CLINICAL RESEARCH

Evaluation of Patient Comfort with Outpatient Orbital Surgery

ABSTRACT Purpose: To evaluate patient comfort with outpatient orbital surgery. Design: Prospective, non-randomized study. Methods: The experience of 34 consecutive outpatient orbital procedures in 30 patients was evaluated. The data obtained included subjective postoperative pain and discomfort at 3 time intervals (immediate, postoperative day 1 and 1 week) using a 100 mm visual analogue scale (VAS). Patients were also asked to rate the overall experience after one week of follow-up. Results: The average pain and discomfort scores in the immediate postoperative period measured 13.95 and 12.61, respectively. Overnight scores of 5.91 and 7.25 were determined for pain and discomfort, and at the one-week follow-up these were 0.91 and 3.42, respectively. All 30 patients reported that they were “satisfied with their overall experience.” The highest VAS score for pain at any time was 50. The highest VAS score for discomfort at any time was also 50. All 30 patients had recovered or improved their visual acuity at week one. There was no incidence of retrobulbar hemorrhage, significant loss of vision (greater than two lines), increased intraocular pressure or pupillary defects in any of the patients. None of the study patients required rehospitalization. Conclusions: This study suggests that outpatient orbital surgery, in the hands of an experienced orbital surgeon, is safe and well tolerated by the patients regardless of the type of anesthesia or type of procedure.

KEYWORDS Outpatient surgery; orbital surgery; patient comfort; anesthesia; visual acuity

INTRODUCTION

In recent decades, there has been a major shift from the traditional postoperative hospitalization course towards ambulatory surgery on an outpatient basis (Davis, 1993). This transition has been facilitated in part due to increased patient safety, cost-effectiveness, convenience and an increased requirement by third-party payers to perform certain procedures on an outpatient basis (Miguel, 1994; Stephens, 1994). The overwhelming majority of ophthalmic procedures are now performed on an outpatient basis with favorable patient experiences as high as 88% (Cannon et al., 1992; Cooper & Meyer, 2000; Leaming, 2000). However, a 1996 survey by the American Society of Ophthalmic
Plastic and Reconstructive Surgery showed that a majority of its members still perform orbital surgery on a hospital inpatient basis (Bartamian & Meyer, 1996).

Patient safety and comfort in the postoperative period are of the utmost importance when evaluating outpatient procedures. The decision to perform overnight admission for orbital surgery depends on many factors, including the complexity of the case, potential for complications, postoperative discomfort, compliance and reliability of the individual patient. Although many surgeons now perform orbital surgery on an outpatient basis, patient comfort and tolerance of outpatient orbital surgery has not been well studied. We undertook a prospective, non-randomized study to analyze patient safety, pain and comfort in 34 cases of orbital surgery in 30 patients in an outpatient surgical setting.

**MATERIALS AND METHODS**

**Patients**

Thirty-four outpatient orbital procedures in 30 patients were analyzed prospectively. There were 14 males and 16 females with an average age of 45.3 years (range 8–81 years). The types of orbital surgery included: 13 cases of orbital decompression, 17 cases of orbital fracture repair, and 4 cases of lateral orbitotomy. All operations were performed under general anesthesia.

The standard general anesthetic varied with the physician but typically consisted of sevoflurane (Abbott Laboratories, Abbott Park, IL), propofol (Diprivan, AstraZeneca Pharmaceuticals, Wilmington, DE), fentanyl (Janssen Pharmaceuticals, Titusville, New Jersey) and ondansetron (Zofran, Glaxo Smith Kline, Philadelphia, PA). Monitored anesthetic care consisted of intravenous midazolam (Roche Pharmaceuticals, Nutley, NJ), propofol and fentanyl. The local anesthetics were 2% lidocaine, 1:200,000 epinephrine and 0.5% bupivacaine (Marcaine, Sanofi-Aventis, Bridgewater, NJ).

All patients were discharged on the day of surgery, following recovery from anesthesia after standard published discharge guidelines had been met (Marshall & Chung, 1999). Upon discharge, all patients were given prescriptions for oral antibiotics, oral steroids, analgesics and antiemetics. All patients were given standard discharge instructions that included an emergency call number to report atypical postoperative events such as increasing fever, pain, nausea, vomiting, bleeding, swelling or decreased visual acuity. No pressure patches were placed on patients postoperatively. The patient was instructed to keep the eye unpatched in the operative orbit and to perform hourly vision checks measured at greater than count fingers vision.

Postoperative data were obtained on three occasions: immediately postoperatively (within one hour after surgery), on the first day postoperatively, and one week postoperatively. Ophthalmic examination including visual acuity (Snellen), pupillary examination, slit-lamp examination, and intraocular pressure measurement; orbital evaluation was performed at each postoperative visit.

**Postoperative Patient Questionnaires**

For each postoperative evaluation, patients were given two standardized 100-mm Visual Analog Scales (VAS) as seen in Fig. 1. The first scale was used to report pain and the second was used to report discomfort. The VAS, a linear scale used by patients to visually indicate their level of pain and discomfort, has been successfully used in previous studies (Cannon et al., 1992). Discomfort was defined as “sensation other than pain” and included nausea, vomiting, headache, and dizziness. The VAS used in our study showed “no pain” on the left side of the scale and the “most pain experienced by the patient in his/her lifetime” on the right side. Similarly, for discomfort, “no discomfort” was placed on the left side and “most discomfort” on the right side of the scale.

On the first postoperative day, patients were also given a three-point preference scale regarding their surgery. The three possible responses were: 1) “I was comfortable going home on the same day as the surgery, knowing that I would see the doctor today. There was no reason for me to stay overnight in the hospital”; 2) “I was concerned about leaving the hospital on the same day. I would have felt more comfortable if I had stayed overnight, but it worked out fine”; or 3) “I should have stayed overnight at the hospital, I was in considerable pain and discomfort at home.”

At the one-week follow-up, each patient was asked if they were satisfied or dissatisfied with their overall experience. The two possible responses were: 1) “I

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**FIGURE 1** Example of the Visual Analogue Scale (VAS) for measuring pain. The patient places a vertical mark across the horizontal line indicating the intensity of pain. The right end of the scale represents the most severe pain experienced by the patient in his/her lifetime. The left end represents no pain. The scale is linear with zero assigned to “no pain” and 100 to “most pain.” In this case the score is 50.
TABLE 1  Visual Analogue Scale Score Summary

<table>
<thead>
<tr>
<th></th>
<th>Mean VAS-score</th>
<th>Scores &gt;50</th>
<th>Highest score</th>
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</thead>
<tbody>
<tr>
<td>Immediately postoperative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>13.95</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>Discomfort</td>
<td>12.61</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>1st day visit</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pain</td>
<td>5.91</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td>Discomfort</td>
<td>7.25</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>One-week visit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>0.91</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Discomfort</td>
<td>3.42</td>
<td>0</td>
<td>25</td>
</tr>
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was completely satisfied with the whole experience”; or 2) “I was dissatisfied with the whole experience, things should have been done differently.”

RESULTS

Our results showed an average pain and discomfort score in the immediate postoperative period of 13.95 and 12.61, respectively. At day 1, the VAS for pain and discomfort scored 5.91 and 7.25; at one week the scores were 0.91 and 3.42, respectively (Table 1). The highest VAS score for pain at any time was 50. The highest VAS score for discomfort at any time was also 50.

Six patients had a loss of 2 Snellen lines of visual acuity at the first postoperative visit. At week one, all patients either showed recovered or improved visual acuity. There were no episodes of retrobulbar hemorrhage, permanent loss of vision, or afferent pupillary defects recorded in any patient.

Nine emergency calls were received on the day of the operation involving one of the following issues: questions about the postoperative advice and/or instructions, questions on the use of medications, or reassurance. Six patients reported nausea and intermittent vomiting on the first postoperative day that subsequently subsided. None of the study patients required subsequent hospitalization.

The final portion of the questionnaire inquired about the patient’s general preference and overall satisfaction with the outpatient surgical experience (Table 2). In the 3-point preference scale, in 30 of 34 questions, the patients reported: “I was comfortable going home on the same day as the surgery, knowing that I would see the doctor today. There was no reason for me to stay overnight in the hospital.” In four instances, the response was: “I was concerned about leaving the hospital on the same day. I would have felt more comfortable if I had stayed overnight, but it worked out fine.” None of the patients selected: “I should have stayed overnight at the hospital. I was in considerable pain and discomfort at home.” All 30 patients (34 cases) reported that they were “satisfied with their overall experience.”

DISCUSSION

Recent surgical trends show a shift from inpatient to outpatient surgical procedures. While the majority of ophthalmic plastic surgical procedures are performed in an outpatient setting, we set out to evaluate the feasibility of outpatient orbital surgery. In an outpatient setting, patient treatment can also be more personalized, avoiding the confusions and delays of a hospital (Simons, 2000).

Recent surveys of ophthalmic plastic surgeons show an increase in outpatient orbital surgery. As high as 66% of orbital fracture repairs and 29% of orbital decompressions and lateral orbitotomies are performed on an outpatient basis (Bartamian & Meyer, 1996). We prospectively studied 30 consecutive patients who underwent 34 outpatient orbital operations. The procedures that these patients underwent varied from orbital decompression to lateral orbitotomy and orbital fracture repair. We experienced no intraoperative or postoperative complications in our patients. Postoperatively, six patients had temporary loss of visual acuity (up to 2 Snellen lines). This could be explained by temporary vision loss secondary to a variety of factors, such as topical ointment, eyelid edema, obstruction from conjunctival...
chemosis or corneal surface irregularities. In no instances did we note optic nerve or retinal compromise. All 34 eyes either regained or improved their preoperative visual acuity by the first postoperative week. Six patients had mild blurring of vision and discomfort due to exposure keratopathy secondary to mild lagophthalmos. These symptoms were treated with artificial tears and lubrication.

In this study, we used standardized visual analogue scales to evaluate pain and discomfort. This system has been successfully used and validated previously (Cannon et al., 1992). In our series, none of the VAS scores recorded were above 50, regardless of the postoperative period. The highest score for pain at any time was 50 and the highest score for discomfort at any time was also 50, with the average score being less than 10 on the first postoperative day. Patients undergoing orbital decompression for thyroid-related orbitopathy recorded, on average, slightly higher scores. Patients who had bilateral orbital surgery done consecutively, unilaterally, recorded higher scores for pain and discomfort after the first surgery.

This study did not address anterior orbitotomy as this procedure is less invasive than surgery in the deeper orbit. Many cases of anterior orbitotomy are often performed under local anesthesia with monitored care and thus reflect the more benign nature of the surgery. One can extrapolate the results of this study to suggest that anterior orbitotomy can also be performed safely and comfortably on an outpatient basis.

The 3-point preference scales and satisfaction scales also showed that patients were satisfied with their experience, overall. According to theory, satisfaction is driven by the difference or discordance between expectation and experience. It was anticipated that patients who were extremely anxious and not bothered with surgery would be more satisfied than those who were not concerned and extremely bothered (Hogue et al., 2000). In our study, patients were uniformly satisfied with the anesthesia, recovery and surgery.

It is well documented that some patients do experience some discomfort after discharge. Postoperative nausea and/or vomiting immediately after discharge occurs in 35% of patients and 19% of patients report that this lasts at least 24 hours after surgery (Carroll et al., 1995; Simons, 2000).

In conclusion, most patients tolerate outpatient orbital surgery comfortably, safely and with minimal pain. Continued caution should be exercised in patients with serious medical conditions or a suspected inability to tolerate anesthesia.

ACKNOWLEDGEMENTS

This study was supported by the Bell Charitable Foundation, the Dr. Seuss Fund of the San Diego Foundation and the Marie D. Shafer Family.

REFERENCES