Original

The Impact of Preoperative Anesthetic Assessment on Surgical Success: Investigating How Comprehensive Evaluations of Comorbidities and Risk Factors Optimize Patient Care and Reduce Complications

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Abstract

Background: Evaluating patients before surgery through an anesthetic assessment helps find out about their health problems, determine risks and choose how to manage their care during surgery. Everyone agrees that careful assessment by surgeons before surgery helps reduce possible issues during surgery and improves patient attention.

Aim: This study was done to check the effect of preoperative assessment of anesthesia on the success of surgery by judging whether a detailed review of comorbidities and risk factors affected both intra- and postoperative outcomes.

Methods: The study took place at Ayub Teaching Hospital Abbottabad and involved reviewing 84 patients who went through elective surgeries from May 2024 to April 2025. All patients had an evaluation before the operation which looked at their medical history, any other health problems, physical well-being and lab test results. Complications, stability during surgery and postoperative progress were studied alongside the details found and actions taken in the preoperative assessment.

Results: Approximately 71.4% of the patients were quickly identified as having important comorbidities because of a thorough anesthetic evaluation. Before surgery, doctors performed optimizing measures such as prescribing different medicines and referring patients to specialists, in 53.6% of situations. Among patients, both intraoperative complications and postoperative morbidity were reduced more often in those who had detailed assessments when compared to patients with basic assessments ($p<0.05$ for complications and $p<0.01$ for morbidity). Those patients who were assessed fully spent less time in the hospital and recovered more quickly.

Conclusion: As a result, performing assessments before surgery helped doctors address medical problems and lower patients' risks during surgery. Performing complete pre-surgery checks is vital for making sure patients are protected, complications are lower and surgery goes as planned.

Keywords: Preoperative assessment, anesthetic evaluation, surgical outcomes, comorbidities, patient safety, perioperative risk, complication reduction.

1. INTRODUCTION:

Experts have realized for years that preoperative assessment of anesthetic needs is essential for caring for patients before surgery. This procedure helped doctors find and deal with any existing health problems, evaluate the possible dangers of the surgery and select a personalized anesthetic approach. Because of this approach, patient safety rose, surgical outcomes improved and perioperative risks were lowered [1]. When surgeries became more involved and patients had a wide range of conditions, the value of initial assessments became even higher.

In the past, anesthesiologists would evaluate the heart, lungs, kidneys, liver and metabolism of a patient, plus a full review of history, surgery and medication. Particular efforts were made to find cases of high blood pressure, diabetes, COPD and coronary artery disease, since they increase the risk for both intraoperative and postoperative care [2]. The process also covered looking at allergies, problems with past anesthesia care and the patient's habits, including drinking or smoking. All these things were required to create a full picture of risk for every patient.

Over the last few years, there have been many studies showing that planned preoperative anesthetic evaluations contribute to safer surgical outcomes. Because of these assessments, it was possible to discover and address unsupervised comorbidities early, send patients to specialists when necessary and change the anesthetic plan to meet individual risks [3]. Also, they helped guide doctors about whether patients should receive extra monitoring in the hospital or be sent to a critical care unit. Another benefit was that these evaluations helped patients understand their anesthesia, feel less anxious and increase their adherence to orders given before surgery [4].

Even though preoperative assessments were known to help, there were big differences in how they were done in different hospitals. While some hospitals held traditional multispecialty preoperative clinics, others preferred short, preoperative consultations by the surgeon. Often, the lack of clear steps meant that important risks could be missed and chances to improve the process were lost, mainly for patients with many other health conditions or needing major surgical procedures [5]. Therefore, there was a stronger push to develop complete and standardized preoperative assessment processes that fit each patient.

Because value-based care has become the trend globally, there is now greater emphasis on improving perioperative care. Lowering morbidity and mortality in the operating area both improved people's health and saved on healthcare costs due to shortened hospital time, fewer readmission cases and fewer post-surgical complications [6]. In this situation, giving careful attention to anesthesia in advance of surgery became a main method to improve safety and effectiveness.

Since both surgical and anesthetic care are always changing, this study analyzed the influence of thorough preoperative anesthetic appraisals on surgical results. It was examined how considering comorbidities and risk factors in a systematic way affected patient care, surgical results and the risk of complications occurring during or soon after surgery [7]. The researchers studied available clinical data and outcomes to learn whether carrying out these assessments actually decreased morbidity, led to more satisfied patients and made surgical procedures more successful. The findings helped establish that routine preoperative anesthetic assessments improve care for surgical patients in many clinical settings [8].

2. MATERIALS AND METHODS:

Ayub Teaching Hospital Abbottabad, Pakistan, a large tertiary care teaching hospital, was the setting of this study, as many surgical procedures are carried out there. Data was collected from May 2024 to April 2025 and all research was completed within this time. Prior to us starting the study, we got ethical permission from the institutional review board of PIMS and got informed consent from every participant.

A total of 84 adult patients took part in the study, all of whom were about to have elective surgery with general or regional anesthesia. Pre-selecting participants was the selection method used. Only patients who were older than 18, of either gender, chose to have a preoperative assessment and were scheduled for a non-cardiac surgery were included.

Patients who needed surgery urgently and patients without complete medical records were excluded from the study, as were people who declined to take part.

Data were gathered by looking back at hospital records and interviewing participants alongside clinical assessments. All patients in the study had a complete preoperative anesthetic evaluation.

I evaluated the patient's medical records, did a general exam, checked their muscle strength and coordination and noticed the presence of diabetes, hypertension, chronic kidney disease, chronic obstructive pulmonary disease (COPD), ischemic heart disease and other conditions. Other factors we considered were age, BMI, smoking status, alcohol intake and earlier complications with anesthesia.

All patients were assigned their American Society of Anesthesiologists (ASA) physical status classification by an experienced anesthesiologist. Information from laboratory tests and appropriate images was studied to aid in preoperative planning. If patients had health issues related to their heart, lungs or endocrine system, we asked for advice from specialists before surgery.

The outcome of the surgery was measured using various factors such as intraoperative difficulties, abnormal blood pressure during surgery, if an unplanned ICU admission was needed, the patient's recovery period and occurrence of infections or slow wound healing following surgery. Details about hospital length of stay and readmission within 30 days of surgery were gathered for study.

Our study compared groups A and B: Patients in Group A received a full and standardized preoperative assessment, while Group B was made up of patients whose preoperative assessments were not done properly due to time pressures or poor documentation. Outcomes from the two groups were checked to understand how careful exams before surgery affect the rate of successful procedures and negative impacts.

All data were entered in Microsoft Excel and analyzed by using SPSS version 25. For demographic data and comorbidities, I determined means, standard deviations and frequencies. The data for both types of variables were analyzed by using chi-square tests and independent t-tests. Any p-value less than 0.05 was thought to be significant.

The assessment approach was standardized and information was put into the system by workers who did not know about the study hypothesis.

The study showed that detailed anesthetic assessments are essential for improving how surgeries turn out, preventing complications during surgery and keeping patients safe.

3.RESULTS:

In total, 84 patients who had elective operations were a part of the study.

Before the surgery, participants were assessed with a full anesthetic review which focused on health history, medications, health status and laboratory work. Patients were on average 52.3 years old (range 37.8 to 66.9) and males and females were present in almost equal numbers.

Table 1: Distribution of Patient Comorbidities and Associated Intraoperative Complications:

Comorbidity	Number of Patients (n=84)	Percentage (%)	Intraoperative Complications Observed	Complication Rate (%)
Hypertension	38	45.2%	3	7.9%
Diabetes Mellitus	26	30.9%	4	15.4%
Ischemic Heart Disease	14	16.7%	3	21.4%
Chronic Kidney Disease	6	7.1%	2	33.3%
No Comorbidity	18	21.4%	0	0%

The table highlighted how frequently comorbidities were found among participants and their link to problems that arose during surgery. Hypertension was seen in just over half of the patients involved, making it the principal comorbidity. Even though this condition is not uncommon, complications developed less often (7.9%) than with other conditions. Out of our patients, 30.9% had diabetes mellitus and experienced higher complication rates of 15.4% which were mainly related to slow healing and blood sugar changes during the operation. Of the patients studied, ischemic heart disease was found in 16.7% and complications occurred in 21.4% of these patients, including brief drops in blood pressure and heart rhythm irregularities during their surgery.

Though CKD appeared in just 7.1% of patients, it was linked to the highest complication rate of 33.3%. In this group, some patients experienced too much fluid and an imbalance of electrolytes. Of those without another illness, only 1 in 5 experienced no issues during surgery, underlining the fact that little or no related systemic illness limits the risks of surgery. It is clear from the data that finding and controlling preexisting medical issues through anesthesia assessment can successfully predict and treat potential hazards associated with surgery.

Table 2: Impact of Preoperative Anesthetic Assessment on Postoperative Outcomes:

Assessment Category	Number of Patients	Postoperative Complications Observed	Length of Hospital Stay (Mean ± SD)	Surgical Success Rate
Comprehensive Evaluation (n=60)	60	5 (8.3%)	4.1 ± 1.6 days	96.7%
Partial/Basic Evaluation Only (n=24)	24	7 (29.2%)	6.3 ± 2.4 days	79.2%

Those undergoing complete preoperative assessments had compared results with those patients who received only minimal preoperative care. Of the 60 patients given detailed preoperative examinations, only 8.3% developed complications including infection, nausea or trouble healing their wounds. The average stay in hospital for these patients was less than 5 days (4.1 ± 1.6 days) and more than 96% of them recovered well after their surgery with no readmission or unsuccessful second procedures required.

Patients whose evaluation was only basic had a much higher possibility of things such as infections, needing further operations and being admitted to the ICU (29.2%). They stayed in the hospital for longer, an average of 6.3 ± 2.4 days and less of their surgeries were successful, at only 79.2%.

It was found that giving careful attention to anesthetic evaluations improved how surgeries turned out. If risk factors were known ahead of time, medical conditions were well controlled and care during the procedure matched the patient's needs, the number of complications decreased significantly.

4. DISCUSSION:

The researchers found that thorough anesthetic evaluations before surgery were important for better treatment outcomes and fewer problems after surgery. The analysis showed that considering comorbidities, the patient's condition and risk factors made planning before, guiding during and caring for after surgery more effective [9]. Patients with a clear preoperative assessment had a lowered risk of complications, discharged from the hospital sooner and encountered fewer surprises while undergoing the operation.

The study proved that handling conditions ahead of the operation such as heart disease, diabetes, lung disorders and kidney problems, matters greatly when developing an anesthesia plan [10]. People with organized medical histories who were given targeted therapies, adjusted medications or pulmonary rehabilitation did better in their surgeries than people without these treatments. Therefore, the importance of individual care plans that arise from complete anesthetic exams was emphasized.

Delaying and cancelling surgeries was experienced less during the study period. Because anesthesia risks were identified early by the team, any modifiable issues were resolved prior to the procedure. It helped work in the OR become more effective and caused less anxiety for patients [11]. We also relied on the American Society of Anesthesiologists (ASA) physical status classification, Revised Cardiac Risk Index and STOP-BANG questionnaire to sort patients as to their risk of developing problems during or after surgery.

These results indicated that patients who had anesthetic workups improved the coordination among multidisciplinary staff. High-risk cases saw surgeons, anesthesiologists, internists and nursing staff work more effectively together [12]. By working together, the team made sure surgical care was planned and that ready contingencies were made for patients with difficult medical backgrounds. The early assessment process made it easier to communicate and succeeded in smoother actions both during and after surgery.

But the study pointed out a few limitations as well. Assessment quality varied by institution, the recording practices differed and the skill levels of the anesthesiologists may have resulted in the differences we found [13]. The usefulness of a full patient assessment was seen more in those facing serious surgeries than in patients undergoing minor ones. From this, it became clear that even when preoperative evaluation was necessary for all patients, the level of assessment should depend on the kind of surgery and the patient's characteristics.

It was also shown that evaluations before surgery helped educate patients. When patients received explanations of risks, the anesthesia plan and possible complications from clinicians, they said they felt better and more comfortable during surgery. As a result, there was likely less anxiety during surgery and

better following of after-surgery advice, helping patients to recover more effectively.

This study proved that conducting a preoperative assessment of anesthetics is important for surgical procedures [14]. Thanks to these evaluations, identifying risks, supporting early treatment and improving communication between teams, the number of surgical complications went down and the outcomes for patients improved. The research indicated that conducting thorough standardized assessment before every surgery could make the whole process safer and more efficient. More research is needed to sharpen tools for judging risks and ensure they are used similarly in all healthcare settings [15].

V.CONCLUSION:

The results showed that thorough preoperative anesthetic evaluations play an important role in determining surgical success. Accurate detection of comorbidities and risk factors led to more effective care during surgery, a better plan for each patient and faster intervention when necessary. Because of these tools, intraoperative and postoperative complications were reduced and safer and better results were achieved for patients. It was seen in studies that preoperative evaluations prevented many problems and made hospital stays shorter, meaning an anesthesiologist should be part of planning any surgery early. In addition, the results highlighted that better patient care depends on cooperation among various healthcare professionals. Using structured anesthetic assessments during regular preoperative care was vital for ensuring excellent and speedy results in surgical treatment.

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