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Impact of Holistic Lifestyle Modification and Emotional Wellness Counseling on Glaucoma Progression in Middle-Aged Patients: A Retrospective Observational Study

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Abstract

Purpose: To evaluate the association between holistic lifestyle modification, emotional wellness counseling, and glaucoma progression in patients with primary open-angle glaucoma (POAG) and primary angle-closure glaucoma (PACG). ***Methods:*** This retrospective observational study was based on anonymized medical record review of 100 glaucoma patients aged below 50 years, followed between June 2021 and May 2023. Patients with POAG or PACG, a minimum follow-up of 18 months, reliable Humphrey visual field (HVF) data, and optical coherence tomography (OCT) retinal nerve fiber layer (RNFL) measurements were included. In addition to standard glaucoma care, patients received counseling on lifestyle modification and emotional wellness. Structural, functional, and medication-related outcomes were analyzed. ***Results:*** Over a mean follow-up of 22 ± 4 months, 20% of patients showed mild improvement in RNFL thickness and visual field indices, 70% remained stable, and 10% demonstrated mild progression. Reduction in antiglaucoma medication burden was observed in 22% of patients. No patient required surgical intervention. ***Conclusion:*** Early-age glaucoma management combined with holistic lifestyle and emotional wellness strategies may support disease stability and reduce treatment burden. Early screening and intervention may play a critical role in long-term glaucoma outcomes.

Keywords: Glaucoma; Lifestyle modification; Emotional wellness; Retinal nerve fiber layer; Visual field progression.

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INTRODUCTION

Glaucoma is a chronic progressive optic neuropathy and remains a leading cause of irreversible blindness worldwide1. Although intraocular pressure (IOP) reduction is the cornerstone of glaucoma management, progression may still occur despite adequate IOP control, suggesting the involvement of non-IOP-dependent factors such as vascular dysregulation, systemic comorbidities, oxidative stress, and psychological stress2.

Emerging evidence suggests that oxidative stress and vascular dysregulation play a central role in glaucomatous optic neuropathy3,4 Additionally, systemic conditions such as diabetes mellitus and hypertension have been associated with increased glaucoma risk and progression.2

Lifestyle factors and emotional wellbeing influence medication adherence, systemic disease control, and overall quality of life. Medication non-adherence remains a major barrier in glaucoma management.5

Physical activity has been shown to influence intraocular pressure and ocular perfusion.^7 Therefore, integrating lifestyle modification may complement standard IOP-lowering therapy.^2,7

Early identification of glaucoma provides an opportunity to integrate lifestyle modification and emotional resilience strategies alongside conventional therapy. Current clinical guidelines emphasize early detection and long-term monitoring of glaucoma.6 Screening for glaucoma beginning around 35 years of age may allow timely diagnosis and behavioral modification when interventions are more feasible and impactful.2,6

This study evaluates the role of holistic lifestyle modification and emotional wellness counseling as supportive measures in younger glaucoma patients

MATERIALS AND METHODS

Study Design

This was a retrospective observational study based on anonymized medical record review. No direct patient interaction or interventional procedures were involved.

Study Period
June 2021 to May 2023.

Patient Selection and Rationale for Age Group
Patients below 50 years of age were preferentially included in this study. Lifestyle modification carries greater relevance and meaning in younger individuals, as they tend to be more motivated and capable of implementing sustained behavioral changes. Younger patients are more likely to achieve optimal control of systemic comorbidities such as diabetes mellitus and hypertension, engage in regular physical activity such as walking exercises, and demonstrate better compliance with antiglaucoma medications.

In contrast, patients above 70–75 years often have reduced mobility, multiple systemic illnesses, cognitive challenges, and variable adherence, which may confound the effects of lifestyle interventions. Hence, this study did not primarily focus on elderly patients.

This rationale also emphasizes the importance of early glaucoma screening, ideally beginning around 35 years of age, as early diagnosis allows lifestyle modification and emotional resilience strategies to be implemented when they can yield meaningful positive outcomes2,5.

Inclusion Criteria
- Age <50 years
- Diagnosis of POAG or PACG
- Minimum follow-up duration of 18 months
- Availability of reliable Humphrey visual field data
- Availability of OCT RNFL measurements
- Documented good compliance with antiglaucoma medications

Exclusion Criteria
- Secondary glaucoma
- Advanced glaucoma at baseline
- Significant ocular or neurological diseases affecting visual fields

Holistic Lifestyle and Emotional Wellness Intervention
All patients received standard glaucoma care as per clinical guidelines. In addition, patients were counseled on:
- Regular physical activity
- Sleep hygiene
- Dietary moderation
- Stress reduction techniques

Structured emotional wellness counseling focusing on forgiveness, emotional regulation, and resilience building was provided by a trained healer and psychologist as part of supportive holistic care. Optimal control of systemic comorbidities such as diabetes mellitus and hypertension was emphasized.

Outcome Measures
- Change in RNFL thickness on OCT
- Change in Humphrey visual field indices (MD, PSD, VFI)
- Change in number of antiglaucoma medications

RESULTS

Baseline Characteristics
The study included 100 patients (56 males, 44 females) with a mean age of 43 ± 3 years. Sixty-two patients (62%) had POAG and 38 patients (38%) had PACG. Mean follow-up duration was 22 ± 4 months.

Systemic comorbidities were common: 46% had diabetes mellitus, 52% had hypertension, and 28% had both. All patients demonstrated good medication compliance.

Structural and Functional Outcomes
Visual field analysis was performed using the Humphrey Field Analyzer. Only reliable fields were included (fixation losses <20%, false positives <15%, false negatives <15%).

Based on serial OCT RNFL and HVF assessment:
- **Improvement group:** 20 patients (20%) showed mild improvement in RNFL thickness (2–4 µm) with improvement in MD and stabilization or reduction in PSD.
- **Stable group:** 70 patients (70%) demonstrated stable RNFL thickness and stable MD, PSD, and VFI.
- **Progression group:** 10 patients (10%) showed RNFL thinning and worsening visual field parameters, including MD decline, increased PSD, and reduced VFI despite optimal therapy.

Medication Burden
The mean number of antiglaucoma medications at baseline was 2.1 ± 0.6. During follow-up, 22 patients (22%) were able to reduce at least one antiglaucoma medication while maintaining target IOP. No patient required surgical escalation.

Table 1. Baseline demographic and clinical characteristics

Parameter	Value
Number of patients	100
Mean age (years)	43 ± 3
Gender (M/F)	56 / 44
POAG	62%
PACG	38%
Diabetes mellitus	46%
Hypertension	52%
Mean follow-up duration	22 ± 4 month

Table 2. Structural and functional outcomes at follow-up

Outcome category	Number (%)	RNFL change	Visual field change
Improvement	20 (20%)	+2 to +4 µm	MD +0.5 to +1.2 dB, stable/reduced PSD, improved VFI
Stable	70 (70%)	No significant change	Stable MD, PSD, and VFI
Progression	10 (10%)	−3 to −5 µm	MD −0.8 to −1.5 dB, increased PSD, reduced VFI

DISCUSSION

This retrospective study demonstrates that holistic lifestyle modification and emotional wellness counseling, when integrated with standard glaucoma therapy, are associated with high rates of disease stability in a younger glaucoma population.

The role of vascular dysregulation, oxidative stress, and systemic health in glaucoma progression has been increasingly recognized in recent years, supporting the concept that non-IOP factors influence disease trajectory.[2,3,4]

A key strength of this study is the deliberate focus on patients below 50 years of age. Lifestyle modification is more practical and meaningful in younger individuals, who show higher motivation, better systemic disease control, improved medication adherence, and greater engagement in physical activity. These factors collectively influence long-term glaucoma outcomes.

The findings also highlight the importance of early glaucoma screening, ideally from 35 years of age. Early diagnosis enables timely initiation of lifestyle modification and emotional resilience strategies, which may positively influence disease trajectory5. This preventive approach is especially relevant in a chronic disease like glaucoma, where long-term adherence and behavioral factors play a significant role.

The observed mild improvement in RNFL and visual field parameters in 20% of patients should be interpreted cautiously and may reflect disease stabilization, improved test reliability, and neuroadaptation rather than true reversal. Nevertheless, the high proportion of patients showing non-progression supports the role of integrative care as an adjunct to conventional management.

The importance of early detection and sustained monitoring in preventing visual disability is strongly emphasized in current international clinical practice guidelines.[6]

Limitations

The retrospective design limits causal inference. The absence of a control group and reliance on medical record documentation are additional limitations. Larger prospective studies are required to validate these findings.

CONCLUSION

Early identification of glaucoma in younger individuals, combined with holistic lifestyle modification and emotional wellness counseling, may support disease stability and reduce treatment burden. Emphasizing early screening and preventive strategies could play a meaningful role in long-term glaucoma management.

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