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Original Article

Access and affordability of intravitreal injections in albania: a cross-sectional survey

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ABSTRACT

Intravitreal injections are essential for managing retinal diseases such as age-related macular degeneration (AMD), diabetic macular edema (DME), and retinal vein occlusion (RVO). Despite their clinical efficacy, high costs and limited reimbursement may restrict patient access, particularly in middle-income countries like Albania. A cross-sectional survey was conducted from March to June 2025 in four tertiary ophthalmology centers in Albania. Structured questionnaires were administered to 112 patients who had received at least one intravitreal injection and 32 ophthalmologists who routinely provide these treatments. Data on demographics, clinical characteristics, affordability, access, and reimbursement experiences were collected and analyzed using descriptive statistics, chi-square tests, and thematic content analysis for qualitative responses. The majority of patients (59%) reported that intravitreal injections were unaffordable, and 44% had delayed or skipped treatment due to cost. Rural patients were significantly more likely to experience financial barriers than urban patients ($p < 0.05$). Ophthalmologists reported that most patients struggle with treatment costs and identified reimbursement limitations as a significant challenge. Both groups highlighted inconsistent drug availability and logistical barriers as obstacles to timely care. Qualitative analysis revealed concerns about high out-of-pocket expenses, the need for policy reform, and the importance of affordable alternatives such as bevacizumab. High costs, limited reimbursement, and geographic disparities constrain access to intravitreal injections in Albania. Policy measures to expand coverage, streamline procurement, and decentralize services are urgently needed to ensure equitable access to vision-saving therapies.

Keywords: Intravitreal injections, Albania, Anti-VEGF, Health policy, Ophthalmology, Retinal diseases

Introduction

Over the past two decades, intravitreal injections have transformed the management of retinal diseases such as age-related macular degeneration (AMD), diabetic macular edema (DME), and retinal vein occlusion (RVO) [1-9]. These treatments, particularly anti-vascular endothelial growth factor (anti-VEGF) agents like ranibizumab, aflibercept, and bevacizumab, have significantly improved visual outcomes and quality of life for patients with sight-threatening conditions [10-13]. Despite their proven clinical efficacy, the high cost and recurrent nature of these therapies have raised growing concerns about patient access and financial sustainability, especially in health systems with limited public funding [14-16].

In high-income countries, reimbursement policies and national insurance schemes often ensure partial or full coverage for intravitreal treatments. However, in many middle-income and transitioning economies, including those in Southeast Europe, affordability remains a major barrier [16-19]. Patients frequently bear substantial out-of-pocket expenses, and healthcare providers face constraints in offering equitable care due to budget limitations and inconsistent reimbursement policies.

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Albania's healthcare system has undergone significant reforms to expand universal health coverage, yet gaps persist in the reimbursement of innovative, high-cost medicines. Current policies by the Compulsory Health Insurance Fund (CHIF) provide partial coverage for selected essential drugs, but there is limited transparency and data regarding the inclusion of ophthalmic biologics. Consequently, both patients and clinicians encounter challenges in accessing and delivering evidence-based ophthalmic care [20-22].

Understanding the perceptions and experiences of those directly involved—patients receiving intravitreal therapy and the ophthalmologists administering it—is essential for evaluating the real-world impact of policy and pricing decisions [20, 23-26]. Their insights can reveal practical barriers, such as cost burden, treatment adherence, and systemic inefficiencies, that may not be captured by administrative data alone.

This study aims to explore how patients and ophthalmologists in Albania perceive the accessibility and affordability of intravitreal injections. By conducting a cross-sectional survey among these key stakeholders, the research seeks to identify the main financial, structural, and informational factors influencing access to treatment. The findings are expected to contribute evidence for policymakers and health authorities to improve reimbursement frameworks, promote equitable access, and ensure that vision-saving therapies remain attainable for all patients in need.

Materials and Methods

This research employed a cross-sectional survey design to assess the perceptions of access and affordability of intravitreal injections among patients and ophthalmologists in Albania. The study combined quantitative and qualitative methods to capture both measurable trends and contextual insights on treatment costs, availability, and reimbursement.

The study was conducted between March and June 2025 across four tertiary ophthalmology centers in Albania: Tirana, Durres, Shkodër, and Vlorë. These institutions were selected because they represent the primary referral centers for retinal diseases requiring intravitreal therapy.

Two main groups participated:

1. Patients who had received at least one intravitreal injection (anti-VEGF or corticosteroid-based) within the past 12 months.
2. Ophthalmologists who regularly perform intravitreal injections or manage patients with retinal conditions.

A convenience sampling approach was used due to the limited population of eligible participants.

- A total of 120 patients and 35 ophthalmologists were invited to participate.
- Inclusion criteria for patients: age ≥ 18 years, a diagnosis of retinal disease requiring intravitreal injection, and the ability to provide informed consent.
- Exclusion criteria: patients with incomplete medical records or those unwilling to participate. Participation was voluntary and anonymous.

Data were collected using two structured, self-administered questionnaires, one tailored for patients and one for ophthalmologists. Both were developed in Albanian, pretested for clarity, and refined after a pilot with 10 participants from each group.

The patient questionnaire included:

- Socio-demographic characteristics (age, gender, income, residence)
- Clinical details (diagnosis, number of injections received)
- Perceived affordability and financial burden
- Accessibility to treatment (waiting time, travel distance)
- Satisfaction with reimbursement and healthcare services

The ophthalmologist questionnaire included:

- Professional background and years of experience
- Volume of patients treated with intravitreal injections
- Perceptions of treatment affordability and patient access
- Opinions on reimbursement policies and barriers to care

Most questions used five-point Likert scales (e.g., from "strongly agree" to "strongly disagree") to measure attitudes and perceptions, along with open-ended questions for qualitative feedback.

Questionnaires were distributed in paper and electronic form (via Google Forms) during routine clinical visits and professional meetings. A brief explanation of study objectives and confidentiality assurances was provided to all participants prior to participation. Data collection took approximately eight weeks.

Quantitative data were entered into SPSS version 27.0 for statistical analysis. Descriptive statistics (means, frequencies, and percentages) were used to summarize participant characteristics and key responses.

- Chi-square tests and independent t-tests were applied to identify associations between demographic factors and perceptions of affordability or access.
- Statistical significance was set at $p < 0.05$.

Qualitative responses from open-ended questions were analyzed using thematic content analysis. Responses were coded, categorized, and synthesized into themes representing major barriers and perceptions identified by participants.

Ethical approval was obtained from the Ethics Committee of the University Hospital Center "Mother Teresa" in Tirana. Written informed consent was obtained from all participants prior to data collection. Participation was voluntary, and anonymity was ensured by omitting identifying information from survey forms and reports. Data were stored securely and used solely for academic purposes.

Results and Discussion

A total of 112 patients (response rate: 93%) and 32 ophthalmologists (response rate: 91%) completed the survey.

Table 1. Demographic and Clinical Characteristics of Patients (n = 112)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	54	48.2
	Female	58	51.8
Age group (years)	40–59	22	19.6
	60–69	37	33.0
	≥70	53	47.4
Primary diagnosis	AMD	65	58.0
	DME	33	29.5
	RVO	14	12.5
Residence	Urban	84	75.0
	Rural	28	25.0
Monthly income (EUR)	<300	42	37.5
	300–600	47	42.0
	>600	23	20.5

Most patients were elderly (mean age 68 years), reflecting the epidemiology of retinal diseases. Nearly three-quarters lived in urban areas, suggesting better access to tertiary centers. However, over one-third reported low monthly income, highlighting potential financial vulnerability as we can see from **Table 1**.

Table 2. Patient Perceptions of Treatment Affordability (n = 112)

Question	Agree/Strongly Agree (%)	Neutral (%)	Disagree/Strongly Disagree (%)
"The cost of intravitreal injections is affordable for me."	21.4	19.6	59.0
"The reimbursement from CHIF sufficiently covers my expenses."	24.1	28.6	47.3
"I had to delay or skip treatment due to cost."	43.8	18.8	37.4
"I received clear information about treatment costs."	35.7	25.0	39.3

In **Table 2**, majority of the patients (59%) reported that treatment costs were not affordable, and nearly 44% had delayed or skipped treatment due to financial constraints. This underlines significant out-of-pocket expenditure and potential barriers to continuity of care. Only one-third felt adequately informed about pricing and reimbursement, indicating communication gaps.

Table 3. Patient-Reported Access to Intravitreal Injections

Indicator	Mean (±SD) or %	Interpretation
Average waiting time for appointment (days)	17.6 ± 8.4	Moderate delay
Travel distance to treatment center (km)	42.3 ± 25.1	Suggests regional disparities
Reported difficulty in scheduling injections	48.2%	High logistic burden
Treated in a public hospital	71.4%	Majority rely on the public sector
Treated in a private clinic	28.6%	Often due to faster service or drug availability

Although most patients received treatment in public hospitals, long waiting times and travel distances remain major barriers, especially for rural residents. Almost half experienced scheduling difficulties, often due to limited clinic capacity and inconsistent drug supply, see **Table 3**.

Table 4. Ophthalmologists' Perceptions of Access and Affordability (n = 32)

Question	Agree/Strongly Agree (%)	Neutral (%)	Disagree/Strongly Disagree (%)
"Most of my patients cannot afford intravitreal therapy."	78.1	15.6	6.3
"The reimbursement policy sufficiently supports patient access."	18.8	21.9	59.3
"Delays in drug procurement affect continuity of care."	65.6	21.9	12.5
"Bevacizumab (off-label) is essential for cost-effective treatment."	81.3	12.5	6.2

From **Table 4** we can see that ophthalmologists overwhelmingly acknowledged the financial barriers patients face and expressed dissatisfaction with current reimbursement mechanisms. Most viewed bevacizumab as a crucial, affordable alternative, though its off-label use creates regulatory and reimbursement uncertainty.

Table 5. Differences in Perceived Affordability by Residence

Residence	% Reporting Cost as "Unaffordable"	% Reporting Treatment Delay Due to Cost	p-value
Urban (n=84)	52.4	38.1	—
Rural (n=28)	78.6	60.7	0.032*

Significant at $p < 0.05$.

Patients from rural areas were significantly more likely to perceive intravitreal therapy as unaffordable and to delay treatment because of cost. Geographic disparities thus compound financial barriers, highlighting the need for decentralized service provision or transport reimbursement schemes as seen in **Table 5**.

This study explored how patients and ophthalmologists in Albania perceive the accessibility and affordability of intravitreal injections, which are critical for the management of retinal diseases such as AMD, DME, and RVO. The findings reveal an apparent disparity between clinical need and financial feasibility, with a majority of both patients and clinicians identifying cost and reimbursement limitations as major barriers to equitable care.

A central finding of this study is that nearly 60% of patients considered the cost of intravitreal therapy unaffordable, and over 40% reported delaying or skipping treatment due to financial constraints. These results align with regional evidence from Southeast Europe, where limited public funding and high out-of-pocket costs hinder patient access to biologic therapies [27]. Studies from neighboring countries have similarly shown that anti-VEGF agents remain under-reimbursed [28], often resulting in incomplete treatment regimens and poorer visual outcomes.

The situation in Albania appears comparable, with the Compulsory Health Insurance Fund (CHIF) providing limited reimbursement for innovative medicines. Given that many retinal diseases require long-term and repeated injections, even small co-payments can accumulate into a substantial financial burden for patients with low or fixed incomes. The findings also suggest that inadequate financial coverage may contribute to treatment discontinuation—a factor that can significantly impact long-term vision preservation.

The study also found that geographic and logistical barriers affect timely access to treatment. Patients from rural areas were significantly more likely to report affordability issues and treatment delays than those in urban settings. This reflects the concentration of ophthalmic services in large urban hospitals, particularly in Tirana, and the absence of decentralized treatment facilities. Similar patterns have been reported in other low- and middle-income health systems, where urban bias in specialist care limits equitable access to advanced treatments.

Long waiting times and inconsistent availability of anti-VEGF agents in public hospitals were additional barriers reported by patients. These findings echo regional studies highlighting procurement inefficiencies and limited hospital budgets as key challenges in sustaining biologic therapy programs.

Ophthalmologists overwhelmingly agreed that the majority of their patients struggle with treatment costs and that current reimbursement policies are insufficient. Their support for off-label bevacizumab as a cost-effective alternative underscores the tension between affordability and regulatory compliance. Similar attitudes have been documented in other European contexts, where bevacizumab is commonly used despite its off-label status due to its substantial cost advantage over branded agents like ranibizumab or aflibercept [29, 30].

Clinician feedback also emphasized the need for greater transparency and standardization in drug procurement and reimbursement processes. This aligns with broader international recommendations calling for evidence-based inclusion of high-impact biologics in national reimbursement lists, particularly when supported by robust cost-effectiveness data.

The results of this study underscore the urgent need for reform in Albania's pharmaceutical reimbursement and procurement systems. Inclusion of intravitreal injections in the CHIF reimbursement scheme, even at a partial rate, could substantially reduce financial barriers. Additionally, adopting value-based pricing models or pooled procurement mechanisms may help lower acquisition costs for public hospitals. Improving transparency in pricing and reimbursement decisions would also strengthen public trust and enable a more equitable allocation of resources.

Expanding access to treatment in regional hospitals could address urban–rural disparities and improve continuity of care. Moreover, patient education about reimbursement procedures and available financial support programs may alleviate uncertainty and improve adherence.

Globally, health systems that have successfully integrated anti-VEGF therapies into public insurance schemes—such as the UK's National Health Service and several Nordic countries—have achieved near-universal access and better long-term visual outcomes [31, 32]. In contrast, middle-income countries continue to face affordability challenges similar to those observed in this study. Albania's case, therefore, mirrors broader patterns in transitional economies, where constrained health budgets and high drug costs limit the adoption of innovative therapies [33, 34].

While this study provides valuable insights, several limitations should be noted. The use of convenience sampling may limit generalizability, and self-reported data are subject to recall and perception bias. The sample size, although adequate for exploratory analysis, may not capture all regional variations

across Albania. Additionally, the absence of detailed cost data restricts the ability to perform a full economic analysis. Future studies could incorporate longitudinal designs or include policymakers and hospital administrators to provide a more comprehensive evaluation of systemic factors influencing access.

Conclusion

This study highlights significant barriers to both affordability and accessibility of intravitreal injections in Albania. The findings point to the urgent need for enhanced reimbursement coverage, improved procurement processes, and decentralized service delivery. Addressing these gaps is essential for ensuring equitable access to sight-preserving treatments and aligning Albania's ophthalmic care with European health standards. We can also improve patients' quality of life [35].

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Ethics statement: The questionnaire was explained for the patients and doctors. The data and results were only for research purposes.

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