



Perioperative treatment compliance, anxiety and depression of elderly patients with ophthalmic surgery and the influential factors

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Background: Ophthalmic surgery is invasive, and treatment efficacy is affected by a variety of factors. We aimed to analyze perioperative treatment compliance, anxiety and depression of elderly patients undergoing ophthalmic surgery and the influential factors.

Methods: The study group comprised 119 elderly patients undergoing ophthalmic surgery between March 2018 and March 2020. Clinical and treatment compliance data of all patients were collected. The self-rating anxiety scale (SAS) and self-rating depression scale (SDS) were administered to all patients, and logistic regression analysis was used for multivariate analysis.

Results: During the perioperative period the 119 elderly patients had a mean SAS score of 65.13 ± 14.36 , and SDS score of 61.94 ± 17.39 . Treatment compliance was as follows: 76 cases of complete compliance, 25 of incomplete compliance, and 18 of complete non-compliance. Economic status, complications, treatment options and levels of TNF- α , IL-6, and IL-8 are independent risk factors that affected the compliance of elderly patients undergoing ophthalmology surgery ($P < 0.05$). Education level, marital status, economic status, complications, treatment options and levels of TNF- α , IL-6, and IL-8 were independent risk factors affecting perioperative anxiety and depression.

Conclusions: There are many factors affecting the perioperative treatment compliance, anxiety and depression of elderly patients undergoing ophthalmic surgery. Effective intervention measures should be taken to improve patients' compliance, reduce their negative emotions, and improve the surgical efficacy.

Keywords: Anxiety; depression; ophthalmic surgery; perioperative treatment; treatment compliance

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Introduction

Mental health is defined as a continuous good mental state, which manifests as an individual with vitality, positive inner experience and good social adaptation (1). Elderly patients have a decline in physical function due to the aging of various tissues and organs, and they often have special psychological reactions when undergoing

surgical treatment. Psychological stress will affect the neuroendocrine system, weaken the body's immunity, and reduce the tolerance to surgery, thus increasing the difficulty of the operation and influencing treatment efficacy (2). Among the surgical operations, ophthalmic surgery has higher requirements due to the particularity of ocular tissues and nerves. It has been shown that elderly patients have more significant adverse psychological

conditions during the perioperative period of ophthalmic surgery than younger patients, which will seriously affect treatment compliance (3). With the aging of the population, the proportion of clinical elderly patients has increased year by year, and how to improve the perioperative poor psychology of elderly patients undergoing ophthalmic surgery and improve their treatment compliance have been brought to clinical attention (4). In this study we analyzed the influential factors on perioperative treatment compliance, anxiety and depression in elderly patients undergoing ophthalmic surgery, aiming to provide ideas for improving clinical treatment. We present the following article in accordance with the STROBE reporting checklist (available at <http://dx.doi.org/10.21037/apm-21-37>).

Methods

Baseline information

The study group comprised 119 elderly patients who underwent ophthalmic surgery between March 2018 and March 2020. The inclusion criteria were: (I) undergone ophthalmic surgery and in a stable condition; (II) age >60 years; (III) complete clinical data and consent to participate in the study; (IV) able to complete questionnaire independently. Exclusion criteria were: (I) malignant tumors; (II) liver, kidney, heart, lung and other vital organ disorders; (III) severe mental illness or family history of mental illness.

Among the study subjects, 61 were male and 58 were female, aged 60–80 years, with an average age of 71.31 ± 5.17 years. The types of surgery undergone were: 29 cases of cataract surgery, 31 of glaucoma surgery, 21 of vitrectomy, 20 of retinal repair surgery, 5 of vitrectomy + retinal repair + silicone oil injection, 4 of vitrectomy + retinal repair + cataract surgery, and 9 of vitrectomy + retinal repair. The education level of the patients was: 42 with elementary school or below, 57 with junior high school to high school, 15 with college to undergraduate, and 5 with postgraduate or above. All procedures performed in this study involving human participants were in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by The Third Affiliated Hospital of Qiqihar Medical University (No. 2020-256) and written informed consent was obtained from all patients.

Survey tools

After enrollment, the clinical data of all patients were

collected, including sex, age, education level, economic status, treatment plan, marriage status, body mass index, complications, and other general information, for sorting and analysis. The questionnaire included the SAS, SDS and compliance questions. The agreed study protocol was carried out by two nurses. First, the investigator explained the purpose, significance and confidentiality of the study to the patient, and asked for consent before issuing the questionnaire. The investigation was performed 2–3 days after the surgery. If the patient was blind or illiterate, the investigators helped to complete the questionnaire by asking the questions orally to patients and then filling out the questionnaire. All the questionnaires were immediately collected on completion, and the two investigators cross-checked and reviewed any doubtful responses. The recovery rate of the questionnaires was 100.00%.

Self-rating anxiety scale (SAS) (5)

The SAS contains 20 sub-items with four scoring levels to define the frequency of symptoms by the rating items. The positive scoring standard was 1, 2, 3, 4, and the reverse scoring standard was 4, 3, 2, 1. After evaluation, the SAS standard score was obtained by adding up the scores of each item, then multiplying by 1.25 and taking the integer part. The higher the standard score, the more severe the symptoms. A score of <50 points was defined as normal, 50–60 points as mild anxiety, 61–70 points as moderate anxiety, and >70 points indicated severe anxiety.

Self-rating depression scale (SDS) (6)

The scoring method of the SDS scale was basically the same as for the SAS. The higher the standard score, the more severe the symptoms. A score of ≤ 52 points was defined as normal, 53–62 points as mild depression, 63–72 points as moderate depression, and >73 points indicated severe depression.

Compliance (7)

Patient compliance was divided into three levels: complete compliance was defined as following medical and nursing instructions completely; incomplete compliance was defined as failure to complete or omitting the medical instructions for some reason; complete non-compliance was defined as not following medical or nursing instructions at all. Patients showing complete compliance were rated as good, while

Table 1 Comparison of preoperative scores of anxiety and depression and compliance during treatment [n (%)]

Negative emotion	SAS score				SDS score			
	Normal (n=20)	Mild (n=54)	Moderate (n=30)	Severe (n=15)	Normal (n=24)	Mild (n=58)	Moderate (n=29)	Severe (n=8)
Good compliance (n=76)	18 (90.00)	46 (85.19)	10 (33.33)	2 (13.33)	20 (83.33)	43 (50.59)	12 (41.38)	1 (12.50)
Poor compliance (n=43)	2 (10.00)	8 (14.81)	20 (66.67)	13 (86.67)	4 (16.67)	15 (25.86)	17 (58.62)	7 (87.50)
χ^2	7.115	19.471	16.203	26.202	4.937	5.174	8.401	9.805
P	0.008	0.000	0.000	0.000	0.026	0.023	0.004	0.002

SAS, self-rating anxiety scale; SDS, self-rating depression scale.

those showing incomplete compliance or complete non-compliance were defined as poor.

Statistical analysis

Data were analyzed using SPSS 20.0 statistical software (IBM, New York, USA). Measurement data are expressed as mean \pm standard deviation ($\bar{x} \pm s$), and were analyzed by *t*-test. Count data are expressed as pass rate or composition ratio, and were analyzed by chi-squared (χ^2) test. A logistic regression model was used for the multivariate analysis. Results with $P < 0.05$ were considered to be statistically significant.

Results

Perioperative treatment compliance, anxiety and depression scores

The 119 elderly surgical patients had a mean SAS score of 65.13 ± 14.36 points, and SDS score of 61.94 ± 17.39 points. As for treatment compliance, there were 76 cases (63.87%) of complete compliance, 25 cases of incomplete compliance (21.01%), and 18 cases (15.13%) of complete non-compliance.

Relationship between depression, anxiety and treatment compliance

The higher the degree of anxiety and depression, the lower the complete compliance in the treatment process ($P < 0.05$, Table 1).

Analysis of factors affecting perioperative treatment compliance, anxiety and depression

Patients with different marital status, economic status,

complication status, therapeutic regimen, and levels of TNF- α , IL-6, and IL-8 among the study group of elderly patients undergoing ophthalmic surgery differed in their perioperative treatment compliance ($P < 0.05$). Perioperative anxiety and depression differed among the patients according to sex, education level, marital status, economic status, complications, therapeutic regimen, and levels of TNF- α , IL-6, and IL-8 ($P < 0.05$, Table 2).

Analysis of multiple factors affecting perioperative treatment compliance

Economic status, complications, therapeutic regimen, and levels of TNF- α , IL-6, and IL-8 were independent risk factors affecting the compliance of elderly patients with ophthalmic surgery during the perioperative period ($P < 0.05$, Table 3).

Analysis of multiple factors affecting perioperative anxiety and depression

Sex, education level, marital status, economic status, complication, therapeutic regimen, and levels of TNF- α , IL-6, and IL-8 were independent risk factors affecting perioperative anxiety and depression in elderly patients undergoing ophthalmic surgery ($P < 0.05$, Table 4).

Discussion

The psychological state of patients requiring corrective surgery is an important factor in good surgical outcome (8). However, because surgery is an invasive treatment, there are many factors influencing the efficacy of surgery, the occurrence of complications, and the recovery time, all of which can affect the psychological reaction of the patient (9).

Depression is an affective disorder characterized

Table 2 Single factor analysis of perioperative treatment compliance, anxiety and depression in elderly patients undergoing ophthalmic surgery

Factors	Subgroup	Cases	Good compliance		Poor compliance		χ^2	P	Anxiety (n=99)	Normal (n=20)	Depression (n=95)	Normal (n=24)	χ^2	P
			(n=76)	(n=43)	(n=76)	(n=43)								
Age (years)	≥65	66	46	20	2.184	0.139	56	10	0.290	0.590	52	14	0.100	0.751
	<65	53	30	23			43	10			43	10		
Sex	Male	61	37	24	0.559	0.455	55	16	4.131	0.042	41	20	12.378	0.000
	Female	58	39	19			44	4			54	4		
Education level	Senior high school and above	30	22	8	1.558	0.212	13	17	45.581	0.000	11	19	46.420	0.000
	Below high school	89	54	35			86	3			84	5		
Marital status	Married	64	44	24	8.977	0.011	49	15	6.142	0.046	43	21	6.843	0.033
	Unmarried	5	2	3			2	3			3	2		
	Widowed	21	6	15			19	2			20	1		
Economic status	Medical expenses <20% of annual income	44	37	7	12.375	0.000	42	2	7.507	0.006	40	4	5.321	0.021
	Medical expenses >20% of annual income	75	39	36			57	18			55	20		
Complications	Yes	54	41	13	6.231	0.013	50	4	6.247	0.012	52	2	16.645	0.000
	No	65	35	30			49	16			43	22		
BMI (kg/m ²)	≥22	59	30	29	8.593	0.003	46	13	2.287	0.130	44	15	2.008	0.157
	<22	60	46	14			53	7			51	9		
Therapeutic regimen	Follow-up visits >3	69	37	32	11.358	0.001	67	2	22.719	0.000	66	3	25.528	0.000
	Follow-up visits ≤3	50	39	11			32	18			29	21		
TNF-α (ng/L)	Abnormal increase	79	44	35	6.797	0.009	74	5	18.453	0.000	73	6	23.076	0.000
	Normal													
IL-6 (ng/L)	Abnormal increase	85	49	36	4.985	0.026	82	3	37.509	0.000	80	5	37.709	0.000
	Normal	34	27	7			17	17			15	19		

Table 1 (continued)

Table 1 (continued)

Factors	Subgroup	Cases	Good compliance (n=76)		Poor compliance (n=43)		χ^2	P	Anxiety (n=99)	Normal (n=20)	χ^2	P	Depression (n=95)	Normal (n=24)	χ^2	P
			Good compliance (n=76)	Poor compliance (n=43)	Good compliance (n=20)	Poor compliance (n=23)										
IL-8 (ng/L)	Abnormal increase	80	45	35	6.135	0.013	78	2	35.734	0.000	76	4	34.881	0.000		
	Normal	39	31	8			21	18			19	20				
Surgery type	Normal	39	31	8	1.508	0.959	21	18	2.923	0.818	19	20	3.295	0.771		
	Cataract surgery	29	20	9			25	4			23	6				
	Glaucoma surgery	31	19	12			26	5			26	5				
	Vitrectomy	21	13	8			17	4			17	4				
	Retinal repair surgery	20	12	8			18	2			15	5				
	Vitrectomy + retinal repair + silicone oil injection	5	4	1			4	1			4	1				
	Vitrectomy + retinal repair + cataract surgery	4	2	2			3	1			2	2				
	Vitrectomy + retinal repair	9	6	3			6	3			8	1				

BMI, body mass index.

Table 3 Multivariate analysis of factors influencing perioperative treatment compliance of elderly patients undergoing ophthalmic surgery

Factor	Regression coefficient	SEM	Wald χ^2	P	OR (95% CI)
Marital status (married vs. unmarried or widowed)	0.941	0.837	4.191	0.261	2.563 (0.497–13.217)
Economic status (medical expenses >20% of annual income vs. <20% of annual income)	0.845	0.165	4.586	<0.001	2.328 (1.685–3.217)
Complications (yes vs. no)	0.929	0.187	4.763	<0.001	2.532 (1.755–3.653)
Therapeutic regimen (follow-up visits >3 vs. \leq 3)	0.794	0.236	4.985	<0.001	2.212 (1.393–3.523)
TNF- α (abnormal increase vs. normal)	0.929	0.312	4.209	<0.001	2.532 (1.374–4.667)
IL-6 (abnormal increase vs. normal)	0.951	0.295	4.598	<0.001	2.588 (1.452–4.614)
IL-8 (abnormal increase vs. normal)	0.945	0.163	4.011	<0.001	2.573 (1.869–3.541)

OR, odds ratio; SEM, standard error of mean.

Table 4 Multivariate analysis of factors affecting perioperative anxiety and depression in elderly patients undergoing ophthalmic surgery

Factor	Regression coefficient	SEM	Wald χ^2	P	OR (95% CI)
Sex (male vs. female)	0.794	0.141	4.638	0.009	2.212 (1.678–2.916)
Education level (senior high school and above vs. below high school)	0.856	0.135	4.594	<0.001	2.375 (1.823–3.094)
Marital status (married vs. unmarried or widowed)	0.934	0.294	4.716	<0.001	2.545 (1.430–4.528)
Economic status (medical expenses >20% of annual income vs. <20% of annual income)	0.871	0.136	4.597	<0.001	2.389 (1.830–3.119)
Complications (yes vs. no)	0.968	0.178	4.835	<0.001	2.633 (1.857–3.732)
Therapeutic regimen (follow-up visits >3 vs. \leq 3)	0.836	0.196	5.291	<0.001	2.371 (1.614–3.480)
TNF- α (abnormal increase vs. normal)	1.065	0.541	4.085	<0.001	2.901 (1.005–8.376)
IL-6 (abnormal increase vs. normal)	1.113	0.318	4.163	<0.001	3.043 (1.632–5.676)
IL-8 (abnormal increase vs. normal)	1.590	0.417	4.698	<0.001	4.904 (2.166–11.104)

OR, odds ratio; SEM, standard error of mean.

by low emotions, crying, sadness, disappointment, reduced mobility, and delayed thinking and cognitive functions (10). Anxiety refers to an inner restlessness or unfounded fear without obvious objective reasons, which is a normal emotional response when people encounter challenges, difficulties or dangers (11). Eye disease is common in elderly patients and research has indicated a general anxiety in ophthalmic surgery patients. The results of our study showed that the 119 elderly surgical patients had a mean perioperative SAS score of 65.13 ± 14.36 and SDS score of 61.94 ± 17.39 , with all of them showing mild to moderate anxiety or depression. Negative emotions such as anxiety and depression or the lack of understanding about the surgery can lead to patients not paying enough attention to medical and nursing advice, resulting in poor treatment

compliance (12,13). Therefore, clarifying the risk factors that affect the perioperative treatment compliance, anxiety and depression in elderly patients undergoing ophthalmic surgery has great significance for effective interventions to improve patient compliance and surgical efficacy (14).

The occurrence of depression and anxiety is not only related to many mental and physical diseases, but also closely related to a variety of social and environmental factors such as poverty, unemployment, marital problems, family discord, and age (15). A lack of financial security places a heavy burden on patients and therefore greater psychological pressure (16). In addition, patients who have previously undergone operations are aware of the unpredictability in surgery, which increases the psychological pressure and ideological burden (17). Such

patients are worried about the effects on their family, so they are often anxious and irritable (18). Cytokines are a series of highly active and multifunctional inductive proteins secreted from the cells. During surgery, the dynamic balance of cytokines may be disturbed to varying degrees. TNF- α , IL-6 and IL-8 are all important mediators involved in inflammatory response, and they can be stimulated and synergized each other. Abnormal levels of TNF- α , IL-6 and IL-8, on the one hand, can increase the incidence of postoperative infectious complications, and on the other hand, can directly affect the surgical effect, and thus affecting the psychological state and treatment compliance of patients. The results of this study showed that increased levels of TNF- α , IL-6 and IL-8 were independent risk factors of treatment compliance, depression and anxiety in elderly patients undergoing eye surgery, which suggested that the regulation of cytokine levels in elderly patients should be paid more attention in clinical practice.

In the process of ophthalmological treatment, more attention should be paid to patients' treatment compliance and the occurrence of depression, anxiety and other adverse emotions. Depression and anxiety scales should be used in clinical workup to provide a good basis for effective interventions that can improve the anxiety and depression of patients. Research has shown that active psychological intervention in elderly patients undergoing ophthalmic surgery had a significant effect (19). Faezi *et al.* (20) believe that psychological intervention for elderly patients undergoing ophthalmic surgery needs to include the following aspects: (I) a good doctor–patient relationship, strengthening the overall quality of doctors and nurses, and increasing the trust between patients and doctors; (II) accurate assessment of the patient's social support, assistance with building a good social support system, improving both patients' access to social support, and negative emotional state; (III) antipsychotic drugs and psychotherapy for severely affected patients. In short, the modern medical model requires not only solid professional knowledge, but also psychological, ethical, and interpersonal relationship knowledge. Psychological intervention is indispensable for patients undergoing ophthalmic surgery, especially elderly patients, who may need to improvement in their anxiety and depression status while treating the disease, in order to improve the efficacy of surgery and improve quality of life.

In summary, there are many subjective and objective factors that affect the perioperative treatment compliance, anxiety and depression of elderly patients undergoing ophthalmic surgery. Effective interventions based on

accurate status should be performed to improve patients' compliance after treatment, reduce the negative emotions of patients, and successfully improve surgical efficacy.

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References

1. Tang YY, Yang HX, Dang D. Analysis of related factors of anxiety and depression in gynecological surgery patients. *Nursing Practice Res* 2018;34:561-4.

2. Faezi ST, Paragomi P, Shahali A, et al. Prevalence and Severity of Depression and Anxiety in Patients With Systemic Sclerosis: An Epidemiologic Survey and Investigation of Clinical Correlates. *J Clin Rheumatol* 2017;23:80-6.
3. Parastoo G, Anita T, Arash N. The Role of Depression, Anxiety, and Stress in Medication Adherence in Patients with Hypertension. *Journal of Isfahan Medical School* 2017;35:781-8.
4. Betancur MN, Lins L, Oliveira IR, et al. Quality of life, anxiety and depression in patients with HIV/AIDS who present poor adherence to antiretroviral therapy: a cross-sectional study in Salvador, Brazil. *Braz J Infect Dis* 2017;21:507-14.
5. Eisele M, Harder M, Rakebrandt A, et al. Association of depression and anxiety with adherence in primary care patients with heart failure-cross-sectional results of the observational RECODE-HF cohort study. *Fam Pract* 2020;37:695-702.
6. Chen T, Wang W, Chen ZS, et al. Prevalence and factors influencing depression and anxiety among AIDS patients in Ili Prefecture. *Chinese Journal of Disease Control & Prevention* 2018;23:365-8.
7. Zhang D, Fan Z, Gao X, et al. Illness uncertainty, anxiety and depression in Chinese patients with glaucoma or cataract. *Sci Rep* 2018;8:11671.
8. Apostolia A, Georgios L. Measuring the effectiveness of psychoeducation on adherence, depression, anxiety and stress among patients with diagnosis of schizophrenia. a control trial. *Curr Psychol (New Brunswick, N.J.)* 2019;31:1-12.
9. Woon LS, Sidi HB, Ravindran A, et al. Depression, anxiety, and associated factors in patients with diabetes: evidence from the anxiety, depression, and personality traits in diabetes mellitus (ADAPT-DM) study. *BMC Psychiatry* 2020;20:227.
10. Cinar M, Cinar FI, Tekgoz E, et al. THU0385 Assessment of relationship between beliefs' about medicines and treatment adherence in ankylosing spondylitis patients. *Ann Rheumatic Dis* 2017;76:352-4.
11. Montgomery JR, Cohen JA, Brown CS, et al. Perioperative risks of bariatric surgery among patients with and without history of solid organ transplant. *Am J Transplant* 2020;20:2530-9.
12. Manit S, Yee Ming M, Yen Kuang Y, et al. Cognitive Dysfunction in Asian Patients with Depression (CogDAD): A Cross-Sectional Study. *Clin Pract Epidemiol Ment Health* 2017;13:185-99.
13. Wada S, Inoguchi H, Hirayama T, et al. Yokukansan for the treatment of preoperative anxiety and postoperative delirium in colorectal cancer patients: a retrospective study. *Jpn J Clin Oncol* 2017;47:844-8.
14. Rojas-Villegas Y, Ruíz-Martínez AO, González-Sotomayor R. Anxiety and depression on therapeutic adherence in patients with kidney disease. *Revista de Psicología* 2017;35:347-9.
15. Thanawattano C, Buekban C, Dumnin S, et al. The Ambulatory Eye Shield Head Tracking Device with Real-Time Feedback for Gas Filled Eye Patients. *Annu Int Conf IEEE Eng Med Biol Soc* 2019;2019:7149-52.
16. Xiang W, Chen W, Liu R, et al. Ocular Cyclorotation and Corneal Axial Misalignment in Femtosecond Laser-Assisted Cataract Surgery. *Curr Eye Res* 2019;44:1313-8.
17. Dyussenova L, Pivina L, Semenova Y, et al. Associations between depression, anxiety and medication adherence among patients with arterial hypertension: Comparison between persons exposed and non-exposed to radiation from the Semipalatinsk Nuclear Test Site. *J Environ Radioact* 2018;195:33-9.
18. Kazantzis N, Brownfield NR, Mosely L, et al. Homework in Cognitive Behavioral Therapy: A Systematic Review of Adherence Assessment in Anxiety and Depression (2011-2016). *Psychiatr Clin North Am* 2017;40:625-39.
19. Mendes R, Martins S, Fernandes L. Adherence to Medication, Physical Activity and Diet in Older Adults With Diabetes: Its Association With Cognition, Anxiety and Depression. *J Clin Med Res* 2019;11:583-92.
20. Faezi ST, Paragomi P, Shahali A, et al. Prevalence and Severity of Depression and Anxiety in Patients With Systemic Sclerosis: An Epidemiologic Survey and Investigation of Clinical Correlates. *J Clin Rheumatol* 2017;23:80-6.

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