

Unexpected Hospital Admissions from a Remote Outpatient Surgicenter

Raymond A. Dieter, Jr., M.D., President^{1,2}, **Janet Smith,** Clinical Coordinator¹, **Tony Fato,** Business Manager¹, **Sandy Berger,** Director of Nursing¹

¹The Center for Surgery, ²International Healthcare and Surgery Center Consultant, Past President International College of Surgeons,

Correspondence to: Raymond A. Dieter, the Center for Surgery,

475 E. Diehl Rd., Naperville, IL 60563 e-mail: tfato@centerforsurgery.com, Fax: (630) 799-0223

Background: A remote nonhospital outpatient surgical facility in the western suburbs of Chicago has been functioning for ten years. A review of their consecutive patients and admission rate was carried out from the day of opening.

Design: A retrospective study of all patients admitted from the facility to the hospital is presented.

Methods: 158,408 surgical diagnostic and therapeutic procedures were performed over a ten-year period.

Results: 128 patients were admitted to the hospital for treatment of their problems consequent to treatment at the Center for Surgery. The causes of admission included pain, nausea and vomiting, cardiac, respiratory and bleeding considerations.

Conclusions: Outpatient surgical treatment may be provided on a large-scale basis away from the hospital with low hospital admission rates and low complication rates. The patients thus are able to return to their homes on the same day of the procedure in an efficient, economic, and less time-consuming manner.

Introduction

Each year we see an increasing number of patients requiring surgical or interventional procedures - both diagnostic and therapeutic. As these procedures increase in number, so do the costs and the considerations for patient and family economy and efficiency. Many of these procedures may be performed on an outpatient basis, and thus outpatient oriented surgical facilities are being developed around the world, a large impetus coming from the United States and North America.

We developed the concept in 1990 and, after appropriate planning, constructed a surgicenter (The Center, CFS) to care for outpatients away from the hospital. This facility was built seven miles from the closest hospital and opened in 1994. Because of our continued concern for the safety of the patients utilizing this facility, we reviewed our ten-year treatment and care experience of these patients. Thus, the quality improvement study was carried out to review all hospital admissions for a ten year period from the date of opening in 1994 to 2004.

Patients and Methods

Upon opening our facility, a computerized program was developed in which each patient

entering our facility was separately identified and recorded. This record included their personal data such as birth date, name, address, insurance company, and method of payment, procedure to be performed and estimated time to perform the procedure. In addition, records were maintained to show the time of entry to the facility, and the time involved in each of the steps for their care while at the Center. This included waiting time, registration time, preoperative time, operative time, recovery Phase I, recovery Phase II and discharge timing. The program was, in addition, established with definitions of surgical procedures, case procedures and information recovery methods so that various patients' data may be accessed for review.

Following discharge, each patient entering the facility was then contacted by telephone at their home or business the next day, and when necessary on additional days, to establish their progress and recovery. Any patient admitted to the hospital for whatever reason was recorded and their chart recovered. We then reviewed the chart of each patient admitted and categorized the type of procedure and the reason for admission. We summarized this data into appropriate tables and reviewed the data for any potential future healthcare recommendations. The patients treated at the

facility varied in age from 1 month to 94 years of age and included both the male and female sex.

Results

Review of our 158,408 surgical procedures performed over ten years demonstrated that 128 patients were admitted to the hospital. This admission rate was 0.14% of our patients having surgical procedures. The patients were admitted either directly from the surgicenter or after having been discharged home and then having difficulties requiring further medical treatment. During this period of time, 120,876 different outpatient diagnostic or surgical treatment admissions were made to the Center. These patients had 158,408 surgical procedures. As the Center became more popular, the number of patients treated continued to increase from 1317 patients the

first year to 14,900 patients the last full year of the study.

The maximum number of patients admitted to the hospital per year was 18. The patients were admitted by each specialty using the facility - this being a multispecialty surgical facility. Table 1 demonstrates the number of cases per specialty and the number of hospital admissions. As one notices, some specialties are more adaptable to outpatient surgery centers than others. Thus, the caseload for GI, Ophthalmology and Orthopaedics was higher than for other specialties. The reason for inpatient admission was also documented. (Table 2) As the patients had a number of medical problems develop while at the Center, they were thus admitted for more than one reason in a number of instances, such as pain and nausea and vomiting.

Table 1. Hospital Admissions by Specialty

Specialty	Number of Patients	Number of Admissions
GI	21,287	20
Ophthalmology	25,200	8
Ear, Nose and Throat	7,413	15
General Surgery	12,044	31
Orthopaedics	16,061	30
Gynaecology	1,172	3
Podiatry	2,525	2
Urology	5,941	10
Pain Service	8,968	4
Plastic Surgery	2,661	5
Additional Specialties	142	0

Table 2. Reason for Hospital Admission

Cause	Number Of Patients
Cardiac	23
Respiratory	17
Bleeding	18
GI	21
Pain	34
Nausea and Vomiting	10
Miscellaneous	10
Observation	7
Metabolic	5
Infection	4
No Adult at Home	3
Planned Admission	3

Table 3. Admissions for Various Procedures

PROCEDURE	NO OF ADMISSIONS
Colonoscopy	15
Cholecystectomy	12
Hernia (open or laparoscopic)	9
Gastroscopy	4
Cataract	5
Sinus Surgery	8
T & A	4
Haemorrhoids	3
Laparoscopy	2
Arthroscopy	9
Hand Surgery	7
Radius/Ulnar Fracture	5
Hysteroscopy	3
Removal of Orthopaedic Hardware	3
Cystoscopy with Suspension	6
TUR	2
Nerve Blocks	4
Breast Reconstruction	4

The patients were admitted to six area hospitals, with two of those hospitals having the majority (119) of the admissions. The patients were discharged home from the hospital on the same day in 4 instances, after close observation in 13 cases and by the second day in 67 instances. (66%) Twenty patients stayed for several days. Twenty-five of the admitted patients had no anaesthesiologist. There were three anaesthesiologists who cared for five or more of the admissions, five anaesthesiologists who treated 2-5 patients and fifteen anaesthesiologists who treated one patient. Four surgeons had 5 or more admissions, 27 physicians had 2-4 admissions and 29 physicians had one admission.

Of interest in reviewing these patients, the months of May and January had the highest number of admissions: May with 18 and January with 14. June, September and November had the fewest number of admissions - 6 and 7.

Discussion

In reviewing these patients we found that there were multiple reasons why our same day procedure patients were admitted to the East and Central African Journal of Surgery

various inpatient hospital facilities. Cardiac indications included ten patients with arrhythmias and eight with chest pain. Respiratory considerations included ten patients having difficulty breathing or laryngospasm, four patients with diminished oxygen saturation and two patients with pulmonary embolus. Active bleeding was noted in eleven patients as well as blood was found on GI endoscopy. The gallbladder patients were an interesting separate group of patients.

There were over 600 patients who had laparoscopic cholecystectomy and who were discharged between 48 minutes and two hours after surgery was completed. Twelve of these patients were admitted to the hospital for 16 reasons including pain (3), conversion to open (2), the finding of a gangrenous gallbladder (2), as well as pulmonary embolus and common bile duct stones being found. No deaths occurred. Other GI causes of admissions for non-cholecystectomy patients included perforation of the colon at endoscopy, the finding of a malignant tumour on endoscopy, or oesophageal tear during balloon dilatation.

Metabolic admission causes included diabetes and dehydration. The finding of frank pus at surgery also required hospitalization. Pain symptoms and nausea and vomiting were a major cause for admission, and three patients had seizures and thus were admitted. There were no deaths at the Surgicenter, however, there were concerning situations. For example, a patient waiting to have bronchoscopy developed chest pain prior to going into the operating room. Immediate EKG monitoring demonstrated an acute myocardial infarction. He thus was admitted to the hospital and bronchoscopy performed several days later demonstrated a non-resectable carcinoma of the lung.

Review of these patients and their medical problems demonstrates the large variance in the type of patient, the age of the patient and the procedure to be performed. Continued monitoring, questioning and interviewing preoperatively were found to be very important in alerting the medical and administrative staff to potential problems prior to the initiation of any treatment. The findings of this study demonstrate the extremely low admission rate from the Center for Surgery

(CFS) to the hospital as well as the extremely low morbidity and mortality. Post discharge, one patient did expire from a perforated viscus and one patient died of a replaced thoracic aortic aneurysm after ocular surgery. The national average is that 1 to 4 patients per 100 patients operated in outpatient Surgicenters are admitted to the hospital. The Center for Surgery average admission rate was 0.14%.

The findings suggested that continued close monitoring of patients and their pre-existing medical problems is an important part of the care and treatment of the patient. In addition, continued monitoring of the patient and the procedures to be performed in the Center requires each of the staff members to be alert to potential concerns. With continued due diligence and close observation, one may minimize the number of patients admitted to the hospital from an outpatient surgery facility.

However, in comparison of these admission rates to other centers, these results are far below nationally advertised hospital outpatient surgery procedures or hospital inpatient surgery procedures.

Summary

The remote outpatient non-hospital non-overnight surgicenter may treat multiple medical problems safely, efficiently and with few hospital admissions - less than 1%. The Center for Surgery had one patient admitted for every 703 patients treated (0.14%), one patient admitted for every 803 cases (0.12%) and one patient admitted for every 1238 procedures (0.08%). We continue to recommend the increased utilization of outpatient remote same day surgery centers for increasing complex medical problems.