

Title: AN ANALYSIS OF POSTOPERATIVE MORBIDITY IN AGED SURGICAL PATIENTS  
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Increasing numbers of aged patients require anesthesia and surgery. We examined the records of a sample of aged perioperative patients, seeking a causal relationship between anesthetic course and postoperative outcome.

**METHODS:**

Appropriate institutional permission was obtained for these data collections. The sample consisted of all patients over age 64 who received general anesthesia for a scheduled operative procedure in a 350 bed referral hospital during a three month period. Postoperative patients were sent either to the Recovery Room (RR) where anesthesia recovery was measured or directly to an Intensive Care Unit (ICU). Patients still hospitalized on the seventh postoperative day were identified by the hospital computer system. An estimate of the amount of postoperative difficulty that each patient had experienced was obtained through a structured interview with the nurse most familiar with his recovery. Patients discharged before the seventh postoperative day were considered to have had negligible postoperative morbidity.

Two instruments were used to measure morbidity. The first, the Post Anesthesia Recovery Score (PARS)<sup>(1)</sup>, was recorded three times while the patient was in the Recovery Room, after 30, 60, and 120 minutes. It consists of a tally of points (0-2) in five areas of function: activity, respiration, circulation, level of consciousness, and color. A patient with a maximum score in all areas achieved a PARS of 10.

An estimate of the patient's functional impairment since surgery was obtained on the seventh postoperative day by completing a Nursing Assessment Index (NAI)<sup>(2)</sup> for each patient still hospitalized. Each patient's postoperative course was rated in terms of functional impairment to each of seven organ systems. Here, a score of zero indicated no morbidity and a score of three indicated major difficulty. A patient with a NAI = 0 was accepted as having had no postoperative morbidity.

Estimates of immediate postoperative condition (PARS or ICU admission) were compared with outcome on the seventh postoperative day (discharged, hospitalized without morbidity, hospitalized with morbidity). The Chi Square statistic was used to test contingency tables constructed,  $p < 0.05$  was accepted as significant.

**RESULTS:**

The study sample consisted of 151 aged postoperative patient-- 37 were admitted directly to the ICU and 114 to the RR. All ICU patients were still hospitalized on the seventh postoperative day as were 65 RR patients. Measurable postoperative morbidity (NAI > 0.5) was found in 22 of 37 ICU patients and 29 of 114 RR patients on the seventh postoperative day ( $p < 0.05$ ). Three patients died in the hospital.

A predictive relationship was found both between low PARS in the RR and postoperative morbidity and low PARS in the RR and continuing hospitalization on the seventh postoperative day; 30" data follows, similar results were found at 60" and 120".

30" RR PARS vs MORBIDITY ( $p < 0.05$ )

	MORBID	NOT MORBID	TOTAL
PARS < 10	24	65	89
PARS = 10	5	20	25
	29	85	114

30" RR PARS vs HOSPITAL DISCHARGE ( $p < 0.05$ )

	HOME	NOT HOME	TOTAL
PARS < 10	34	55	89
PARS = 10	15	10	25
	49	65	114

Of those 102 elderly patients still hospitalized on the seventh postoperative day, the morbidity scores were:

	NONE	MILD	MOD	SEVERE
Cardiovascular	85	5	5	7
Respiratory	80	13	5	4
Central Nervous	89	9	2	2
Urinary	83	12	6	1
Hepatic	101	0	0	1
Gastrointestinal	78	18	5	1
Other	90	8	2	2

**DISCUSSION:**

Healthy patients who are awake and stable soon after anesthesia and surgery are often those with minimal perioperative morbidity. These data suggest that prolonged recovery of aged patients may itself be associated with prolonged hospitalization. Whether or not shorter acting anesthetic drugs and procedures planned for more rapid awakening would reduce hospital morbidity in this same population is not known.

**REFERENCES:**

1. Aldrete JA, Kroulik D: A Postanesthetic Recovery Score. *Anesthesia and Analgesia* 49:6)924-934, 1970
2. Owens WD, Dykes MHM, Gilbert JP, et al: Development of Two Indices of Postoperative Morbidity. *Surgery* 77:586-592, 1975