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Minimally invasive radioguided parathyroidectomy: Postoperative patient satisfaction survey

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ABSTRACT

Introduction: *Minimally invasive radioguided parathyroidectomy (MIRP) combines technetium Sestamibi scan, intraoperative gamma probe, methylene blue dye, and measurement of circulating parathyroid hormone (PTH) levels. While MIRP is a well-established approach to neck exploration for hyperparathyroidism, there is little published data about patient satisfaction following this type of surgery.*

Methods: *All patients in this study underwent either unilateral MIRP or bilateral neck exploration for primary or recurrent hyperparathyroidism. Postoperative prospective patient satisfaction surveys were collected and analyzed with regards to preoperative education, surgical outcomes, extent of procedure, patient age and gender. Statistical analysis was performed to examine patient satisfaction trends for significance.*

Results: *Thirty-four of 68 study patients completed the survey at the one-week follow-up appointment, 4/68 mailed in the survey, 10/68 were contacted by phone, with the remaining surveys either returned incomplete or not filled out. Among the 48 completed surveys, most patients (85% to 100%) were satisfied with both the operative and postoperative care aspects. Although patient dissatisfaction was higher among patients discharged on the same day and those hospitalized for less than 23 hours, 96% of respondents indicated that additional hospitalization would not change their responses to survey questions. Elderly patients and women tended to have increased proportion of unfavorable responses to the survey items. There were no differences in patient satisfaction with regards to the operating room environment, time in surgery, time in recovery room, or incision size.*

Conclusions: *The survey used in this study appears to be an effective instrument in assessing the level of patient satisfaction with regards to the surgical efficacy of MIRP, perioperative and postoperative patient care, and quality of preoperative education.*

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INTRODUCTION

Both technological and surgical advances have contributed to improvements in operative treatment of hyperparathyroidism. The minimally invasive radioguided parathyroidectomy (MIRP) technique represents a direct result of these advances. [1-3] This technique combines the technetium Sestamibi scan, handheld gamma probe, intraoperative staining with methylene blue dye, and intraoperative parathyroid hormone assay. While it has been shown that use of MIRP in the setting of primary hyperparathyroidism is reliable, safe, and cost-effective, patient satisfaction with surgical results has not been reported. [1-3] The purpose of this study was to utilize a patient satisfaction survey to assess the effectiveness of preoperative patient education and to determine patient perceptions associated with operative results.

METHODS

All patients in this series had biochemically proven hyperparathyroidism, and were enrolled in a prospective, non-randomized study approved by the University of Louisville Human Studies Committee. The Committee also approved the content and use of the survey to evaluate postoperative patient satisfaction.

The survey is a paper-and-pencil instrument consisting of two parts: (a) the categorical rank section, in which patients rank specific aspects of their operative care (**Figure 1**, see below); and (b) an open-ended answer section, in which patients were asked to state their comments and/or suggestions (**Figure 1**). Patients completed the survey by determining the degree to which they agreed with the standard statements provided in the survey. Answers to the survey questions were collected and entered into a computerized database.

Patient responses from the categorical rank section were tabulated as follows: 1 = “strongly agree”; 2 = “agree”; 3 = “disagree”; 4 = “strongly disagree”. A response of 5 to questions 2 and 3 = “not applicable”. Tabulated responses were subsequently analyzed for any significant correlations between the type and extent of procedure, care provided, preoperative patient education, patient gender and age, and the responses given on a ranked basis.

Answers from the open-ended section of the survey were examined for both pre-formulated and subjective comments (**Figure 1**). Patient answers were then grouped into categories and analyzed for the presence of any significant trends.

During the preoperative evaluation prior to surgical exploration of the neck, all patients underwent a Sestamibi radioisotope scan. The underlying disease process, possible etiology, and management were explained by the surgeon and again by the Head and Neck Oncology Nurse Coordinator as part of a very detailed informed consent process. In addition, patients were referred to the Department of Surgery web site that contains a complete review of primary hyperparathyroidism, alternative treatment approaches, and the minimally invasive technique.

Statistical analysis was conducted using SPSS® for Microsoft Windows® 98 software (SPSS, Inc., Chicago, IL, USA), and graphs were designed utilizing Microsoft PowerPoint for Windows® 98 software (Microsoft Corporation, Redmond, WA, USA). Statistical methods used in this study included chi-square

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test, two-sample t-test, and analysis of variance (ANOVA), as appropriate.

HEAD AND NECK SURGERY

PATIENT SATISFACTION SURVEY

Please circle the answer which best describes your experience with your head and neck surgical procedure.

1. I received adequate education to care for myself at home after my surgical procedure

SA A D SD

2. I was able to care for the drain without any problems

SA A D SD NA

3. I was able to care for my incision without any problems

SA A D SD NA

4. I knew how to monitor for potential problems

SA A D SD

5. After the procedure, I was comfortable caring for myself at home

SA A D SD

6. I knew how to call the doctor or hospital in case there were any problems

SA A D SD

7. I was able to manage my pain without any problems

SA A D SD

8. Would additional time in the hospital affect your responses to the above questions?

YES NO

If answered "yes" to **question 8**, please circle all the reasons why you responded "yes"

a. I was uncomfortable caring for the drain

b. I was uncomfortable caring for the incision

c. I was uncomfortable caring for myself at home after surgery

d. I was not able to manage my pain

e. I did not receive enough education to care for myself

f. I was not sure how to monitor for problems

g. I was not sure how to call the hospital or doctor for any problems

h. I do not have a specific reason, but would have preferred to stay overnight

i. Other _____

Figure 1. Patient satisfaction survey used in this study. Legend: SA = "Strongly agree"; A = "Agree"; D = "Disagree"; SD = "Strongly disagree"; NA = "Not applicable"

RESULTS

Out of the total study group of 68 patients, 34 completed the survey at the one-week follow-up appointment, 4/68 mailed the survey, and 10/68 were contacted by phone. Forty-eight surveys were reviewed during this study (response rate, 70.6%). The 20 remaining surveys were returned incomplete or not filled out. The mean age of the 48 patients with completed surveys was 58.0 ± 15.7 years. Median age was 60.0 years (range, 22 to 94 years). There were 31 female patients and 17 male patients, with female patients' mean age of 60.6 ± 15.9 years, and male patients' mean age of 55.2 ± 15.1 years.

More than 90% of patients responded "Agree" or "Strongly agree" to questions 1, 3, 5, 6, and 7 (**Figure 2**). These questions dealt with adequate patient education, care for the incision, patient being comfortable caring for themselves at home, the ability to contact the doctor, and the ability to manage pain. Eighty-five percent of patients responded "Agree" or "Strongly agree" to question 4 (**Figure 2**), indicating that they felt adequately prepared to monitor for potential problems.

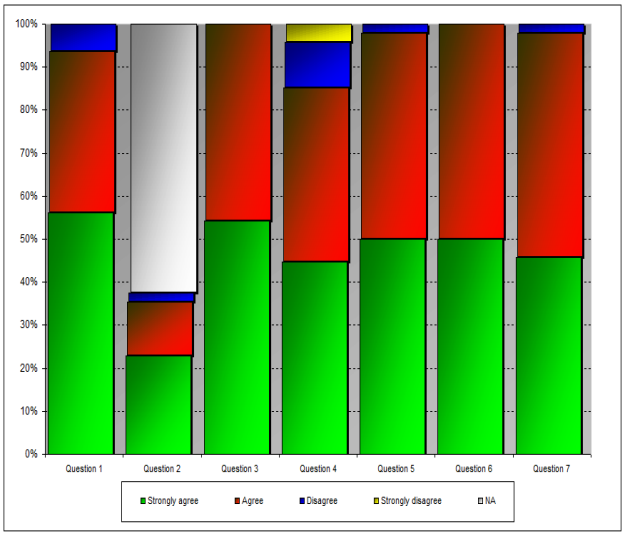

Figure 2. Patient satisfaction survey results for questions 1-7 (listed in numerical order from left to right). Note that more than 90% of patients responded "Agree" or "Strongly agree" to questions 1, 3, 5, 6, and 7. Question 2 did not apply to majority of patients (gray shaded area), with high proportion of "Agree" and "Strongly agree" responses from the remaining patients. According to question 4, approximately 85% of patients indicated that they felt adequately prepared to monitor for potential problems after discharge.

Ninety-four percent (14/15) of patients with drains agreed or strongly agreed that they were able to manage the drain adequately. Sixty-three percent of patients surveyed were not required to manage drains (**Figure 2**). The largest number of "Disagree" or "Strongly disagree" responses were given to question 4, relating to the ability to monitor for potential problems. There were no statistically significant differences in the responses to any of these questions.

Patient satisfaction was examined as a function of patient gender, extent of surgical exploration, surgical outcome, and length of postoperative hospital stay. When patient satisfaction was examined according to age group (<40, 40-59, and 60+), it was noted that patients in the 60+ group tended to have increased

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frequencies of "Disagree" and "Strongly disagree" as their satisfaction survey responses (**Figure 3**). An increased level of "Disagree" or "Strongly disagree" responses were also noted among female patients (**Figure 4**). No statistically significant differences were detected in any of these questions when grouped by any of the variables examined (**Figures 2-6**). There were no differences in patient satisfaction as related to the operating room environment, length of surgery, or time in recovery room. Increased incision size was not associated with decreased patient satisfaction. Patient satisfaction as measured by length of hospital stay resulted in mostly positive evaluations from patient who remained hospitalized for more than 1 day (**Figure 5**). None of the patients in that group disagreed with statements in the survey. Dissatisfaction was highest among patients discharged on the same day and those hospitalized for less than 23 hours. Again, question 4, related to monitoring for potential problems, had the most negative responses (**Figure 5**).

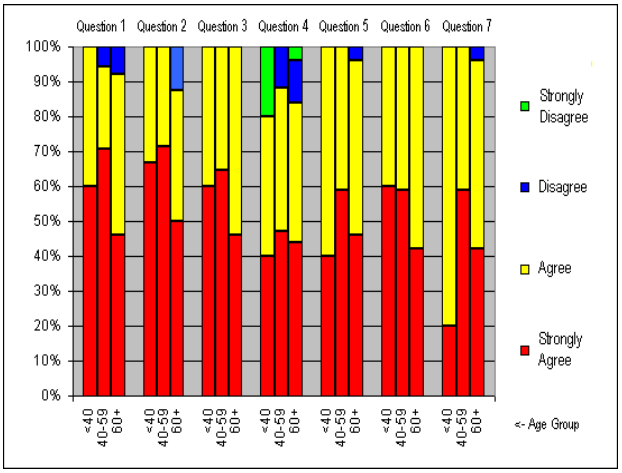

Figure 3. Patient satisfaction versus patient age. Patients were divided into three groups: less than 40 years old; 40 to 59 years old; 60 and older.

Ninety-six percent (46/48) of respondents to question 8 indicated that they did not feel that additional length of hospitalization would have changed their responses to the first seven questions. One of the two patients who responded "Yes" to question 8 indicated being physically or emotionally uncomfortable caring for the drain.

DISCUSSION

The use of patient satisfaction surveys for the purpose of health care quality assessment and performance improvement is well established and widely accepted. There is a growing interest in patient satisfaction as a measure of outcome, overall quality of care, and adequacy of clinical patient education. A comprehensive, valid, and reliable survey vehicle is needed for examining patient satisfaction in the context of health care delivery process. We attempt to create and evaluate such a vehicle in this analysis of patient satisfaction following the MIRP procedure.

Our survey had a response rate of 70.6% (48/68), which is lower than the response rate in some other satisfaction surveys. [4-5] This study represents a sample of patients with primary hyperparathyroidism, which occurs predominately in females (65% of our study population). Over one third of patients were 65 years and older, which is also consistent with the demographics of primary hyperparathyroidism.[6]

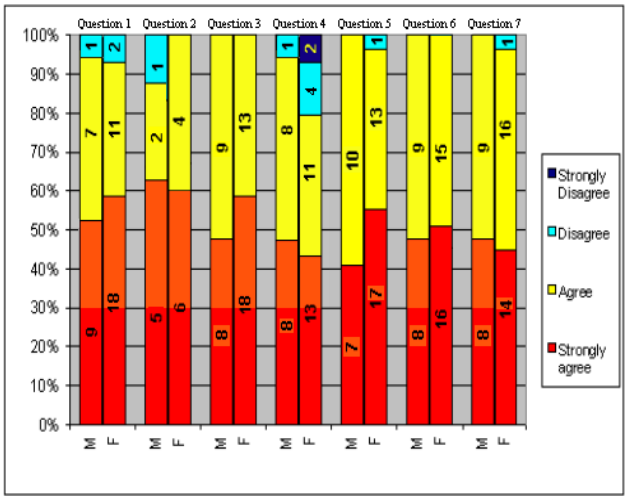

Figure 4. Patient satisfaction versus patient gender. Note the overall greater number of "Disagree" and "Strongly disagree" responses among women. Legend: M = Male; F = Female

We observed lower overall satisfaction levels among female patients. Kressin *et al* showed that although there are no consistent differences in mean satisfaction ratings by gender, the characteristics associated with patient satisfaction differed for men and women. [7] Another study demonstrated different aspects of medical care being important to women and men. [8] Women's satisfaction with visits was more dependent on informational content, continuity of care, and multidisciplinary management, while men's satisfaction was more dependent on the personal interaction with health care providers. [8]

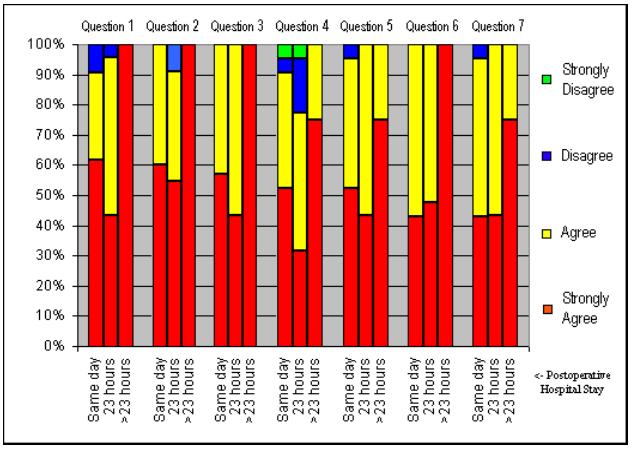

Figure 5. Patient satisfaction grouped by length of postoperative hospital stay. Note the greater number of "Disagree" and "Strongly disagree" responses in the **Same day** and **23 hours** patient groups.

We also observed greater patient dissatisfaction among patients who were discharged to home either on the day of surgery or within less than 23 hours of surgery (**Figure 5**). It is unclear whether the relatively small sample size and/or the non-response of some study patients influenced this result. A study of radical retropubic prostatectomy procedure demonstrated that the reduction of postoperative hospital stay to one day was associated

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with minimal postoperative morbidity, high patient satisfaction, and only 10.5% of patients indicating a preference toward a longer hospital stay. [9]

In this study, unilateral surgical exploration was associated with numerically higher instances of dissatisfaction than bilateral exploration (**Figure 6**). It remains unclear whether this effect is due to a small sample size of this study, the fact that majority of patients who underwent unilateral exploration were discharged to home early (within 24 hours of surgery), or other factors.

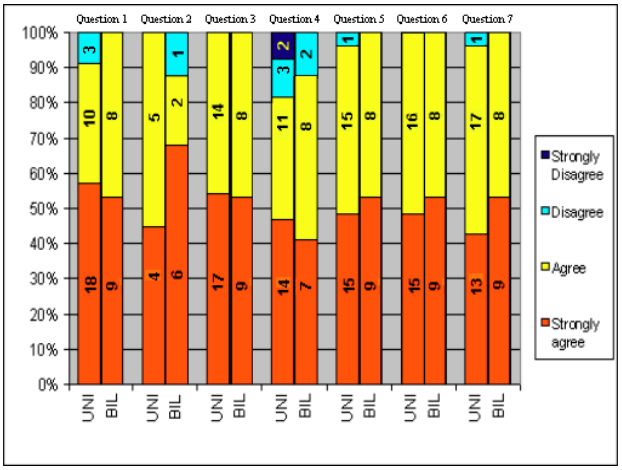

Figure 6. Patient satisfaction grouped according to unilateral (UNI) or bilateral (BIL) extent of the surgical procedure.

Age 60 and older was associated with decreased patient satisfaction in the study group. Patients in this group tended to respond "Disagree" or "Strongly disagree" to survey statements more frequently than patients less than 60 years of age (**Figure 7**). In one study, older age was the only characteristic consistently associated with patient satisfaction among both men and women. [7] In another study, greater patient satisfaction was significantly associated with greater age and marginally associated with being married and higher socio-economic status. [10]

In this study, many of the dissatisfied patients indicated that they uncomfortable caring for their drain. Despite of the clinical importance of this issue, there were no previous studies that describe this aspect of care from patient satisfaction perspective.

This study prospectively evaluated a postoperative patient satisfaction survey among patients who underwent parathyroid surgery. Our observations indicate that it may be necessary to increase the amount of preoperative instruction provided to patients undergoing parathyroid surgery, with greater availability of additional education materials for patients interested in obtaining more in-depth information. Johnson *et al* demonstrated that patient satisfaction tends to be higher when patients receive printed information. [11] In another study, greater duration of direct contact with a physician correlated with increased patient satisfaction. [4] Based on our survey, significantly greater educational resources should be devoted to surgical drain care instructions, both pre- and postoperatively. It may also be necessary to increase the simplicity of statements in the survey questionnaire. This is especially true of question 4, which is the most vague of the survey questions. [7-8, 10]

In general, the design of a survey and reporting methods are closely linked. Past research and cognitive testing, along with expert and public feedback, are used to modify survey questions, response options, and reporting formats. [12] The modes of obtaining survey answers, which often vary, have not been shown to influence results in a significant way. In one study, the use of mail versus telephone survey had little effect on the key issues, especially when revised questionnaires were used. [13] In another study, a hand-held computer was compared to paper forms, with no significant differences between the two modalities. [14] In our study, the telephone responses were not significantly different from paper-and-pencil responses.

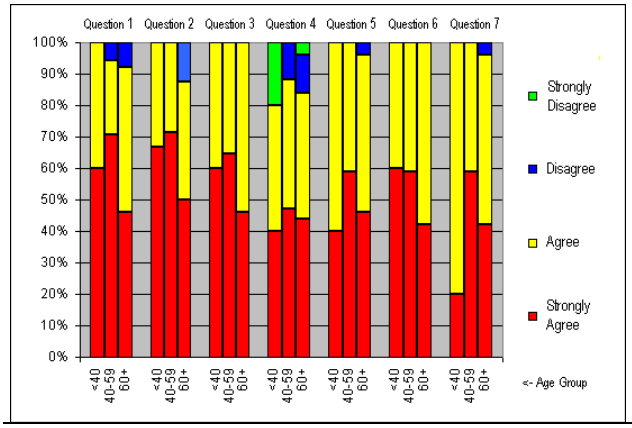

Figure 7. Patient satisfaction versus patient age. Patients were divided into three groups: less than 40 years old; 40 to 59 years old; 60 and older. Note the numerically higher number of "Disagree" and "Strongly disagree" responses among patients in the 60+ group.

An analysis of a patient satisfaction survey should consist of: (a) content validity (assessed by an expert panel and literature review of satisfaction studies); (b) construct validity (an examination of the relationship of items in the survey, determining if the pattern of results could be explained by a smaller number of underlying constructs); and (c) reliability assessment (measuring dependability, consistency, and reproducibility of the results). [15] In most cases, patient satisfaction surveys are used to improve quality of care in a specific setting, but can also be used to assess differences between healthcare facilities within a multi-center setting. [11] Questionnaire development is a multifaceted process that should optimally result in a design of a reliable and valid instrument. Surveys should be inexpensive, easy to administer, place little burden on patients, be standardized in format and mode(s) of administration, have standardized data collection, analysis and reporting, established content and construct validity, and should be reported in the public domain. [15]

Patient satisfaction surveys constitute an important, multidimensional monitoring tool useful in medical-surgical performance/process improvement and healthcare quality assessment. [16] The recent increase in the popularity of patient satisfaction surveys is likely related to more widespread acceptance of this form of evaluation in everyday medical and surgical practice. Patient satisfaction surveys conducted postoperatively have the potential to help surgeons correlate numerous surgical factors with subjective patient outcomes as well as other important measure-of-success parameters. In addition to measuring the overall patient satisfaction, these surveys measure numerous other variables, including patient informational, emotional, spiritual, and environmental needs and perceptions. Increased patient satisfaction and better preoperative

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education may result in improved clinical outcomes, better compliance with medical and surgical instructions, and decreased patient litigation. [17]

Patient dissatisfaction negatively impacts the patient-physician relationship and leads to decreased treatment compliance and potentially negative perceptions about the treating physician. [18] In contrast, patient satisfaction tends to be invigorating and sustaining for the physician and the patient-physician relationship, and helps reinforce positive impressions of the practitioner and the healthcare facility within the community. Moreover, research conducted by companies specializing in patient satisfaction assessment suggests that patient satisfaction directly correlates with employee and job satisfaction – an added incentive for hospitals and other healthcare facilities to foster the atmosphere of quality improvement and employee retention based on patient satisfaction measures. [19] Moreover, improved patient satisfaction tends to result in fewer malpractice claims and lower malpractice insurance costs. [17]

Limitations of this study include the small study group size, relatively low satisfaction survey response rate (and thus potential bias), and consequently limited ability to draw clinically relevant conclusions. Given that, this study's results should be considered to be purely observational and preliminary in nature. Patient satisfaction surveys have not been tested and validated fully. A number of important questions have been raised by this investigation, giving credence to the conduct of larger, prospective, multi-institutional studies of patient satisfaction following surgical procedures. Future studies of patient satisfaction should focus on determining patient needs and expectations at specific time points of therapy, focusing on multi-dimensional analysis of the complex inter-relationships involved.

CONCLUSIONS

This study supports the contention that minimally invasive resection of parathyroid glands is an effective and patient-oriented surgical approach, with 85% to 100% satisfaction rates among the study responders. Despite a relatively low response rate (70.6%), this study supports the potential use of the above questionnaire to evaluate and monitor patient satisfaction over time for both clinical and research purposes.

We found an increased trend toward disagreement with survey statements among the elderly, women, patients with surgical drains, and patients with shorter postoperative hospital stays. However, these trends are not statistically significant and their importance is unclear. Increased preoperative educational efforts aimed at all groups under study, including those with increased rates of disagreement with survey statements, should be implemented. Size of the incision, operating room environment, time in surgery, or time in recovery room had no relationship with decreased or increased patient satisfaction in our study.

The interest in patient satisfaction surveys is growing. However, much work remains to be done in order to obtain comprehensive, valid, and reliable patient questionnaires within the context of health care delivery process. Patient satisfaction surveys should be integrated as part of a comprehensive assessment of patient satisfaction and treatment outcomes, combining subjective and objective findings in order to create a more complete picture of overall patient care.

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