Assessment of the level of adherence among patients treated for glaucoma

Introduction

In the ageing societies of developed countries, glaucoma is a social problem affecting a growing number of people. Treatment adherence is one of the factors determining success of pharmacological treatment in glaucoma patients.

Adherence is a multifaceted phenomenon. The literature mentions a number of determinants of adherence, including social and economic factors, and those related to the healthcare system, the condition itself, the treatment used, and the patient. However, there is a research gap regarding treatment adherence among Polish glaucoma patients. There is a vital need to highlight the importance of adherence in the success of treatment of chronic eye conditions such as glaucoma.

Aim

The main aim of the study was to assess the level of adherence in patients diagnosed with glaucoma. The determinants of adherence examined in the study included socio-demographic and clinical factors as well as the psychological characteristics of the participants. Furthermore, the study analysed the impact of satisfaction with doctor-patient communication and the doctor-patient relationship on treatment adherence among glaucoma patients.

Material and methods

The study was conducted in the ophthalmology outpatient clinic of the University Teaching Hospital in Wrocław using a diagnostic survey and analysis of medical records. The study included 190 patients who had met the selection criteria. All the patients received written information on the study and provided signed informed consent to participate.

All the patients completed the following standardised questionnaires: the Adherence to Refills and Medications Scale (ARMS), which is used to assess adherence, the NEI VFQ-25 questionnaire, which is used to assess visual function, the Acceptance of Illness Scale (AIS), the Communication Assessment Tool (CAT), which is used to assess communication between the patient and the physician, the Patient-Doctor Relationship Questionnaire (PDRQ-9), the Satisfaction with Life Scale (SWLS) questionnaire as well as the Revised Life Orientation Test (LOT-R). In addition, the patients' knowledge of glaucoma was assessed using the validated

PWJ-10 questionnaire designed by the author of the study. Statistical analysis was carried out using STATISTICA v.13.3 (TIBCO Software Inc.).

Results

The study was conducted on 190 patients treated for glaucoma aged 25-88 (mean *M* = 69, SD = 11.2 years), including 124 women (65.3%). A large proportion of the patients had secondary education (36.3%) or vocational education (32.1%), and they were mostly retired (77.9%). The largest proportion of the patients had been diagnosed with glaucoma more than 10 years before (44.7%). All the patients were treated pharmacologically, with a large proportion of participants using eye drops for glaucoma twice (69.5%) or once (26.8%) daily.

Over half of the glaucoma patients participating in the study reported low levels of adherence (58.9%). The mean level of adherence, as measured using the ARMS, for the entire group of participants was 16.3 ± 2.7, indicating low adherence levels in those patients.

Analysis of the impact of socio-demographic characteristics on adherence

A comparative analysis found that female patients reported higher levels of adherence compared to male patients (15.7 ± 2.5 v 17.3 ± 2.7) and that being female is a statistically significant factor that has a positive impact on adherence (p <0.001). Patients with vocational education reported the lowest level of adherence (16.8 ± 2.8), whereas those with tertiary education had the highest levels of adherence (15.8 ± 2.6).

A multivariate logistic regression analysis showed that being female, being aged ≤ 68 and living in an urban area are independent predictors of adherence.

Analysis of the impact of selected psychological characteristics on adherence

A comparative analysis showed that patients who reported low levels of adherence (ARMS > 15) had significantly lower levels of optimism compared with those who reported high levels of adherence (ARMS ≤ 15) (14.2 ± 2.8 v 15.6 ± 3.1). A considerably large proportion (65.4%) of those patients who reported high levels of adherence exhibited higher dispositional optimism (LOT-R score ≥ 15).

A comparative analysis showed that patients who reported low levels of adherence (ARMS > 15) had slightly lower satisfaction with life compared with those who exhibited high levels of adherence (ARMS ≤ 15) (21.3 ± 3.7 v 22.5 ± 4.4). Slightly fewer than half (42%) of

the patients who reported high levels of adherence (ARMS ≤ 15) had higher levels of satisfaction with life. The analysis showed that good satisfaction with life, as measured with the SWLS, is a statistically significant parameter affecting adherence to treatment ($p = 0.001$).

A comparative analysis showed that patients who reported high levels of adherence (ARMS ≤ 15) had higher illness acceptance levels compared with those who reported low levels of adherence (ARMS > 15). Considerably more than half (73.1%) of the patients who reported high levels of adherence (ARMS ≤ 15) had higher illness acceptance levels. The analysis showed that acceptance of illness, as measured with the AIS, is a statistically significant parameter affecting adherence to treatment ($p = 0.014$).

Analysis of the impact of satisfaction with doctor-patient communication on adherence

The relationship between the quality of doctor-patient communication, as assessed with the CAT (14 questions), and adherence to treatment as assessed with the ARMS regarding raw scores was statistically significant ($p < 0.01$). Patients who are more satisfied with the quality of their communication with their doctor have higher levels of adherence.

The results of a univariate logistic regression analysis showed that satisfactory doctor-patient communication is a factor that has a positive effect on adherence.

Furthermore, the analysis also demonstrated that a good doctor-patient relationship is a factor positively affecting adherence.

Analysis of the relationship between quality of life and adherence

The majority (71.8%) of the patients who reported high levels of adherence rated their visual function as high (NEI-VFQ score ≥ 70). Slightly fewer than half (42%) of the patients who reported low levels of adherence rated their visual function as moderate (NEI-VFQ score of 40-70). The analysis showed that visual function, as assessed with the NEI-VFQ, is a statistically significant parameter affecting adherence to treatment ($p = 0.048$).

Analysis of the relationship between knowledge of glaucoma and adherence

The relationship between knowledge of glaucoma, as assessed with the PWJ-10 scale designed by the author of the study, and adherence to treatment as assessed with the ARMS regarding raw scores was statistically significant ($p < 0.05$). A statistically significant negative correlation was found between the level of adherence as assessed with the ARMS and the level

of knowledge of glaucoma as assessed with the PWJ-10 scale. Patients who have a better knowledge of glaucoma present higher levels of adherence. An increase in the glaucoma knowledge score on the PWJ-10 scale by one point is associated with an average decrease in the ARMS score of 0.27.

Analysis of the correlation between selected variables and the level of adherence

The logistic regression and multivariate analysis showed that female sex (b=1.05; p=0.004), age ≤ 68 (b=0.74; p=0.028), glaucoma knowledge score on the PWJ-10 scale ≥ 13.5 (b=0.82; p=0.016) and a doctor-patient communication score on the CAT (14 questions) ≥ 3.25 (b=1.04; p=0.002) are independent predictors of higher adherence (ARMS ≤ 15).

Conclusions

1. More than half of glaucoma patients have low levels of adherence.
2. Comparative analyses showed that significant independent predictors of high adherence are socio-demographic characteristics (female sex and age ≤ 68) as well as psychological characteristics (high levels of illness acceptance and satisfaction with doctor-patient communication).
3. There is a statistically significant relationship between the level of knowledge of glaucoma and the level of adherence. A high level of knowledge of the condition is a determinant of high adherence in glaucoma patients.
4. High quality of life is a positive determinant of adherence to treatment in glaucoma patients. The higher the quality of life rating, the higher the level of adherence in glaucoma patients.

Keywords: adherence, glaucoma, glaucoma treatment