Research Square

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Micropulse Transscleral Laser Cyclophotocoagulation in the Treatment of Glaucoma: Role of Laser Energy Density in Long-Term IOP Reduction

Assiya Shaikenova

shaikenova93@mail.ru

Kazakh Eye Research Institute

Tursungul Botabekova

Kazakh-Russian Medical University

Neilya Aldasheva

Kazakh Eye Research Institute

Almas Umbetiar

Kazakh Eye Research Institute

Zhanara Akhmetova

Kazakh Eye Research Institute

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Abstract

Purpose

To evaluate the efficacy and safety of micropulse transscleral cyclophotocoagulation (MP-CPC) and to assess the influence of laser fluence on the durability of intraocular pressure (IOP) reduction.

Methods

This retrospective interventional study included 30 patients (31 eyes) with uncontrolled glaucoma treated with MP-CPC. Diagnoses comprised primary open-angle glaucoma (POAG, 20 eyes) and secondary glaucoma, including silicone oil–induced (6 eyes) and neovascular glaucoma (NVG, 5 eyes). All eyes had inadequate IOP control despite maximal medical therapy and/or prior surgery. IOP was recorded preoperatively and during follow-up up to 6 months. Treatment success was defined as an IOP reduction ≥ 20%. A subgroup analysis assessed fluence-dependent effects on outcomes using non-parametric statistical methods.

Results

A clinically meaningful IOP reduction was achieved in 74.2% of eyes at 1 month and in 51.6% at 6 months without retreatment. In POAG, MP-CPC produced a sustained IOP reduction, with a median decrease of approximately 33% at 1 month and 26% at 6 months. Silicone oil–induced glaucoma showed a pronounced and durable response, with IOP reduction of up to 60% at 6 months. In contrast, NVG demonstrated only a transient IOP decrease. Fluence-based analysis demonstrated a significant threshold-dependent effect on long-term outcomes, with sustained IOP reduction observed exclusively in the high-fluence group (Kruskal–Wallis test, $p = 0.035$).

Conclusion

MP-CPC is most effective in POAG and silicone oil–induced glaucoma. The hypotensive effect demonstrates a fluence-dependent threshold, with higher fluence providing more durable long-term IOP control.

Introduction

Glaucoma is a chronic progressive disease leading to irreversible blindness [1, 2]. Topical hypotensive therapy (THT) remains the first-line treatment for glaucoma [3, 4]. However, sustained intraocular pressure (IOP) control is not achieved in all patients due to poor adherence, intolerance to medications, or insufficient therapeutic efficacy. In cases of inadequate response to THT and/or inability to use these medications, laser and surgical treatment options are considered [3, 4].

Transscleral cyclophotocoagulation (CPC) is one of the laser hypotensive treatments, which reduces aqueous humor production by targeting the ciliary body [1, 2]. Shields and Blodi proposed it in 1972. Conventional continuous-wave CPC (CW-CPC) is effective hypotensive treatment but it is associated with complications such as significant inflammation, uncontrolled hypotony, and vision loss [5].

Tan and colleagues introduced micropulse transscleral cyclophotocoagulation (MP-CPC) in 2010 to minimize these risks. In this approach, laser energy is delivered in short pulses separated by rest intervals, which reduces thermal tissue damage and thereby decreases the risk of complications [1, 4]. Reduced thermal energy dissipation significantly decreases postoperative pain, inflammation, and hypotony, shortens the recovery period, and allows for repeated treatments if necessary [3–8].

MP-CPC represents an attractive treatment option for glaucoma, as it minimizes postoperative complications while maintaining efficacy comparable to that of conventional CPC. However, the role of laser energy density (fluence) on the durability of IOP reduction remains insufficiently explored.

Therefore, the aim of our study was to evaluate the efficacy and safety of micropulse transscleral cyclophotocoagulation and to investigate the influence of laser fluence on the durability of the hypotensive effect.

Materials and Methods

The study adhered to the tenets of the Declaration of Helsinki. Ethics approval (approval №193) was obtained from the Local Ethics Committee, Kazakhstan-Russian Medical University, and written informed consent for the use of anonymized clinical data was obtained from the patients.

Study design

This retrospective interventional study included patients with primary open-angle glaucoma (POAG) and secondary glaucoma (SG) unresponsive to maximal medical therapy and prior glaucoma surgeries at Kazakh Eye Research Institute, Almaty, Kazakhstan.

Inclusion Criteria

Patients were eligible for inclusion if they met all of the following criteria: (1) Age ≥ 18 years; (2) Confirmed diagnosis of glaucoma: primary open-angle or secondary (including silicone oil–induced or neovascular glaucoma); (3) Intraocular pressure (IOP) not controlled on maximal tolerated medical therapy; (4) History of previous glaucoma surgery or contraindication for initial/repeat conventional glaucoma surgery; (5) Ability to complete follow-up visits for at least 6 months.

Exclusion criteria:

Patients were excluded if they met any of the following criteria: (1) Acute ocular inflammation at the time of intervention; (2) Incomplete baseline data or inability to attend scheduled follow-up visits.

Etiologies were classified into two primary categories based on examination findings: (i) Primary open-angle glaucoma (an anatomically open anterior chamber angle), (ii) secondary glaucoma (secondary to other ocular/systemic conditions), subclassified as silicone oil–induced glaucoma (emulsified oil in the anterior chamber angle) and neovascular glaucoma (neovascularization of the iris and/or anterior chamber angle).

Baseline and follow-up assessments included: (1) Intraocular pressure (IOP) measurement using Corvis ST tonometry (OCULUS Optikgeräte GmbH, Germany); (2) Slit-lamp biomicroscopy; (3) Fundoscopy (if possible); (4) Gonioscopy.

IOP measurements were recorded preoperatively and at 1, 3, 7, 14 days and 1, 2, 3, 6 months postoperatively.

MP-CPC was performed according to Aquino et al., 2015, with modifications adapted to our center, using Quantel Medical Vitrae 810 [13]. Postoperative care included topical corticosteroids for 2 weeks. Transition to topical nonsteroidal anti-inflammatory drugs (NSAIDs, Bromfenac 0,09%) for 14 days.

The primary outcome was the reduction in IOP, defined as a ≥ 20% decrease from baseline. Secondary outcomes included the safety profile of MP-CPC, evaluated by the incidence of inflammation and hypotony.

To assess the effect of fluence on the magnitude and duration of the hypotensive effect, all patients were divided into three groups according to the level of fluence, calculated using the formula:

$$Fluence = \frac{P \times t \times D}{v \times W}$$

where:

P — power

t — exposure time

D — duty cycle (0,313)

v — sweep speed

W — width (0,6 mm)

Statistical analysis

Continuous variables are presented as mean and standard deviation for baseline characteristics and median and interquartile range (IQR) for statistical data. Box-and-whisker plots show the median, IQR, and Tukey whiskers. Statistical analysis was performed using the Friedman test followed by Dunn's multiple comparisons test. Differences were considered statistically significant at $p < 0.05$. For bilateral cases, each eye was analyzed independently as a clinical unit. Data analysis was performed using GraphPad Prism 10 (GraphPad Software, San Diego, CA, USA). For fluence-based subgroup analysis, data are presented as median and interquartile range (IQR) and compared using the Kruskal–Wallis test followed by Dunn's post hoc test with Bonferroni correction. While the POAG group showed predominantly normal distributions with deviation at one time point, and no significant deviations were detected in the silicone oil–induced glaucoma and NVG groups, small sample sizes and the repeated-measures design limited the robustness of parametric assumptions.

Results

Baseline characteristics of the study population are presented in Table 1. A total of 30 patients (31 eyes) were included: Primary open-angle glaucoma 19 patients (20 eyes) 64.52%; Secondary glaucoma: 11 patients (11 eyes) 35.48%, including: Silicone oil–induced glaucoma (SIG) 6 patients (6 eyes) 19.34%, Neovascular glaucoma 5 patients (5 eyes) 16.13%, caused by post-thrombotic retinopathy (4 eyes) 12.9% and proliferative diabetic retinopathy (1 eye) 3.23%. The age of patients was 66 ± 12.74, with 21 women (67.7%) and 10 men (32.3%). Duration of glaucoma ranged from 7.58 ± 5.95 years.

Table 1
Baseline characteristics of patients.

Parameter	POAG	SG	P - value
Eyes (n)	20	11	na
Male/Female (%)	15/5 (59.4)	6/5 (67.7)	0.244[1]
Mean age ± SD (years)	66 ± 12.74	57.3 ± 16.3	0.146[2]
Initial IOP	35.8 ± 12.74	37.45 ± 9.55	0.665[2]
Post IOP	25.63 ± 11.02	22.57 ± 9.49	0.432[2]

na - not applicable, SD - standard deviation, POAG - primary open-angle glaucoma, SG – secondary glaucoma, IOP - intraocular pressure

[1]Chi-square test

[2]Parametric unpaired t test

A positive hypotensive effect after MP-CPC was observed in 74.19% of patients after 1 month and in 51.61% after 6 months without repeated procedures.

Primary open-angle glaucoma

In patients with primary open-angle glaucoma, micropulse transscleral cyclophotocoagulation resulted in a significant reduction in intraocular pressure throughout the 6-month follow-up period.

Figure 1 shows the dynamics of intraocular pressure in patients with primary open-angle glaucoma after micropulse transscleral cyclophotocoagulation.

Compared with baseline, median IOP decreased by 23.48% at 24 hours, 23.19% at day 3, 24.35% at day 7, and 42.03% at day 14. At later follow-up visits, median IOP reduction was 33.33% at 1 month, 27.54% at 2 months, 38.41% at 3 months, and 26.09% at 6 months (Fig. 1).

Overall longitudinal analysis demonstrated a statistically significant change in IOP over time (Friedman test, $p < 0.001$). Post hoc pairwise comparisons using Dunn's multiple comparisons test showed no statistically significant IOP reduction at 24 hours ($p = 0.0815$) and confirmed that IOP was significantly lower than baseline at 3 days ($p = 0.0034$), 7 days ($p = 0.0002$), 14 days ($p < 0.0001$), 1 month ($p < 0.0001$), 2 months ($p = 0.0034$), 3 months ($p = < 0.0001$), and 6 months ($p = 0.0072$).

Detailed results of post-hoc multiple comparisons are presented in Table 2

Table 2
Post-hoc Dunn's multiple comparisons for IOP dynamics in primary-open glaucoma

Comparison (vs baseline)	Adjusted p-value	Significance
Day 1	0.0815	ns
Day 3	0.0034	**
Day 7	0.0002	***
Day 14	< 0.0001	****
1 month	< 0.0001	******
2 months	0.0034	**
3 months	< 0.0001	****
6 months	0.0072	**

Secondary glaucoma

In patients with secondary glaucoma, intraocular pressure (IOP) demonstrated a significant change over time following MP-CPC. Friedman test revealed a statistically significant difference in IOP across all follow-up time points compared to baseline ($p = 0.0024$).

Post-hoc analysis using Dunn's multiple comparisons test showed a significant reduction in IOP compared to baseline at Day 1, Day 3, Day 7, Day 14, as well as at 2, 3 and 6 months after the procedure (adjusted $p < 0.05$ for all comparisons). No statistically significant difference was observed at 1 month ($p > 0.05$).

Median IOP reduction from baseline reached its maximum during the early postoperative period and remained clinically meaningful during long-term follow-up, with a percentage reduction of up to 43% at 6 months. Compared with baseline, median IOP decreased by 27.78% at 24 hours, 38.89% at day 3, 44.44% at day 7, and 41.67% at day 14. At later follow-up visits, median IOP reduction was 30.56% at 1 month, 47.22% at 2 months, 42.92% at 3 months, and 43.06% at 6 months (Fig. 2).

Detailed results of post-hoc multiple comparisons are presented in Table 3

Table 3
Post-hoc Dunn's multiple comparisons for IOP dynamics in secondary glaucoma

Comparison (vs baseline)	Adjusted p-value	Significance
Day 1	0.0457	*
Day 3	0.0043	**
Day 7	0.0003	***
Day 14	0.0037	**
1 month	0.1731	Ns
2 months	0.0024	**
3 months	0.0065	**
6 months	0.0129	*

Silicone oil–induced glaucoma

In eyes with silicone oil–induced glaucoma, intraocular pressure demonstrated a statistically significant change over time following MP-CPC. Friedman test revealed a significant difference in IOP across follow-up visits compared to baseline ($p = 0.0082$).

Post-hoc analysis using Dunn's multiple comparisons test showed a significant reduction in IOP compared to baseline at Day 7, as well as at 2, 3 and 6 months after the procedure (adjusted $p < 0.05$). No statistically significant differences were observed at Day 1, Day 3, Day 14 and 1 month.

Compared with baseline, median IOP decreased by 16.05% at 24 hours, 41.98% at day 3, 50.49% at day 7, and 40.74% at day 14. At later follow-up visits, median IOP reduction was 41.48% at 1 month, 55.56% at 2 months, 54.2% at 3 months, and 60.12% at 6 months (Fig. 3).

Despite a delayed early response, a sustained decrease in median IOP was observed during long-term follow-up, indicating a gradual but stable hypotensive effect of MP-CPC in this subgroup.

Detailed results of post-hoc multiple comparisons are presented in Table 4

Table 4
Post-hoc Dunn's multiple comparisons for IOP dynamics in silicone oil-induced glaucoma

Comparison (vs baseline)	Adjusted p-value	Significance
Day 1	> 0.9999	ns
Day 3	0.3187	ns
Day 7	0.0059	**
Day 14	0.2801	ns
1 month	0.5851	ns
2 months	0.0417	*
3 months	0.0179	*
6 months	0.0018	**

Neovascular glaucoma

In the neovascular glaucoma subgroup (n = 5), a statistically significant change in intraocular pressure over time after MP-CPC was observed (Friedman test: $\chi^2 = 16.44$, $p = 0.0364$).

Median IOP decreased in the early postoperative period, followed by a variable course during further follow-up. Post-hoc pairwise comparisons using Dunn's multiple comparisons test revealed a statistically significant reduction in IOP compared to baseline on day 3 ($p = 0.0311$) and day 14 ($p = 0.0311$). No statistically significant differences from baseline were observed at day 1, 1 month, 2 months, 3 months, or 6 months ($p > 0.05$).

Compared with baseline, median IOP decreased by 18.75% at 24 hours, 43.75% at day 3, 37.5% at day 7, and 34.38% at day 14. At later follow-up visits, median IOP reduction was 12.5% at 1 month, 31.25% at 2 months, 28.13% at 3 months, and 21.88% at 6 months (Fig. 4).

Detailed results of post-hoc multiple comparisons are presented in Table 5

Table 5
Post-hoc Dunn's multiple comparisons for IOP dynamics in neovascular glaucoma

Comparison (vs baseline)	Adjusted p-value	Significance
Day 1	0.1225	ns
Day 3	0.0311	*
Day 7	0.1225	ns
Day 14	0.0311	*
1 month	> 0.9999	ns
2 months	0.1674	ns
3 months	0.8478	ns
6 months	> 0.9999	ns

Fluence

To assess the effect of fluence on the magnitude and duration of the hypotensive effect, all patients were divided into three groups according to the level of fluence: low-fluence with ≤ 130 J/mm^2, medium fluence group with 131–190 J/mm^2 and high-fluence with ≥ 190 J/mm^2.

As shown in the Fig. 5, a reduction in intraocular pressure was observed in all three patient groups by day 7 of follow-up. In the early period, the most pronounced decrease in IOP was noted in the medium-fluency micropulse cyclophotocoagulation group.

In the low-fluence group, moderate variability in IOP values was observed, with a tendency toward an increase by the 6-month follow-up. In the medium-fluence group, starting from day 14, a gradual rise in the IOP curve was noted, with values approaching baseline levels by the 6th month.

In contrast, the high-fluence group demonstrated a more uniform and sustained reduction in IOP: after a slight elevation of the curve at the 1-month follow-up, a gradual decrease in IOP was observed, with preservation of the hypotensive effect at 6 months. Overall, patients in the high-fluence group exhibited a more pronounced and stable reduction in IOP in the long-term follow-up period.

At the 6-month follow-up, intergroup comparison of changes in intraocular pressure revealed statistically significant differences among the fluence groups (Kruskal–Wallis test, $p = 0.035$). Post hoc Dunn's test with Bonferroni correction showed no significant differences between the low- and medium-fluence groups ($p = 0.713$), whereas the high-fluence group demonstrated a significantly greater and more sustained reduction in IOP compared with both the low-fluence group ($p = 0.022$) and the medium-fluency group ($p = 0.020$).

The obtained data indicate a threshold-like dose-dependent effect of micropulse cyclophotocoagulation. An increase in the fluence up to 130–190 J/mm² was not associated with a substantial enhancement of the hypotensive effect, whereas exceeding the threshold level (> 190 J/mm²) resulted in a more pronounced and sustained reduction in IOP in the long-term follow-up.

To evaluate whether long-term IOP reduction differed according to glaucoma subtype, a Kruskal–Wallis test was performed comparing POAG and SG. SG cohort was too small for evaluation.

Figure 6 shows the dynamics of intraocular pressure in patients with primary open-angle glaucoma after micropulse transscleral cyclophotocoagulation, stratified according to laser energy fluence.

A reduction in IOP was observed in all fluence groups during the early postoperative period. Although visual inspection of the curves suggests differences in the temporal patterns of IOP change among the low-, medium-, and high-fluence groups, formal statistical analysis did not reveal significant intergroup differences at the 6-month follow-up (Kruskal–Wallis test, $p = 0.17$).

In particular, the medium-fluence group demonstrated a more pronounced short-term IOP reduction, whereas the high-fluence group showed a tendency toward a more stable IOP profile over time. However, these trends did not reach statistical significance, indicating that the observed differences should be interpreted as descriptive rather than confirmatory.

Figure 7 illustrates the postoperative intraocular pressure (IOP) dynamics in patients with secondary glaucoma following micropulse transscleral cyclophotocoagulation, stratified by medium (131–190 J/mm²) and high (> 190 J/mm²) laser energy fluence.

At baseline, patients treated with high fluence demonstrated higher mean IOP values compared to those in the medium-fluence group. A reduction in IOP was observed in both groups during the early postoperative period, particularly within the first 7–14 days after the procedure.

Over the course of follow-up, the IOP trajectories of the two fluence groups showed variable patterns.

Given the limited sample size and the heterogeneity of secondary glaucoma subtypes, the observed differences should be interpreted as descriptive trends rather than confirmatory evidence of a fluence-dependent effect in this subgroup.

Complications

After MP-CPC occurred in 36.36% of cases (12 eyes). The most common were mild inflammation in 33.3% of cases (11 eyes), mydriasis in 30.3% of patients (10 eyes), transient hypotony in 6% (2 eyes), and cystoid macular edema in 3% (1 patient). No severe or long-lasting complications were observed, confirming the safety of the procedure. Reduced thermal energy dissipation significantly decreases postoperative pain and postoperative inflammation.

Discussion

Research results consistently demonstrate stable IOP reduction. In a 5-year follow-up research MP-CPC showed ≥ 20% IOP reduction with a decrease in the number of glaucoma medications in 70.8% of patients; the mean IOP reduction was approximately 30.8% [14]. In other study IOP decreased by an average of 8.2 mmHg (31.8%) at 6 months, 6.9 mmHg (28.1%) at 12 months, and 7.1 mmHg (30.2%) at 24 months [4]. Most patients maintained visual function without a pronounced inflammatory response [4, 14, 15]. In our study a positive hypotensive effect after MP-CPC was observed in 74.19% of patients after 1 month and in 51.61% after 6 months without repeated procedures with. IOP reduction was 33.33% at 1 month and 26.09% at 6 months in POAG group. In SG group IOP reduction was 30.56% at 1 month and 43.06% at 6 months.

MP-CPC can be combined with other glaucoma treatments, including medications, surgical procedures, and minimally invasive glaucoma surgeries (MIGS), enhancing efficacy and enabling individualized treatment approaches [16–18].

Important finding of the present study is the differential response between glaucoma subtypes. The most pronounced and sustained hypotensive effect was noted in primary open-angle glaucoma and silicone oil–induced secondary glaucoma, whereas the effect in neovascular glaucoma was transient and diminished over time. These aspects are consistent with previously published reports indicating a more limited and unstable response to MP-TCPC in neovascular glaucoma [19, 20].

The present study demonstrates that a higher level of energy fluence during micropulse transscleral laser cyclophotocoagulation is associated with a more sustained hypotensive effect, persisting up to 6 months after the procedure. While a short-term intraocular pressure (IOP) reduction was observed across all energy fluence groups.

This finding represents a key distinction from the majority of previously published studies, in which fluence has primarily been discussed as a safety-related or technical parameter rather than as a determinant of the duration of the hypotensive effect [21]. Several experimental and clinical studies have acknowledged the importance of fluence in micropulse cyclophotocoagulation, suggesting that it may better reflect the biological impact of laser treatment than total delivered energy alone [22]. However, most published reports focus on short-term efficacy (1–3 months) or present long-term results without stratifying outcomes according to fluence levels. As a result, the question of whether fluence influences the durability of the hypotensive effect has remained insufficiently explored [23]. Importantly, while both low- and medium-energy density groups exhibited an initial decrease in IOP, a gradual return toward baseline values was observed by 6 months. In contrast, patients treated with higher energy density maintained a stable hypotensive response, suggesting that fluence is not merely a determinant of early efficacy, but a predictor of long-term outcome.

In the present study, a significant association between laser energy fluence and the durability of intraocular pressure (IOP) reduction was observed when the entire cohort was analyzed, indicating that fluence is an important determinant of long-term treatment efficacy following micropulse transscleral cyclophotocoagulation. In contrast, subgroup analyses (primary open-angle and secondary glaucoma)

did not demonstrate statistically significant fluence-dependent differences. Although visual trends in IOP dynamics were noted, these did not reach statistical significance, most likely due to the limited sample size and heterogeneity of the subgroups rather than the absence of a true fluence–response relationship. Further studies with larger cohorts are therefore required to clarify subgroup-specific effects.

The present study has several limitations, including a relatively small sample size and a follow-up period limited to 6 months. Nevertheless, the clear dose-threshold effect observed supports the hypothesis that energy density is a key determinant of long-term hypotensive efficacy. This finding adds a new dimension to the clinical understanding of MP-CPC and supports the use of energy density (fluence) as a meaningful parameter for optimizing long-term treatment outcomes.

Conclusion

Micropulse transscleral cyclophotocoagulation demonstrates efficacy and safety in reducing intraocular pressure in patients with primary open-angle and secondary glaucoma, including silicone oil–induced, providing a statistically significant hypotensive effect with a low risk of serious complications. In neovascular glaucoma the effect was limited and transient.

This study demonstrates a fluence-dependent effect on the durability of intraocular pressure reduction. While all fluence levels achieved short-term IOP lowering, only higher fluence was associated with a sustained long-term hypotensive effect. These findings suggest the presence of a threshold energy level required to maintain prolonged IOP control.

Optimization of laser fluence may therefore represent a key factor in improving long-term outcomes of micropulse cyclophotocoagulation.

Declarations

Ethic approval: The study was conducted in accordance with the Declaration of Helsinki and approved by the Local Ethics Committee of Kazakhstan-Russian Medical University, approval №193, 2025 year

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement, etc.) that might pose a conflict of interest in connection with the submitted article.

Authors Contribution: Conceptualization: T.B.; Methodology: A.Sh., A.U.;

Data collection: A.Sh., A.U., Zh.A.; Analysis: A.Sh.; Investigation: A.Sh., A.U., N.A.; Writing – original draft preparation: A.Sh.; Writing – review and editing: N.A.; Supervision: T.B.

Declaration on the use of AI: ChatGPT was used solely for language editing and grammar improvement. No AI tools were used to generate scientific content, analyse data, or draw conclusions. The authors take

full responsibility for the integrity and originality of the work.

Consent for publication: Not applicable

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Data Availability Statement

The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request.

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Figures

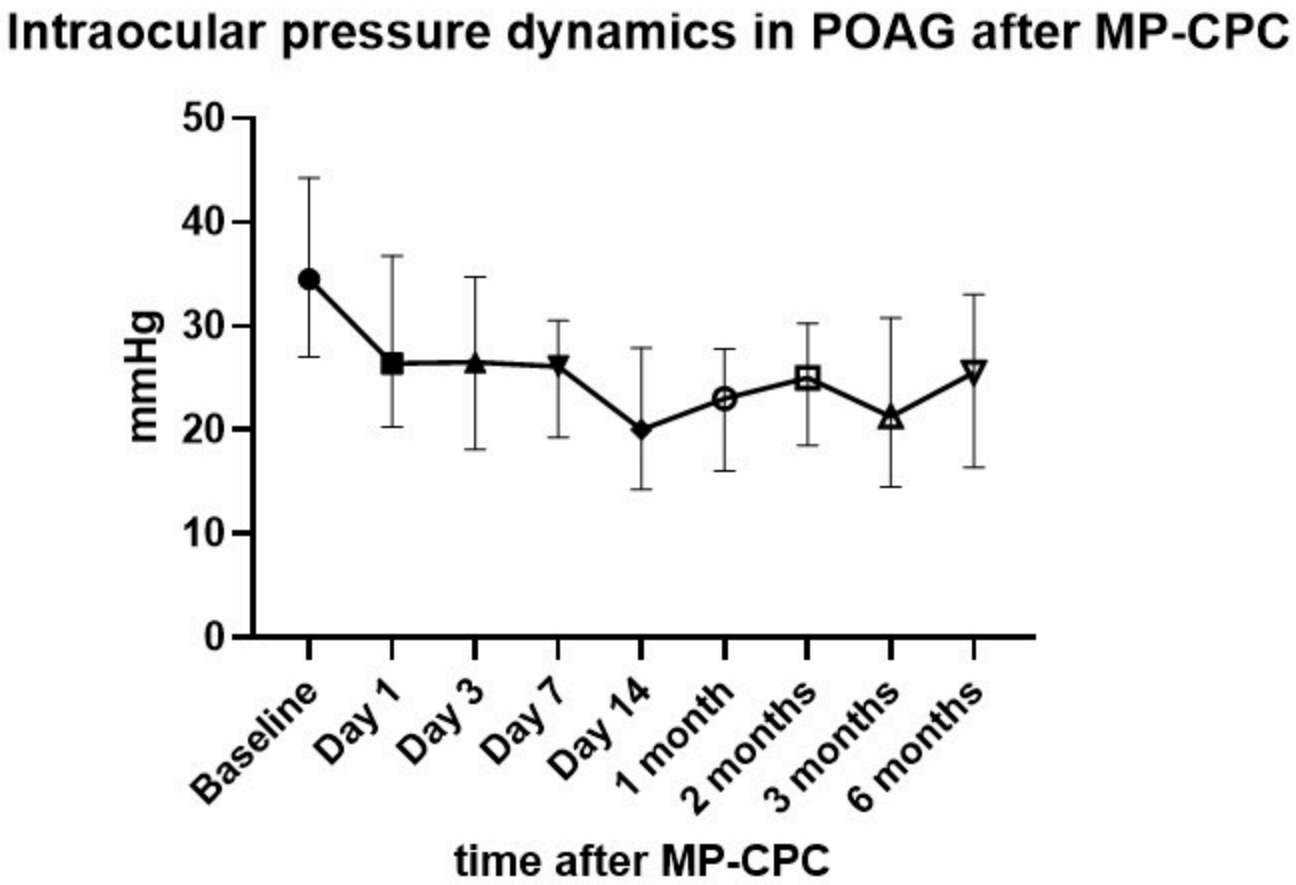


Figure 1

Dynamics of IOP in patients with POAG

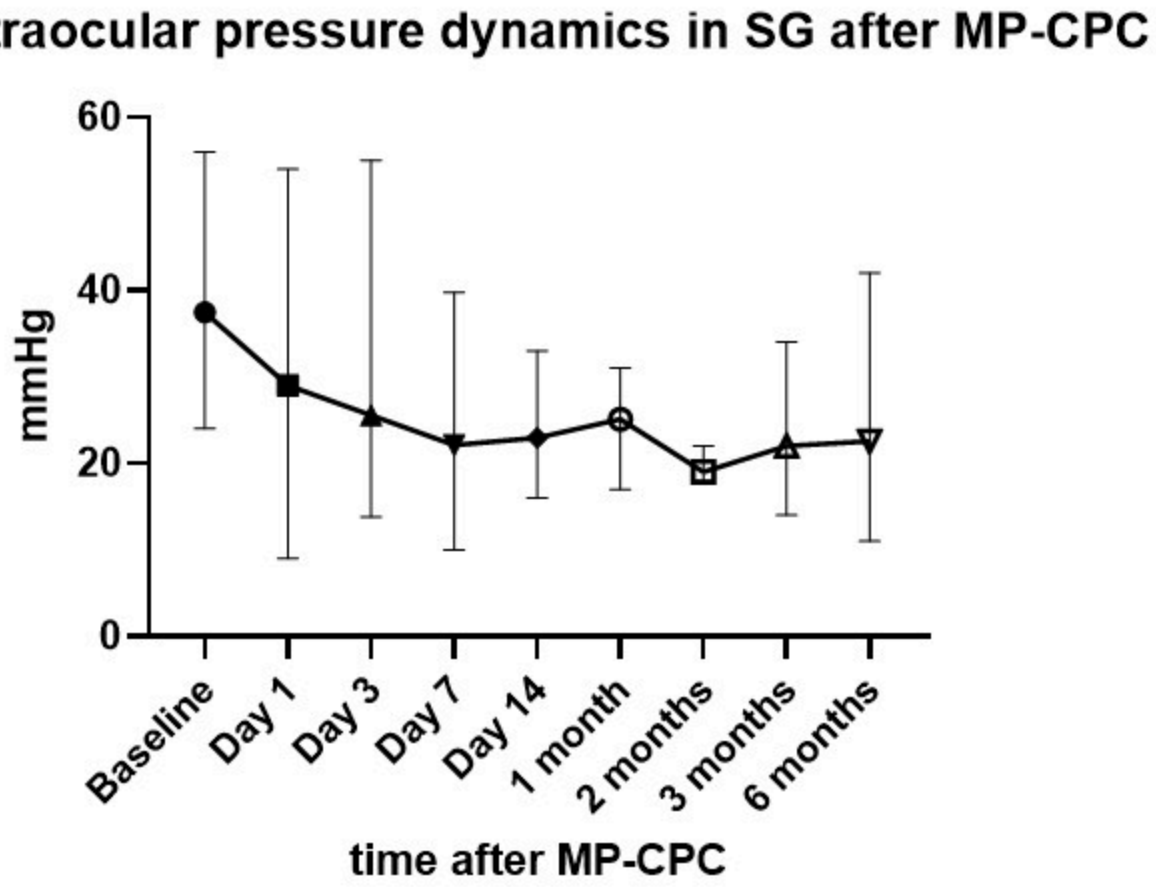


Figure 2

Dynamics of IOP in patients with secondary glaucoma

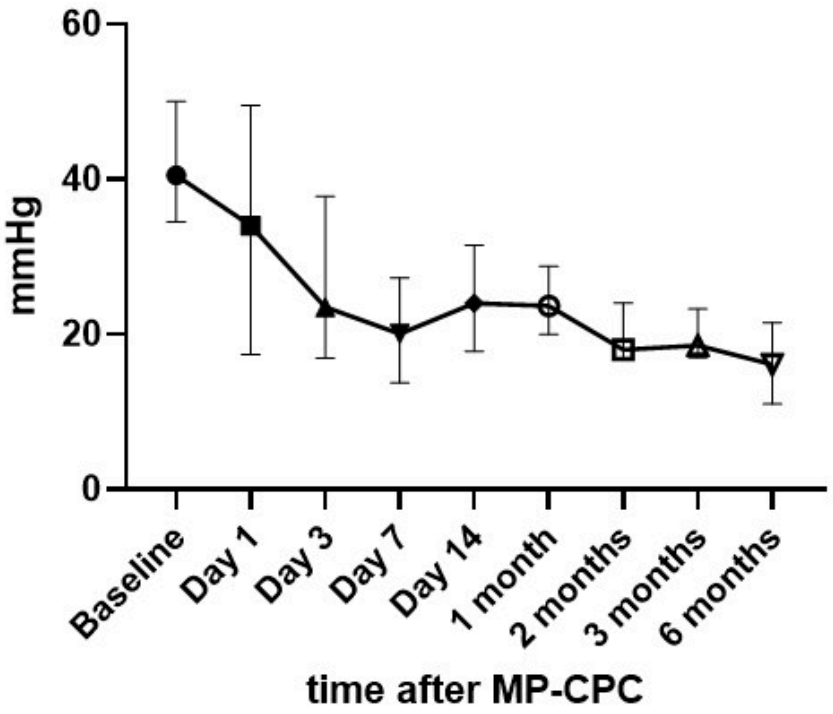


Figure 3

Dynamics of IOP in patients with silicone oil–induced glaucoma

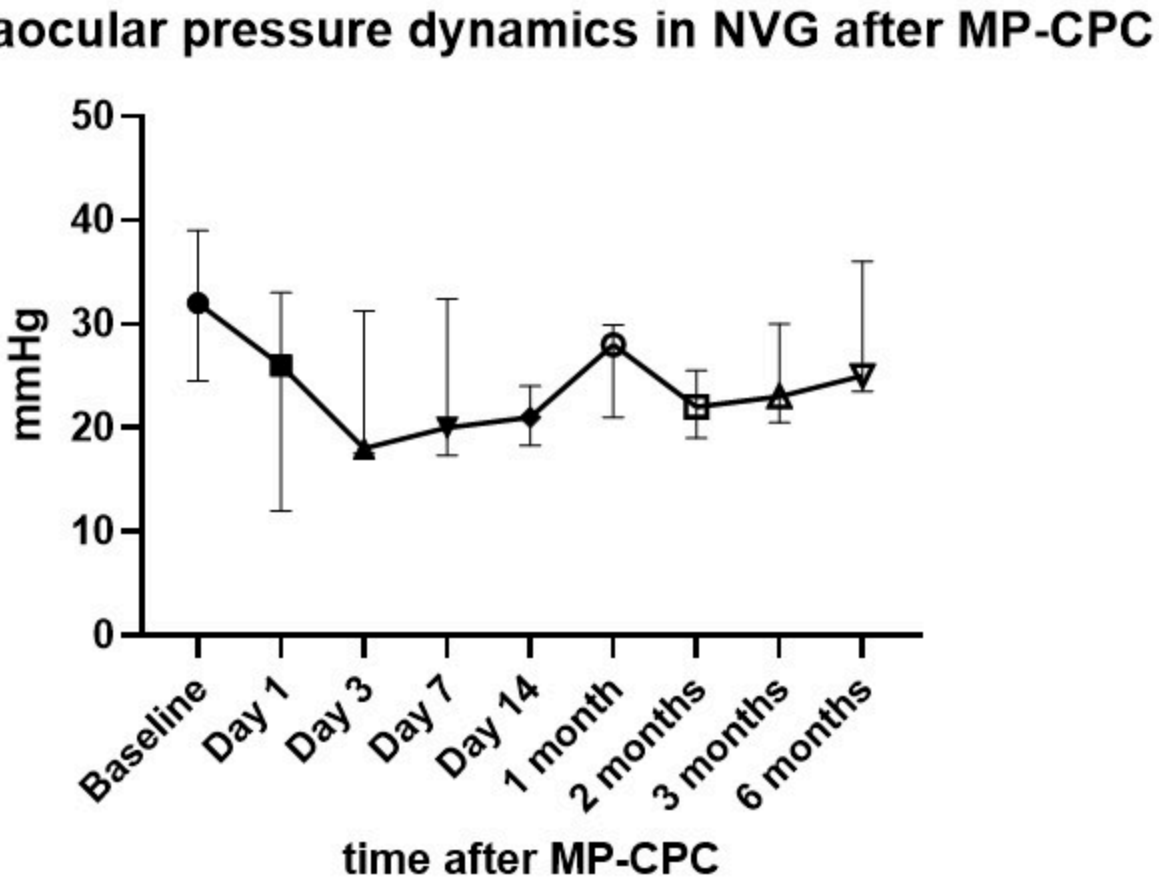
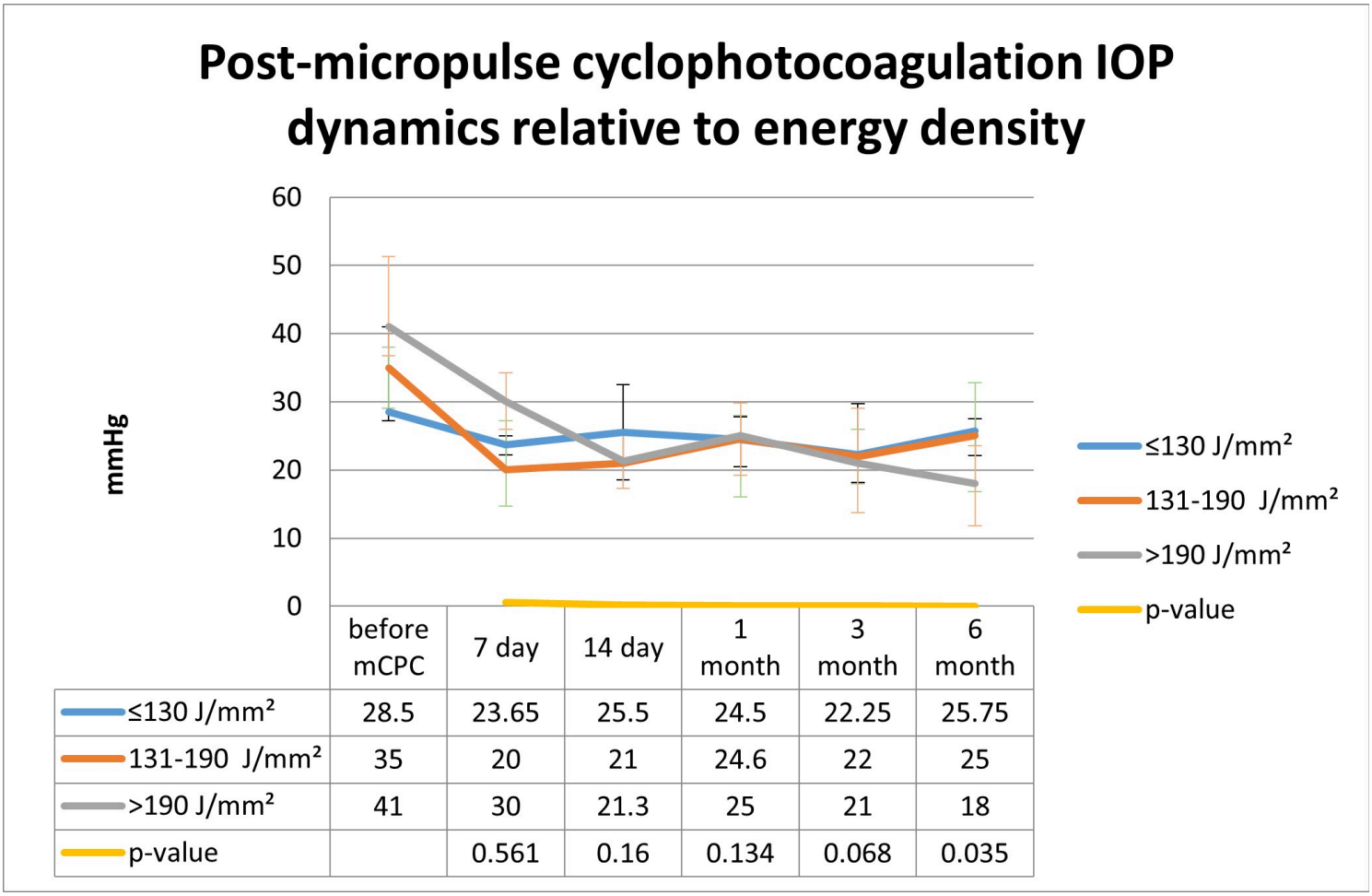


Figure 4

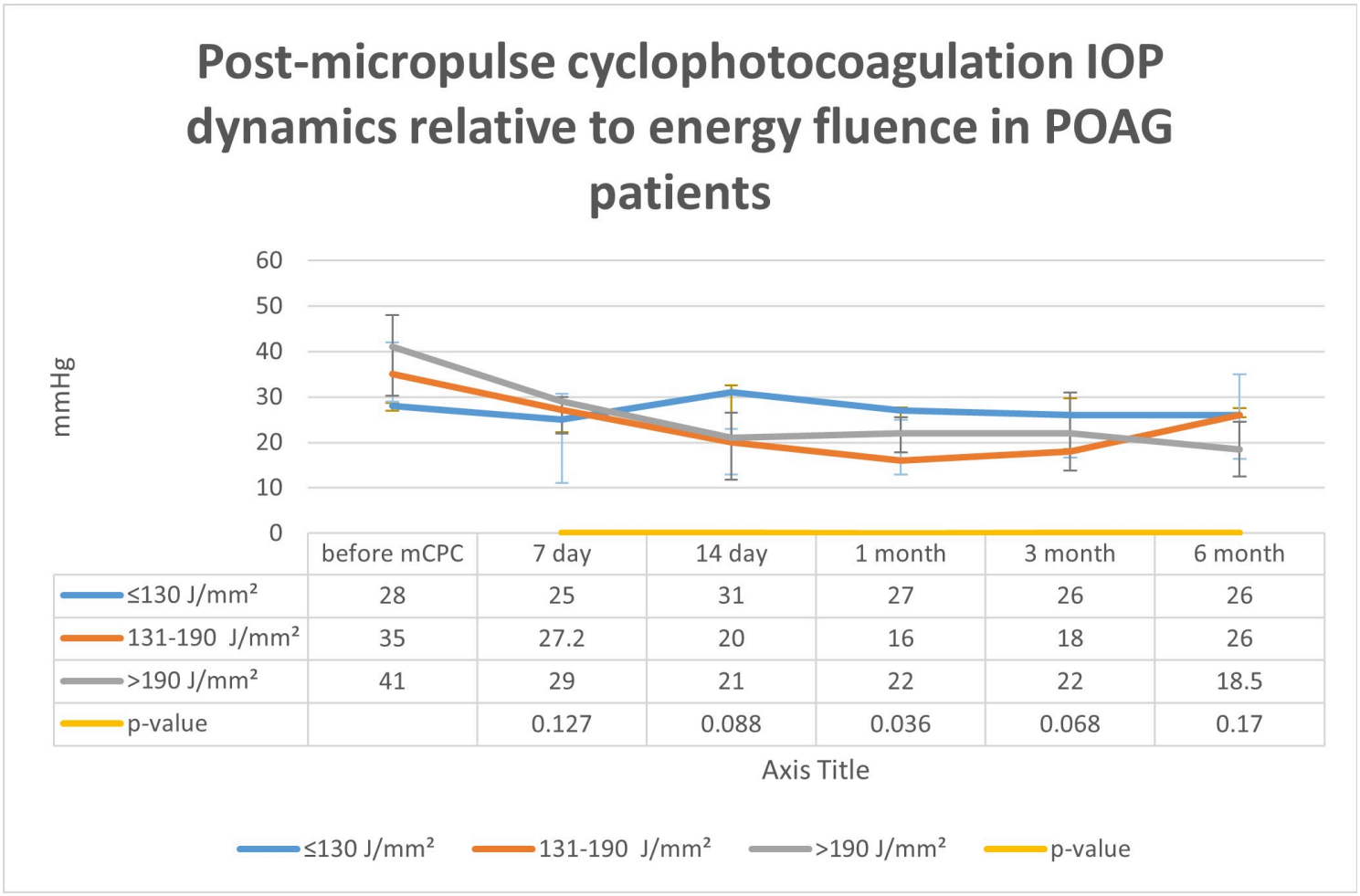
Dynamics of IOP in patients with neovascular glaucoma



	before mCPC	7 day	14 day	1 month	3 month	6 month
≤130 J/mm²	28.5	23.65	25.5	24.5	22.25	25.75
131-190 J/mm²	35	20	21	24.6	22	25
>190 J/mm²	41	30	21.3	25	21	18
p-value		0.561	0.16	0.134	0.068	0.035

Figure 5

Post-micropulse cyclophotocoagulation IOP dynamics relative to fluence.



	before mCPC	7 day	14 day	1 month	3 month	6 month
≤130 J/mm²	28	25	31	27	26	26
131-190 J/mm²	35	27.2	20	16	18	26
>190 J/mm²	41	29	21	22	22	18.5
p-value		0.127	0.088	0.036	0.068	0.17

Figure 6

Post-micropulse cyclophotocoagulation IOP dynamics relative to fluence in POAG group.

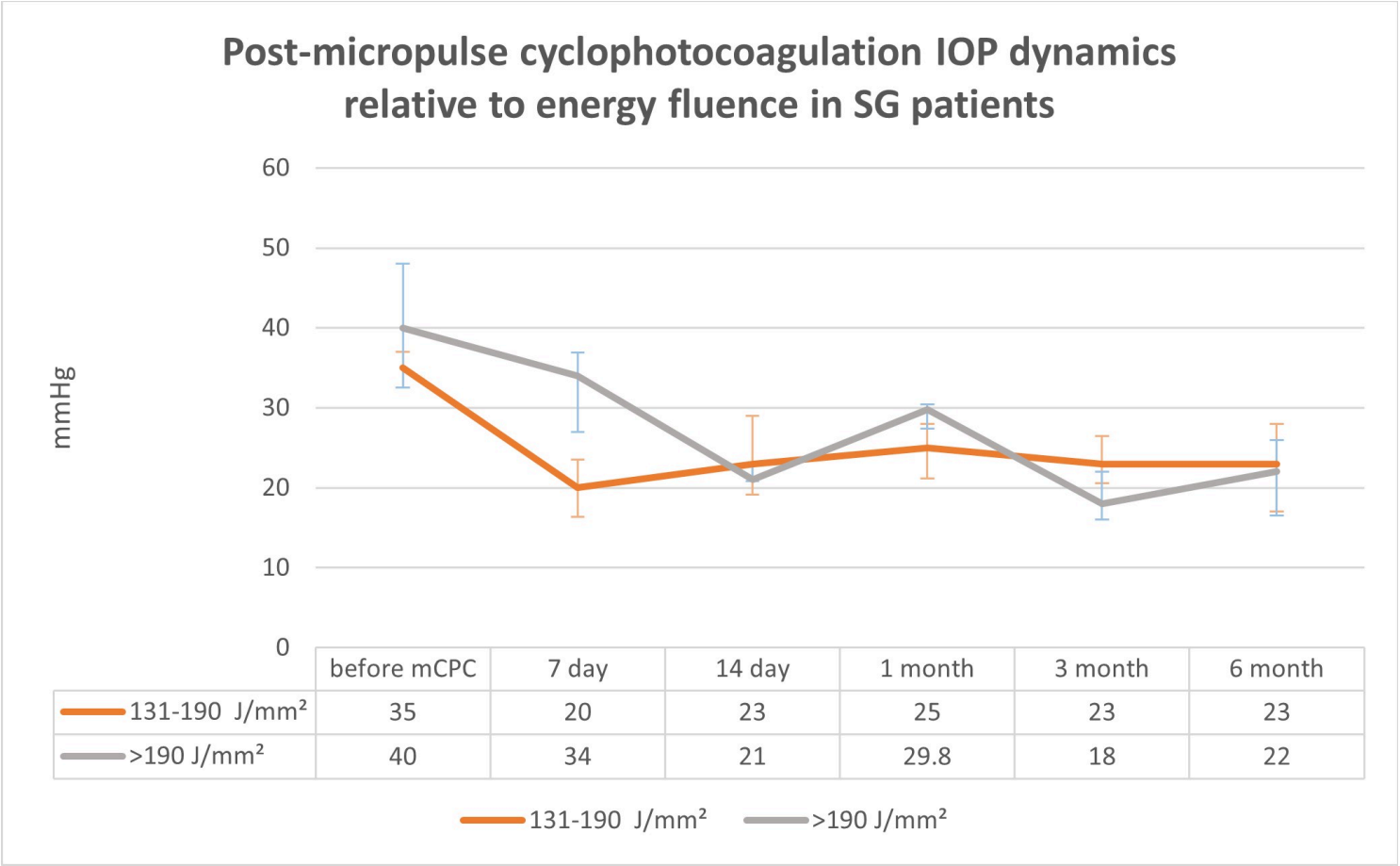


Figure 7

Post-micropulse cyclophotocoagulation IOP dynamics relative to fluence in SG group.