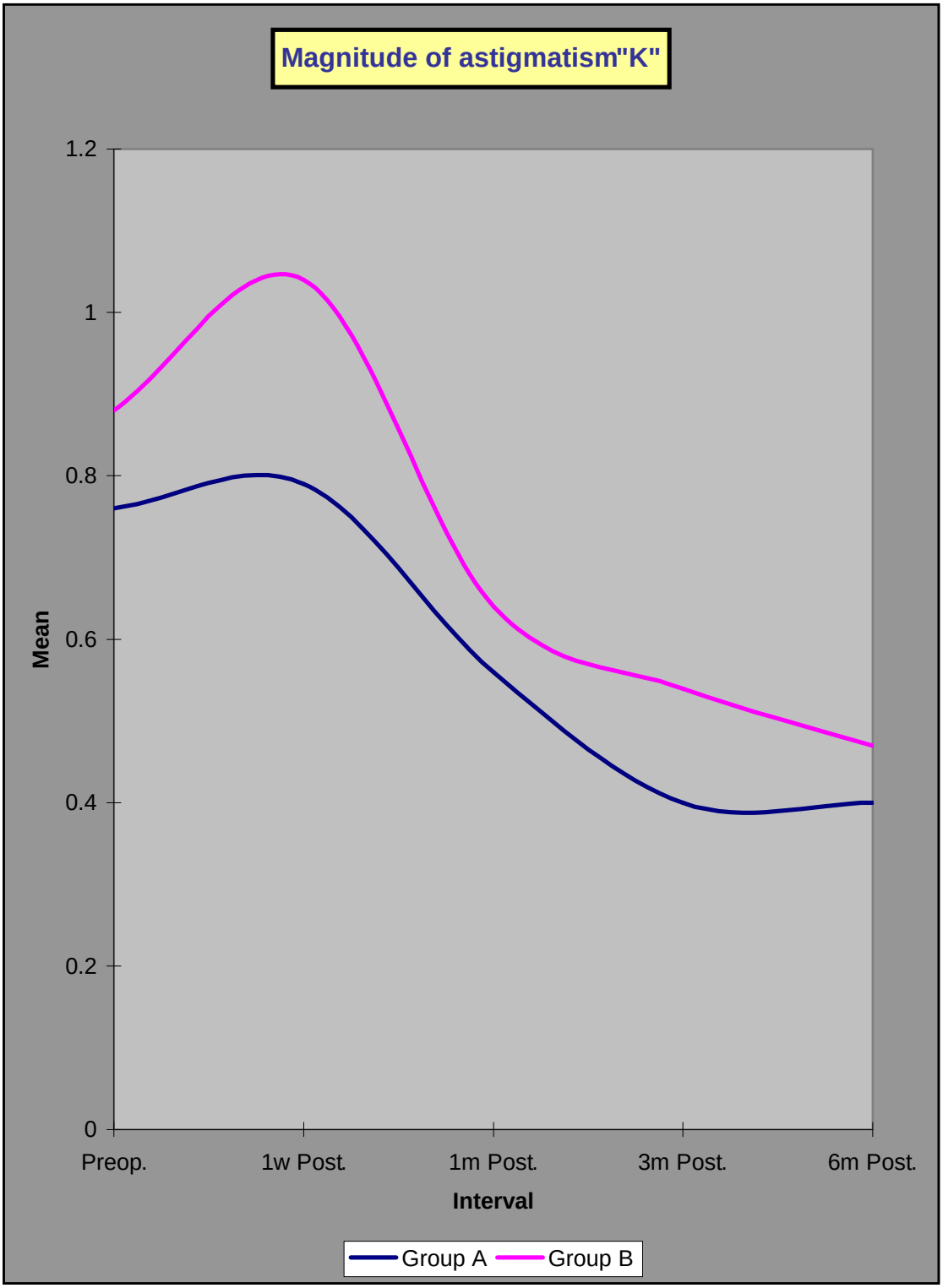

Fig. 35: Magnitude of astigmatism “K”, with comparison between group A & B.

Table 12: Qualitative analysis of magnitude of astigmatism “K”, in group A.

Interval	≤ 0.50 D				≤ 1.0 D				≤ 2.0 D			
	n.	%	Z	P	n.	%	Z	P	n.	%	Z	P
Preop.	13	46.43	----	------	23	82.14	----	------	28	100	---	------
1w Post.	10	35.71	0.52	> 0.05	23	82.14	0	> 0.05	28	100	0	> 0.05
1m Post.	17	60.71	0.78	> 0.05	26	92.86	1.13	> 0.05	28	100	0	> 0.05
3m Post.	22	78.57	1.96	< 0.05	28	100	2.24	< 0.05	28	100	0	> 0.05
6m Post.	23	82.14	2.24	< 0.05	28	100	2.24	< 0.05	28	100	0	> 0.05

In (Table 12), qualitative assessment of “K” in group A shows that, preoperatively thirteen eyes (46.43%) had 0.50 D or less keratometric astigmatism. Those decreased in the first week postoperatively (10 eyes or 35.71%) and then increased in the following visits. Statistically, there was insignificant difference ($P > 0.05$) between preoperative and postoperative values in first week and first month visits, but significance ($P < 0.05$) was found at third month (78.57%) and sixth month (82.14%) visits. The value for “K” of 1.0 D or less showed the same statistical pattern. All eyes had “K” of 2.0 D or less preoperatively and in all postoperative follow up visits.

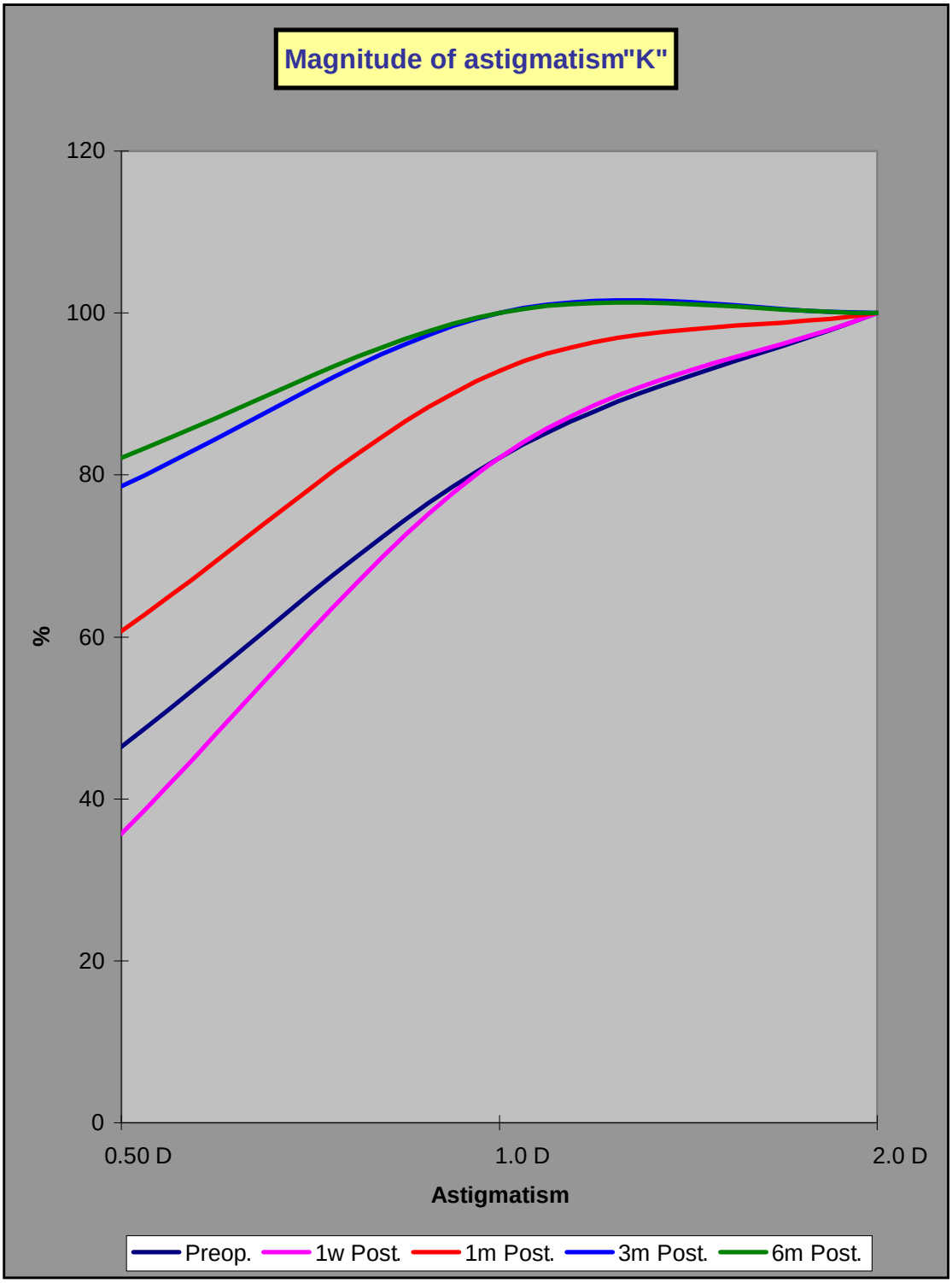

Fig. 36: Qualitative analysis of “K” in group A.

Table 13: Qualitative analysis of magnitude of astigmatism “K”, in group B.

Interval	≤ 0.50 D				≤ 1.0 D				≤ 2.0 D			
	n.	%	Z	P	n.	%	Z	P	n.	%	Z	P
Preop.	7	38.89	----	------	14	77.78	----	------	18	100	----	------
1w Post.	6	33.33	0.21	> 0.05	10	55.56	1.15	> 0.05	16	88.89	1.41	> 0.05
1m Post.	10	55.56	0.69	> 0.05	15	83.33	0.38	> 0.05	18	100	0	> 0.05
3m Post.	13	72.22	1.50	> 0.05	15	83.33	0.38	> 0.05	18	100	0	> 0.05
6m Post.	15	83.33	2.14	< 0.05	16	88.89	0.82	> 0.05	18	100	0	> 0.05

In (Table 13), qualitative assessment of “K” in group B shows that, preoperatively seven eyes (38.89%) had 0.50 D or less keratometric astigmatism. Those decreased in the first week postoperatively (6 eyes or 33.33%) and then increased in the following visits. Statistically, there was insignificant difference ($P > 0.05$) between preoperative and postoperative values in first week and first and third month visits, but significance ($P < 0.05$) was found at sixth month (83.33%) visits. The value for “K” of 1.0 D or less, and 2.0 D or less showed statistically insignificant difference between preoperative and postoperative percentage of eyes in all follow up visits. Almost all eyes had “K” of 2.0 D or less preoperatively and in all postoperative follow up visits, except at first week postoperatively when two eyes presented with more than 2.0 D of magnitude of “K”.

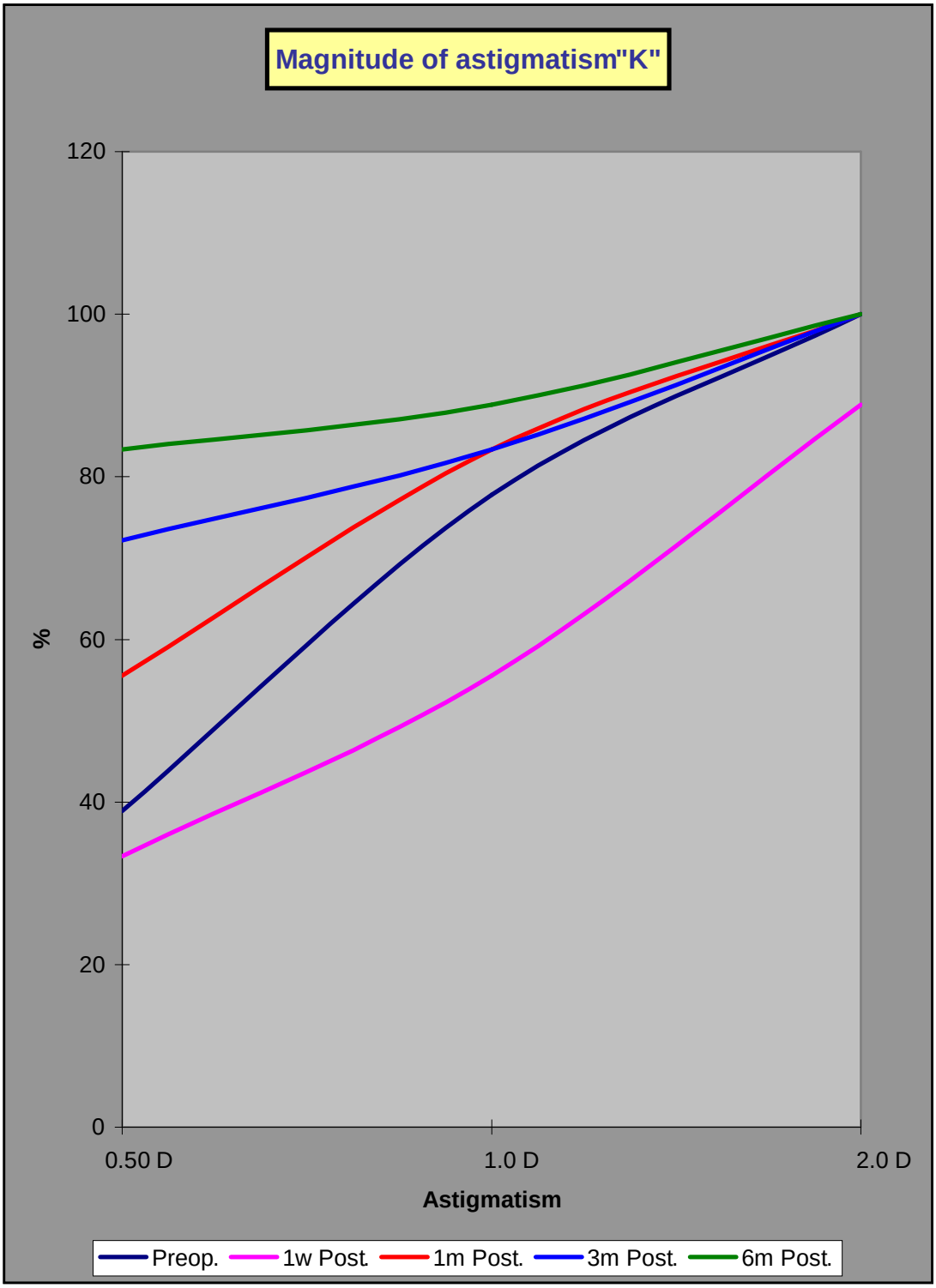

Fig. 37: Qualitative analysis of “K” in group B.

Steepening of the vertical meridian resulted from a WTR change, while flatenning of the same meridian was the result of an ATR induced change (Tables 14 & 15, Figures 38 & 39).

Table 14: Rule of astigmatism in group A.

Follow up visits	WTR				ATR			
	n	%	Z	P	n	%	Z	P
Preop.	8	28.57	-	-	17	60.71	-	-
1w Post.	26	92.86	3.84	<0.05	0	0	5.13	<0.01
1m Post.	24	85.71	3.27	<0.05	1	3.57	2.60	<0.05
3m Post.	20	71.43	2.27	<0.05	4	14.29	2.20	<0.05
6m Post.	16	57.14	1.41	>0.05	8	28.57	1.62	>0.05

It was noticed that group A had ATR vs WTR in a ratio of nearly 2:1 preoperatively, where 17 eyes (60.71%) had ATR astigmatism, while 8 eyes (28.57%) had WTR. There was a WTR shift in the immediate postoperative interval, when almost all eyes (92.86%) had WTR astigmatism in the first week postoperatively. Then, there was a slow ATR shift in the following intervals until the sixth month visit when 16 eyes (57.14%) had WTR astigmatism, while 8 ones (28.57%) had ATR. Comparative study using Z test and P value indicated statistically significant ($P < 0.05$) increase of WTR and decrease of ATR at one week, one month, and three months intervals. The reduction in ATR was highly significant ($P < 0.01$) in the first week postoperative follow up visit. At sixth month visit, the change from preoperative results was insignificant ($P > 0.05$).

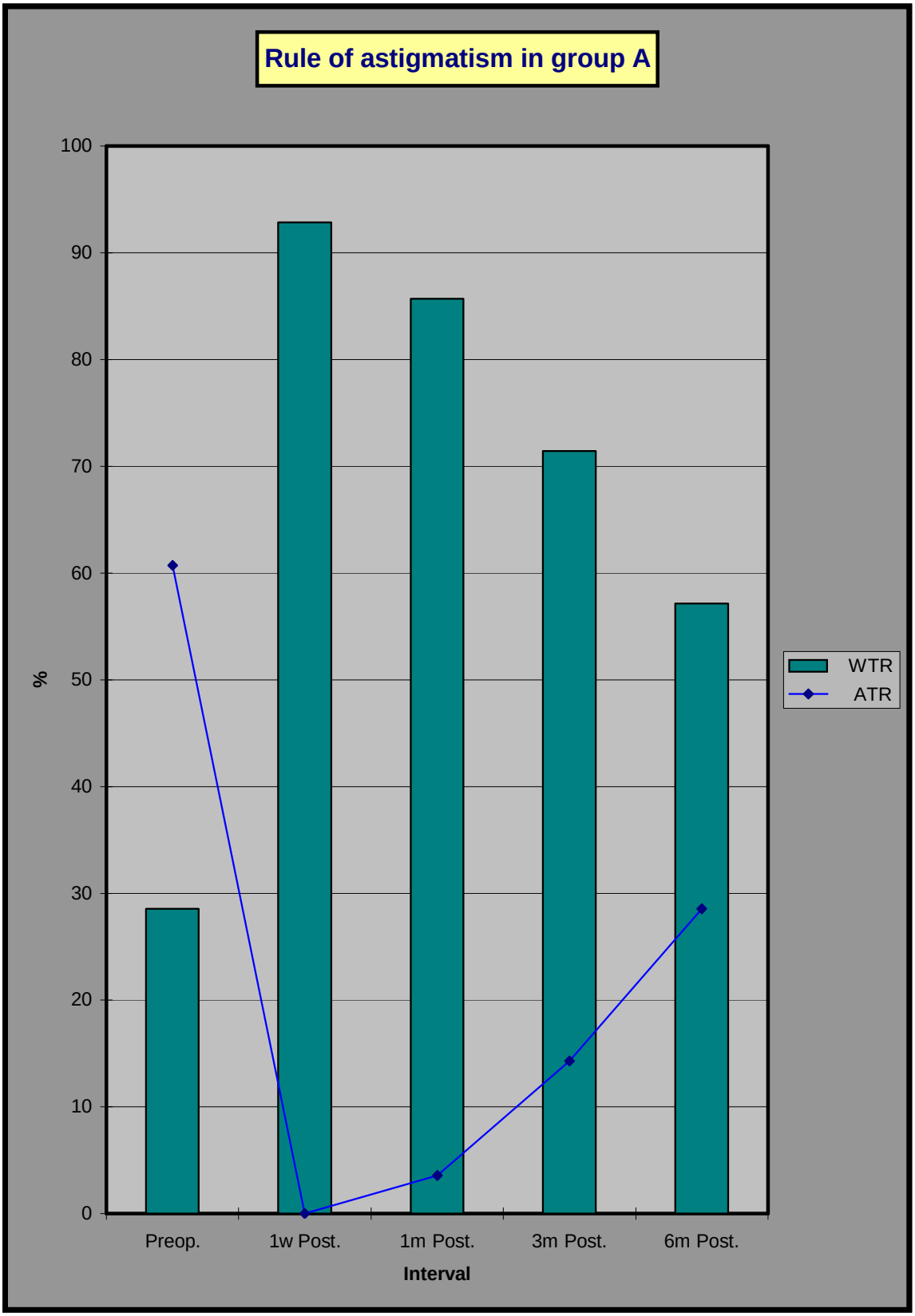

Fig. 38: Rule of astigmatism in group A.

Table 15: Rule of astigmatism in group B.

Follow up visits	WTR				ATR			
	n	%	Z	P	n	%	Z	P
Preop.	11	61.11	-	-	6	33.33	-	-
1w Post.	2	11.11	1.88	>0.05	16	88.89	2.67	<0.05
1m Post.	2	11.11	1.88	>0.05	13	72.22	1.70	>0.05
3m Post.	4	22.22	1.53	>0.05	12	66.67	1.41	>0.05
6m Post.	7	38.89	0.94	>0.05	10	55.56	0.89	>0.05

On the contrary, group B had WTR vs ATR in a ratio of nearly 2:1 preoperatively, where 11 eyes (61.11%) had WTR astigmatism, while 6 eyes (33.33%) had ATR. There was an ATR shift in the immediate postoperative interval, when almost all cases (16 eyes or 88.89%) had ATR astigmatism in the first week postoperatively. Then, there was a slow WTR shift in the following intervals until the sixth month visit when 10 eyes (55.56%) had ATR astigmatism, while 7 ones (38.89%) had WTR. Comparative study using Z test and P value indicated statistically significant ($P < 0.05$) difference only at first week follow up visit, with marked increase in the number of eyes presented with ATR astigmatism. The remaining results were insignificant ($P > 0.05$).

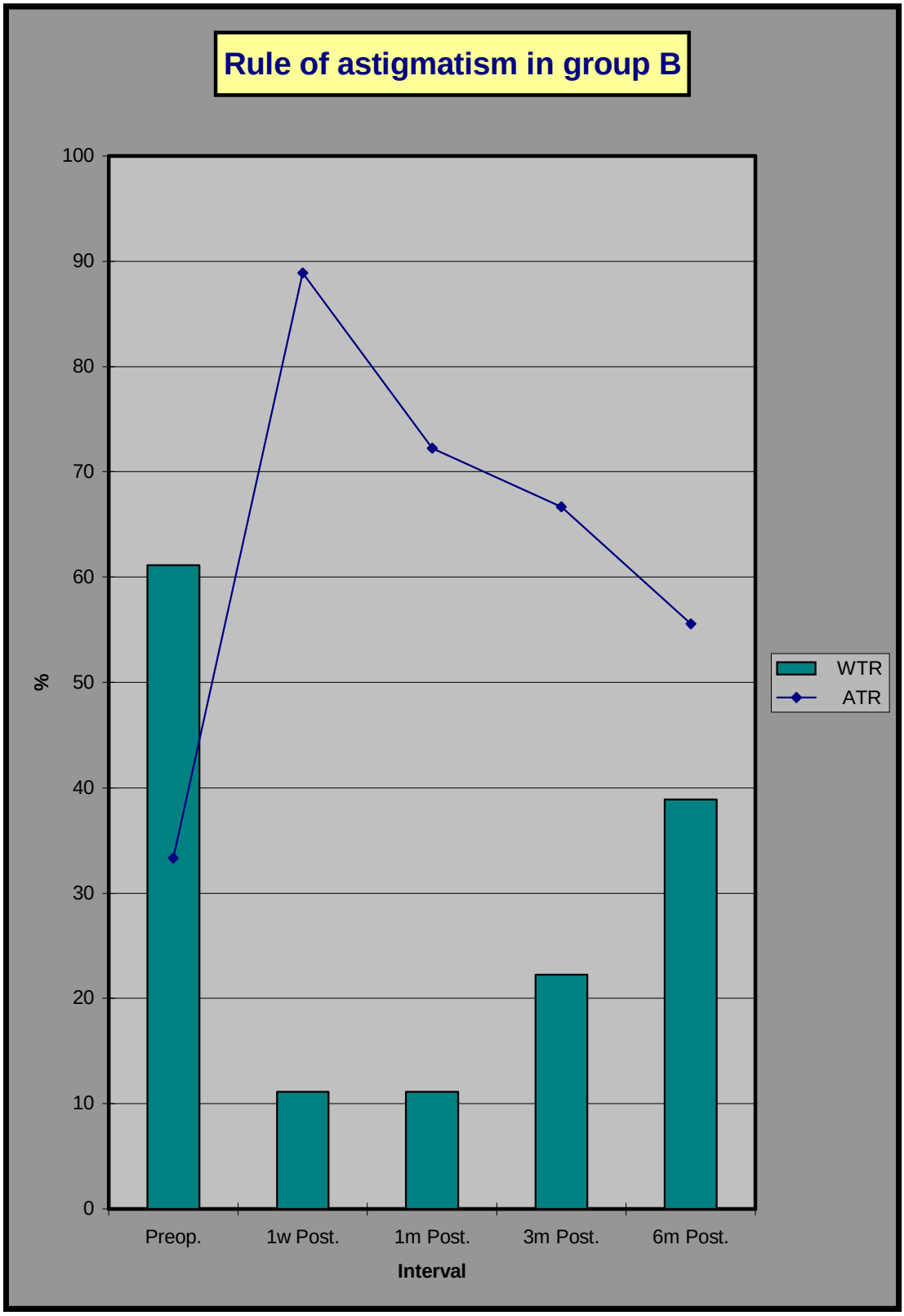

Fig. 39: Rule of astigmatism in group B.

Surgically induced astigmatism (SIA) was then calculated using; simple subtraction method (SIA-S), algebraic analysis (SIA-A), and law of cosines (SIA-L). Statistical analysis included mean, SD, and range. The two groups are then compared using the student's t-test (Tables 16-18, Figures 40-42).

Table 16: Surgically induced astigmatism, calculated by simple subtraction method, with comparison between group A and B.

Interval	Group A (n=28)		Group B (n=18)		t	P
	Mean(SD)	Range	Mean(SD)	Range		
1w Post.	0.63(0.41)	0.0-1.25	0.61(0.37)	0.0-1.25	0.12	> 0.05
1m Post.	0.64(0.36)	0.0-1.25	0.54(0.35)	0.0-1.50	0.95	> 0.05
3m Post.	0.57(0.37)	0.0-1.25	0.53(0.36)	0.0-1.25	0.39	> 0.05
6m Post.	0.52(0.42)	0.0-1.75	0.49(0.31)	0.0-1.0	0.28	> 0.05

It was observed from (Table 16) that, when the SIA was calculated by simple subtraction method, the astigmatic decay for both groups demonstrated maximum induced change at first week postoperative visit; 0.63(0.41) for group A and 0.61(0.37) for group B. Then, there was gradual reduction of SIA until it reached 0.52(0.42) for group A and 0.49(0.31) for group B. Student's t-test showed statistically insignificant difference ($P > 0.05$) between the two groups. However, group B showed slightly lower mean SIA in all postoperative intervals.

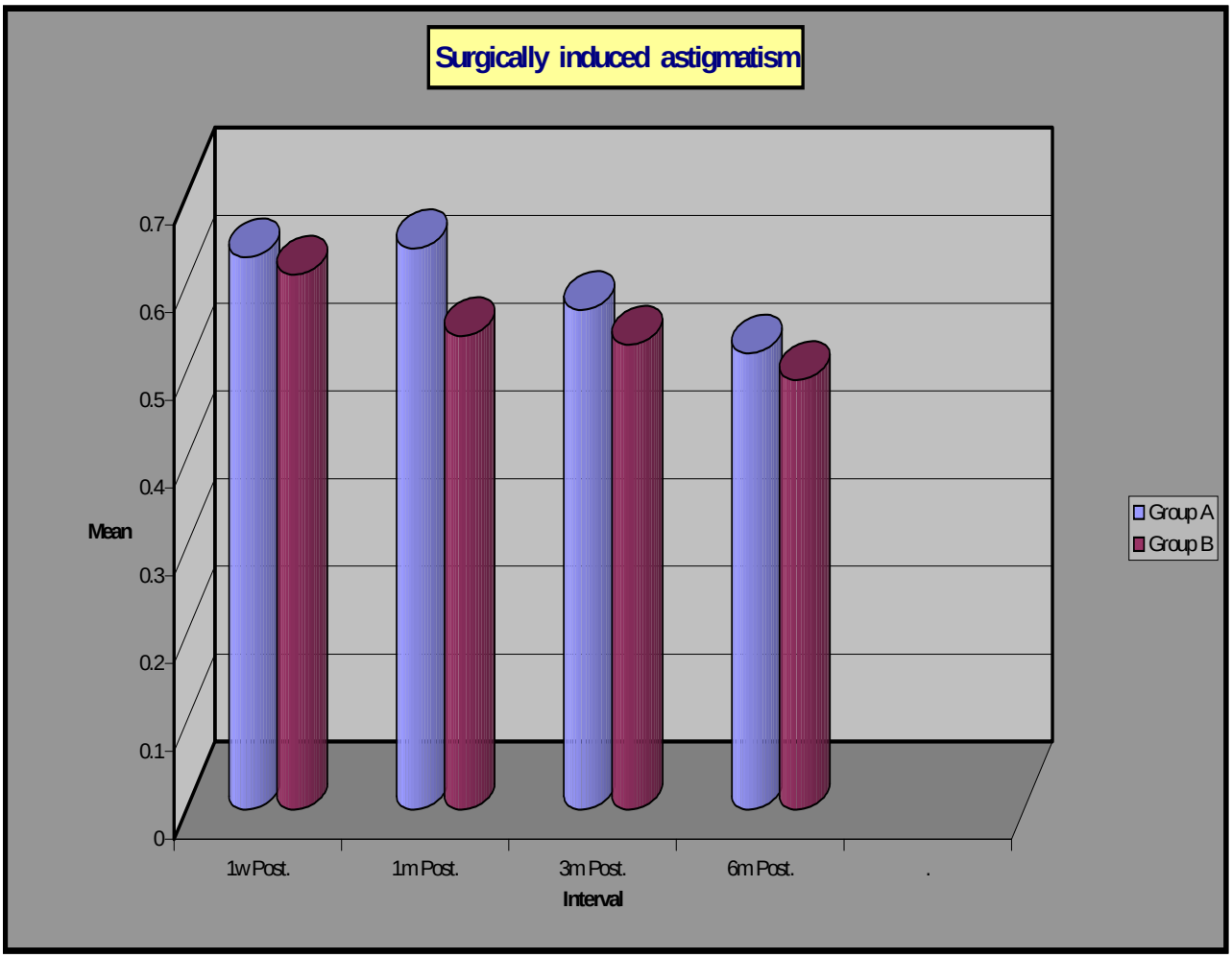

Fig. 40: Surgically induced astigmatism calculated by simple subtraction method, with comparison between group A and B.

Table 17: Surgically induced astigmatism, calculated by algebraic analysis method, with comparison between group A and B.

Interval	Group A (n=28)		Group B (n=18)		T	P
	Mean(SD)	Range	Mean(SD)	Range		
1w Post.	1.27(0.65)	0.0-3.0	-1.19(0.63)	(-3.0)-(0.25)	12.72	< 0.01
1m Post.	1.02(0.61)	(-0.25)-(2.75)	-0.79(0.56)	(-2.25)-(0.0)	10.17	< 0.01
3m Post.	0.79(0.60)	(-0.25)-(2.25)	-0.67(0.54)	(-2.0)-(0.25)	8.35	< 0.01
6m Post.	0.66(0.61)	(-0.25)-(2.25)	-0.49(0.58)	(-2.0)-(0.50)	6.35	< 0.01

It was noticed from (Table 17), that the astigmatic decay pattern for group A demonstrated a WTR shift at all times after surgery; the induced change was 1.25(0.65) at first week interval and decreased gradually throughout the follow up period, until it reached 0.66(0.61) at the sixth month visit. On the other hand, group B demonstrated an ATR shift at all times postoperatively; the induced change was –1.19(0.63) at first week interval, and then declined gradually. It reached –0.49(0.58) at the sixth month follow up visit. These astigmatic results for the two groups were compared using student's t-test (t), which indicated highly significant difference ($P < 0.01$). This can be attributed to difference in sign convention, where group A had positive values, while group B had negative ones.

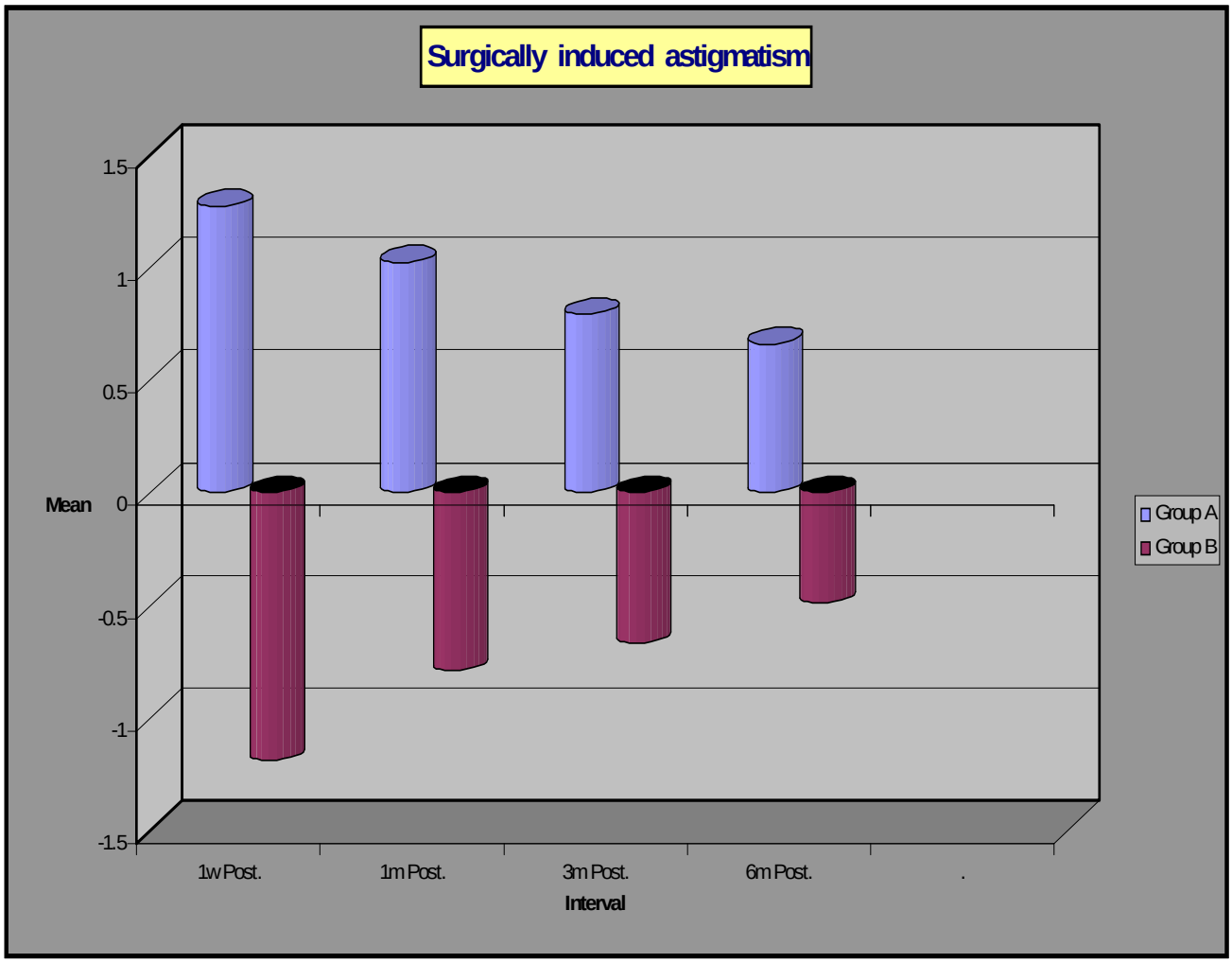

Fig. 41: Surgically induced astigmatism calculated by algebraic analysis method, with comparison between group A and B.

Table 18: Surgically induced astigmatism, calculated by law of cosines, with comparison between group A and B.

Interval	Group A (n=28)		Group B (n=18)		t	P
	Mean(SD)	Range	Mean(SD)	Range		
1w Post.	1.20(0.52)	0.0-2.52	1.31(0.58)	0.51-2.46	0.69	> 0.05
1m Post.	1.05(0.46)	0.25-2.46	0.83(0.45)	0.25-1.68	1.64	> 0.05
3m Post.	0.87(0.50)	0.25-2.20	0.74(0.38)	0.10-1.58	1.90	> 0.05
6m Post.	0.77(0.53)	0.0-2.22	0.68(0.36)	0.17-1.58	0.59	> 0.05

Table 18 indicated a gradual reduction of the mean SIA, calculated by law of cosines, with higher results at first week visit, 1.20(0.52) for group A and 1.31(0.58) for group B. Then declined gradually, in both groups, till it reached 0.77(0.53) for group A and 0.68(0.36) for group B, at the sixth month follow up visit. Student's t-test (t) showed statistically insignificant difference ($P > 0.05$) between both groups throughout all postoperative intervals. However, group B showed slightly lower mean SIA at all intervals except at first week visit where group A mean SIA was lower.

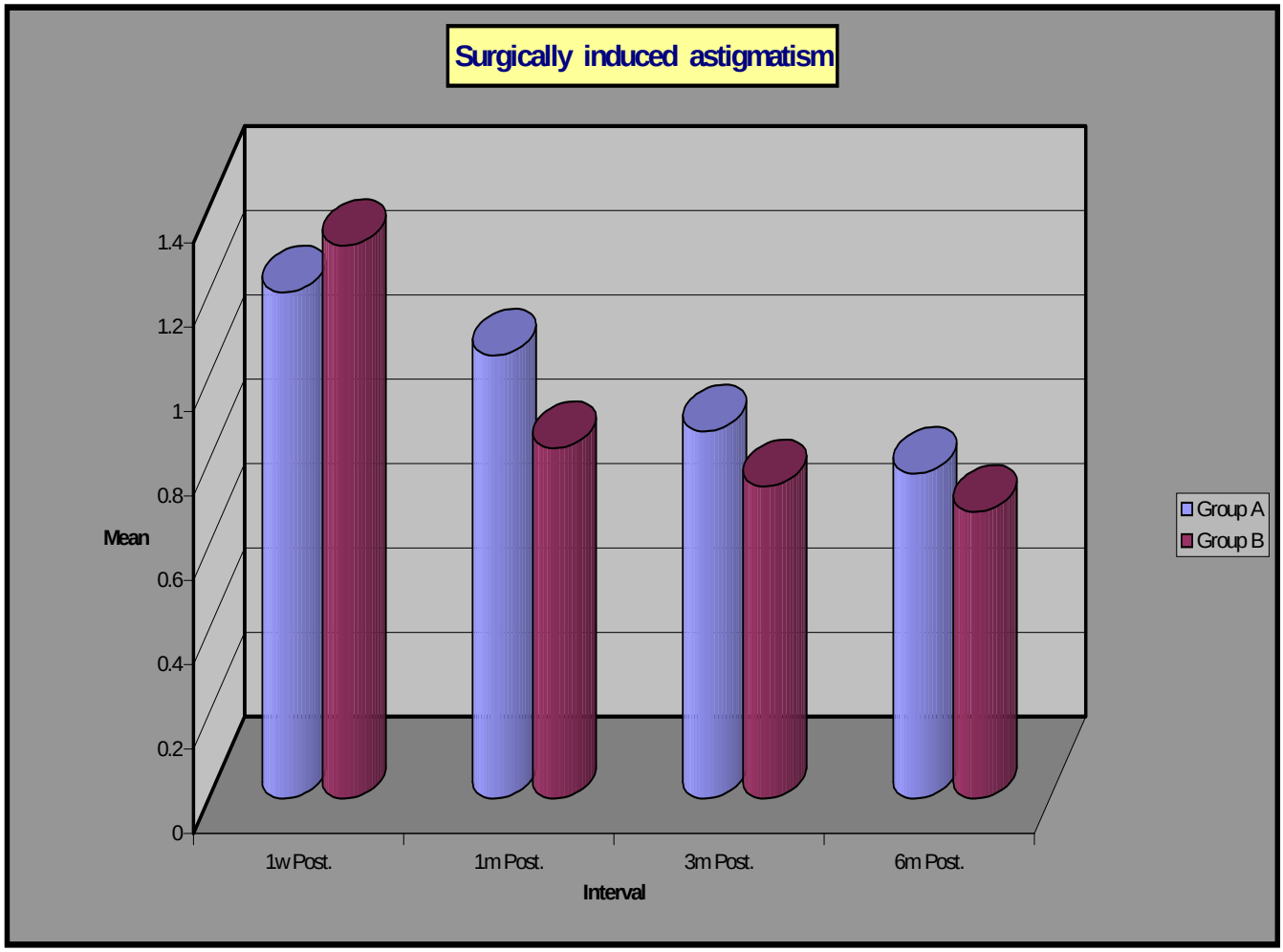

Fig 42: Surgically induced astigmatism calculated by law of cosines, with comparison between group A and B.