

Is day-case cataract surgery an attractive alternative from the patients' point of view? A questionnaire survey

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Ist die tagesklinische Katarakt-Chirurgie eine attraktive Alternative aus Sicht der PatientInnen? Eine Fragebogen-Studie

Zusammenfassung. Die Katarakt-Chirurgie ist der häufigste elektive Eingriff bei älteren PatientInnen. In vielen europäischen Ländern sowie in den USA findet die Katarakt-Operation üblicherweise als tagesklinischer Eingriff statt, im Gegensatz zu Österreich mit derzeit knapp 2%. Bisher gibt es kaum prospektive Studien zu den Bedürfnissen und der Akzeptanz der PatientInnen bezüglich eines tagesklinischen Verfahrens. Ziel dieser Studie war es, die Nachfrage und Eignung der PatientInnen für eine tagesklinische Katarakt-Operation anhand einer präoperativen ophthalmologischen Untersuchung und eines Fragebogens betreffend die familiäre und soziale Unterstützung an 500 konsekutiven Katarakt-PatientInnen zu erheben.

154 (41,8%) der PatientInnen entschieden sich für einen tagesklinischen, 256 (58,2%) für einen stationären Aufenthalt. PatientInnen, die stationär behandelt werden wollten waren älter ($76,4 \pm 8,1$ vs. $72,73 \pm 9,5$ Jahre, $p < 0,001$) und hatten ein schlechteres Sehvermögen ($0,55 \pm 0,20$ vs. $0,66 \pm 0,23$, $p < 0,001$). Sie waren häufiger weiblich (63,9% vs. 47,0%, $p = 0,001$), lebten öfter mehr als eine Stunde vom Spital entfernt (26,5% vs. 12,5%, $p < 0,001$) und hatten seltener eine häusliche Versorgung (43,0% vs. 6,5%, $p < 0,001$). PatientInnen, die einen tagesklinischen Eingriff bevorzugten, hatten häufiger die Möglichkeit zu einer Kontrolluntersuchung 24 Stunden postoperativ (96,7% vs. 59,6%, $p < 0,001$).

Die meisten PatientInnen zeigten eine Präferenz für einen stationären Aufenthalt. Dies kann aber auch auf einer Reflexion ihrer bisherigen Erfahrungen beru-

hen und der Gewohnheit der älteren Bevölkerung entsprechen. Information, Aufklärung und Hilfe bei der Organisation einer postoperativen Betreuung könnte die Attraktivität einer tagesklinischen Katarakt-Operation in Österreich erhöhen. Weiters könnten unsere Ergebnisse zur prinzipiellen Verbesserung der tagesklinischen Versorgung beitragen.

Summary. Cataract surgery is the most common elective surgical procedure undertaken in elderly people. In many European countries and in the USA cataract surgery is normally a day-case procedure without an overnight stay in hospital, unlike the situation in Austria where fewer than 2% of patients are day cases. However, there is a lack of prospective studies on patients' need for and acceptance of day-case surgery. The aim of our study was therefore to evaluate patients' demand and suitability for outpatient surgery, based on analysis of preoperative questionnaires on availability of family and/or social support and on preoperative ophthalmologic examination.

Among 500 consecutive patients with cataract, 154 (41.8%) chose a day-case procedure and 256 (58.2%) preferred inpatient admission. Patients preferring full admission were older (mean age 76.4 ± 8.1 vs. 72.73 ± 9.5 years, $P < 0.001$), had worse visual acuity (0.55 ± 0.20 vs. 0.66 ± 0.23 , $P < 0.001$), were more likely to be female (63.9% vs. 47.0%, $P = 0.001$), to live more than one hour away from the hospital (26.5% vs. 12.5%, $P < 0.001$) and have no carer at home (43.0% vs. 6.5%, $P < 0.001$). Patients favoring day-case surgery were more likely to be able to attend an ophthalmologic check-up 24 h after surgery (96.7% vs. 59.6%, $p < 0.001$).

The majority of patients indicated a preference for inpatient care, but this may be a reflection of their previous hospital experience and a matter of custom in the elderly population. Information, education and better organization of after-surgery services could help in-

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crease the attractiveness of cataract surgery as an outpatient procedure in Austria. Our findings could also be relevant to day-case services in medical care in general.

Key words: Day-case, cataract, patients' point of view.

Introduction

Cataract is the most important cause of visual impairment worldwide [1] and cataract surgery the most common elective surgical procedure in elderly people [2]. In Austria in 2002, 84.6% of cataract patients were over 65 years old. The average age of Austrian patients undergoing cataract surgery is about 75 years [3].

More than 50,000 cataract surgeries are performed in Austria every year. With greater life expectancy and increasing demand for improved quality of life, the number of very elderly people having cataract surgery is expected to grow substantially in the coming years [4, 5]. Because of the aging of the population, the relative number of cataracts will double over the next 50 years [6]. In addition, improved surgical techniques and better surgical outcomes over the past 20 years have significantly changed the attitude of ophthalmologists, who now recommend cataract surgery at an earlier stage of disease [5, 7]. A further reason for the increasing surgical volume is the higher frequency of second-eye surgery [8].

Phacoemulsification with a small incision and intraocular lens implantation is the standard treatment for visually significant cataract [9]. With these improved surgical techniques, cataract surgery has become an effective treatment in terms of both visual benefit and safety, with a low incidence of surgical complications [4, 9, 10].

In many European countries and in the USA, cataract surgery is normally a day-case procedure without an overnight stay in hospital [9]. In 2004 in Denmark, nearly 100% of cataract patients were treated as day cases, in contrast to Austria where fewer than 2% of patients are day cases [11]. In 2002, only 1.1% of Austrian cataract patients were discharged from the hospital on the day of the intervention, whereas 7.4% checked out after one night and 91.5% stayed for at least two nights [12]. In public hospitals the average length of stay for patients with cataract surgery was 4.2 days in 2001 [12] and 2.2 days in 2004 [11].

In Austria, numbers of day-case surgeries have remained constantly low in recent years despite the good experiences at the Department of Ophthalmology, University of Graz, where a project introducing day-case cataract surgery was begun in 2004 in response to the excessive waiting times [13]. During this project the percentage of day-case procedures increased to 37% and the beneficial effect on waiting time led to the decision to extend this project for the future [13]. The Department of Ophthalmology at the Medical University of Vienna began day-case cataract surgery in 2007 and now nearly 50% of patients are treated as outpatients.

Nevertheless, day-case cataract surgery in Austria is not as popular as in other countries, even though sev-

eral studies show that day surgery is more cost effective and may be as effective and safe as an overnight stay for cataract extraction [10, 14–16].

Rising costs in the health sector have forced public healthcare systems to save money by reducing the number of hospital admissions in addition to increasing the prescription of generic drugs [17, 18]. To maintain high standards it is essential that day-case cataract patients undergo pre-surgery ophthalmic examination and a check-up of general health [19]. Furthermore, it is important to ensure that the risk of complications is minimized: thus, inpatient admission following day surgery should be possible if needed and patients should also have adequate support after discharge [19].

Nevertheless, there is a lack of prospective studies on patients' need for and acceptance of day-case surgery. To our knowledge, there have been no prospective studies, national or international, on patients' needs in relation to cataract surgery.

The aim of our study was therefore to evaluate patients' demand and suitability for outpatient surgery, based on analysis of preoperative questionnaires on the availability of family and/or social support and on preoperative ophthalmologic examination.

Materials and methods

The study took place at the Department of Ophthalmology and Optometry, KH Hietzing, Vienna, where all participants were recruited from the outpatient department.

In the Austrian public healthcare system, a patient with cataract is referred by a general ophthalmologist for examination by a hospital surgeon. Between February and September 2007 a total of 500 consecutive patients with cataract attending the outpatient department for an initial consultation and scheduling a date for cataract surgery were enrolled in the study. Patients with incomplete files were excluded from the analysis.

During the initial consultation each patient underwent ophthalmologic examination including refraction, slit lamp and fundus examination. Best corrected visual acuity was determined using a Snellen chart. A full medical history was obtained, ocular comorbidities were documented and the patients were asked to fill out a questionnaire.

The questionnaire included information about day-case cataract surgery and the course of a day-case procedure, explaining the differences from an inpatient procedure. The main question addressed the patient's demand for day-case surgery; that is, would patients prefer to undergo an outpatient procedure or be admitted as an inpatient. To investigate factors influencing a patient's decision, other questions checked their suitability for day-case surgery: distance from patient's home to hospital less/more than an hour, sufficient social/family support in the early postoperative period, possibility of transportation home after surgery and the possibility of returning for an outpatient check-up 24 h after surgery. Patients' education, profession and social status were also evaluated.

Statistical analysis

Univariate analysis included comparison of proportions using Pearson's chi-squared test and comparisons of means using unpaired Student's *t*-tests. Odds ratios and 95% confidence intervals for univariate and multivariate associations were calculated using unconditional logistic regression. All *P* values were two sided and values <0.05 were considered statistically

significant. The SPSS 14.0 for Windows computer program was used for all analyses.

Results

The response rate was 94.8% (474 questionnaires); 34 questionnaires with incomplete data were excluded from evaluation, leaving 440 questionnaires for statistical analysis.

A total of 154 (41.8%) patients chose a day-case procedure, 256 (58.2%) preferred an inpatient admission with an overnight stay.

The mean age of the study population was 75.06 years \pm 8.97 (standard deviation) (range 23–92 years). Patients in favor of an overnight stay were older than those preferring day-case surgery (mean age 76.4 \pm 8.16 vs. 72.73 \pm 9.53 years; $P < 0.001$).

Among the 440 participants, 291 (66.1%) were women and 149 (33.9%) were men. The mean age of women was 75.83 years \pm 8.92 and men 73.56 \pm 8.91 years ($P = 0.012$). Patients preferring day-case surgery were more likely to be male (53.0% vs. 36.1%, $P = 0.001$).

The mean preoperative visual acuity in the better eye was 0.66 \pm 0.23 in the day-case group and 0.55 \pm 0.20 in the overnight group ($P < 0.001$).

Of the patients preferring an overnight stay, 26.5% had to travel more than an hour to the hospital, compared with 12.5% in the day-case group ($P < 0.001$).

Significantly more patients without a carer at home favored an overnight stay (43.0% vs. 6.5%, $P < 0.001$).

The demand for inpatient admission was more likely in patients with transportation difficulties (51.7% vs. 14.6%, $P < 0.001$): among those preferring day-case surgery, 96.7% were able to attend an ophthalmologic check-up 24 h after surgery, compared with only 59.6% in the overnight group ($P < 0.001$).

The characteristics of the cataract patients and their social conditions are summarized in Table 1.

The majority of the patients (91.3%) were retired, 3.9% were employees, 1.9% self-employed, 6.8% housewives/house husbands, 1.0% unemployed and 0.5% unemployable. Retired patients were more likely to choose inpatient admission (59.9% vs. 40.1%, $P < 0.001$). For the other groups the sample sizes were too small for statistical analysis.

Elementary school was the highest level of education attained in 14.3% of the study population, 65.6% finished junior high school, 15.6% finished high school and 4.6% graduated from university. Patients educated to elementary level were more likely to choose an overnight stay (73.2% vs. 26.8%, $P = 0.01$); those educated to junior high school level also preferred inpatient admission, but this difference was not statistically significant (58.4% vs. 41.6%, $P = 0.593$). Among the high school graduates, 55.7% chose day-case admission and 44.3% an overnight stay ($P = 0.024$). Patients with a university degree tended to choose day-case surgery, but this difference was not statistically significant (61.1% vs. 38.9%, $P = 0.104$).

The questionnaire also included questions on social status and here multiple answers were possible. Overall, 44.9% of the participants stated that they lived alone, 50.7% with a partner, 9.0% with their children, 23.8% had relatives nearby, 19.7% had friends in the neighborhood and 3.4% were caring for someone else at home. Single persons were more likely to choose inpatient admission (62.7% vs. 37.3%, $P = 0.045$) but patients living with a partner also preferred an overnight stay (51.7% vs. 48.3%, $P = 0.02$). Among those living with their children, 59.5% preferred inpatient admission, but this difference was not statistically significant ($P = 0.779$). Patients having relatives or friends nearby also preferred an overnight stay, but neither of these was statistically significant (52% vs. 48%, $P = 0.23$; 63% vs. 37%, $P = 0.249$, respectively). The sample size of patients who were themselves carers (3.4%) was too small for reliable statistical analysis.

In multivariate logistic analysis, each of the variables that demonstrated a significant effect on overnight stay was analyzed using a backwards stepwise model. In the logistic regression model the associations between visual acuity in the better eye, education, possibility of transport, having a partner, being retired and overnight stay were no longer statistically significant. The strongest remaining association was between the ability to attend an ophthalmologic check-up and overnight stay: thus, patients who could not come for a check-up on the first postoperative day were 18 times (OR: 18.43, 95% CI = 4.19–80.98) more likely to prefer an overnight stay. However, the broad range of the 95%

Table 1. Characteristics of cataract patients and their social support in relation to their decision for outpatient/inpatient admission

	Outpatient	Inpatient	P value	95% CI
Age	72.73 \pm 9.535	76.4 \pm 8.161	<0.001	-5.67 – -2.34
Sex (female)	36.1%	63.9%	0.001	0.68–0.91
VA better eye	0.662 \pm 0.2346	0.555 \pm 0.2079	<0.001	0.06–0.15
Within 1 h of hospital	87.5%	73.5%	<0.001	1.08–1.30
Having a carer at home	93.5%	57%	<0.001	1.46–1.84
Transportation possibility	85.4%	48.3%	<0.001	1.53–2.04
Check-up within 24 h	96.7%	59.6%	<0.001	1.45–1.81

VA visual acuity; *Outpatient* patient choosing outpatient cataract surgery; *Inpatient* patient choosing inpatient cataract surgery; 95% CI 95% confidence interval.

confidence interval suggests that this association may have weak reliability. Patients aged over 75 and females were 1.8 times more likely to choose an overnight stay (OR: 1.854, 95% CI = 1.073–3.203, OR = 1.808, 95% CI = 1.030–3.174, respectively). Other significant associations with overnight stay included distance of more than an hour from the hospital (OR: 2.07, 95% CI = 1.05–4.06), absence of a carer (OR: 6.68, 95% CI = 2.69–16.56) and living alone (OR: 1.94, 95% CI = 1.04–3.64).

Discussion

The concept of day-case ophthalmic surgery dates back nearly 100 years. In 1928 Bailey reported on 26 cataract operations performed without complications at patients' homes [20]. Between the 1960s and 1980s many more studies reported good results for day-case surgery, without increase in complications, and since the early 1990s day-case cataract surgery has become standard procedure in many countries [14–16, 21].

There have been some retrospective studies on the satisfaction and acceptance of day-case cataract surgery [22, 23]. One study on 150 cataract patients after day-case surgery found that 87% would choose day surgery again [22]. Confirming this, another study stated that only 13% of 501 cataract patients would have preferred to stay in hospital [21]. A further study highlighted the need for sufficient information, and where that was provided most of the patients would choose day-case surgery [23]. With this high level of satisfaction, the patient demand for day-case procedures will further increase [15].

About 2000 cataract surgeries are performed annually at the Department of Ophthalmology, KH Hietzing, Vienna, and with increasing demand the waiting list will expand. The current waiting time for cataract surgery is six months. Unfortunately, prolonged waiting times are linked to a decline in visual acuity [24], and there is also evidence that individuals with cataracts have an increased risk of falls and related hip fractures and are more likely to be involved in car accidents [25, 26]. This calls for reduction of long waiting times and for services to be redesigned from the patients' point of view. Output must be increased and costs reduced, but at the same time standards of surgery and patients' satisfaction must be maintained or improved [27].

Austria has one of the highest hospital admission rates in the EU and the OECD [28]. People in Austria cannot choose their social health insurance fund; they are assigned to social insurances according to their occupation or profession. By paying a monthly compulsory contribution, people acquire entitlements to treatment as set out in the current general social security provisions. Overall, 99% of the population have health insurance cover and one-third also have supplementary private insurance to cover the costs of more comfortable hospital rooms or to finance visits to physicians not under contract with the patient's health insurance fund. Only 4.6% of the total numbers of beds are operated by private entities [28].

In public hospitals, payments have been based on flat fees per case since 1997, each flat rate consisting of

an activity-related component and a daily-charge component. The reorganization of funding has not adequately integrated outpatient departments and day-case procedures [28].

Despite the high degree of acceptance of day-case surgery in the literature, our results showed a hesitant patient attitude, mainly resulting from lack of social support. The number of day-care units in Austria is low, therefore patient support such as transportation services and hotels adjacent to the hospitals have not been developed.

In a study of 146 patients in England, 93% reported no problem with the journey to the hospital [22]: in 43% the journey took less than half an hour and in only 2% more than an hour. These results are in contrast to our patients, of whom 20.6% live more than an hour away from the hospital; these patients were significantly more likely to choose an overnight stay. Vienna, as the capital of Austria, is a city with nearly 1.7 million inhabitants, and the KH Hietzing, as the second largest hospital in Vienna, serves a large cross-section of patients throughout the metropolis and also in the surrounding parts of Lower Austria. Similarly to our findings, a retrospective Australian study [14] found country residents eight times more likely to stay overnight and patients with transportation problems four times more likely. A patient transport service or transportation provided by relatives could help to make day-case surgery more attractive to elderly patients.

In our results only 27% of the patients had a responsible carer at home for the first 24 h after surgery, leading to a preference for inpatient admission in 89.4%, whereas a study in England [22] found that 91% of patients had no problem in arranging for a relative or friend to take care of them. Among those of our patients living alone, 62.7% preferred an overnight stay, reflecting their problems with finding a carer for the time after surgery. Arranging help from a friend/relative or short-term care for a few days, and including this in the scheduling of the surgery, could help to reduce resistance to day-case surgery. Hospitalization itself can also produce problems in this elderly population, because medical conditions often become uncontrolled and patients may be disorientated in the unfamiliar surroundings of a hospital [29].

Patients with higher levels of education (high school, university) tended to choose day-case surgery; patients with only elementary or junior high school education tended toward inpatient admission. Several studies in other medical fields have found that preoperative education is associated with reduced anxiety and increased satisfaction [30]; thus, appropriate education of the public could reduce fears and increase acceptance of outpatient procedures.

A limitation of our study is the high mean age of our cataract patients. The KH Hietzing is located in a district with an older population with greater need of post-operative support at home. Results might be different in districts with younger patients, where cataract surgery is also used as a refractive procedure. In addition, our results might not be generalizable, as the patients were

those who were willing to participate; however, with a response rate of nearly 95%, this limitation is negligible.

The typical cataract patient in our study population was a 75-year-old retired female, living alone within a one-hour journey to the hospital, having a junior high school degree and preferring inpatient admission. The majority of our patients indicated a preference for inpatient care, but this may be a reflection of their previous hospital experience. Information, education and help with organization of after-surgery support could help to increase the attractiveness of cataract surgery as an outpatient procedure in Austria. Our findings could also be relevant in the context of day-case services in general.

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