

Title: BENEFIT OF ELECTIVE ICU ADMISSION FOR CERTAIN OPERATIONS

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Introduction. In our institution, all patients undergoing certain operations are admitted to an intensive care unit (ICU) for observation because the potential for critical problems is considered high. To determine if this use of ICU beds is justifiable, we studied the type and severity of problems encountered by these patients in their first postoperative day.

Methods. Elective ICU admissions were based solely on the type of surgery without regard for patient status. However, patients were excluded from this study if their status on admission implied that they needed intensive care rather than just observation (e.g. inotropic drug infusion, pulmonary artery catheter). Patients admitted with endotracheal tubes were included for operations for which such management is routine. Before discharge, the following data were collected from each patient's chart: every therapeutic intervention and the reason for their institution; the time each intervention was started and its duration; and whether the problem was resolved. A total of 22 types of therapy were instituted for one of 37 reasons. To analyze this data, the reason for each therapy was graded from 1 to 4 as follows: 4- problems requiring immediate attention (e.g. acute hypotension); 3- problems for which the need for immediate treatment might be controversial although we believed an immediate response was warranted (e.g. acute hypertension); 2- problems for which therapy could be delayed for a maximum of two hours (e.g. oliguria); 1- problems not requiring treatment within two hours (e.g. Hct. of 29%). A two hour cutoff was used for grades 1 and 2 because vital signs are taken routinely at this interval when postoperative patients return to their rooms. A patient was considered to have potentially benefitted from the ICU if at least one therapy was begun for a grade 4 problem or more than one therapy was started for grade 3 problems. This classification was applied to each patient for that portion of the first postoperative day spent in the ICU. Multiple therapies given at different times for a single problem were graded separately (as if the problem was new) whereas a single therapy was graded only once regardless of its duration.

Results. Of 388 consecutive elective admissions, 316 met the criteria for study entry from which 275 patients belonging to seven operative groups were analyzed in detail. The remainder were excluded because their operative groups had less than five

patients. The percentage of these 275 patients who benefitted from intensive care is given in the table. To determine if a four hour recovery room stay would have been as beneficial, these percentages are also given excluding any events treated within the first four hours. Most problems were successfully resolved and all intubated patients were extubated uneventfully. The most common problems were hypo- and hypertension. Almost 60% of the carotid group required treatment for hypotension. There was no correlation between ASA class and the problems encountered.

Discussion. These results indicate that except for anterior cervical laminectomies, the routine ICU admission of patients having the surgery shown in the table seems justified. The many serious problems encountered would not be avoided by a prolonged (4 hour) stay in a recovery room. We recognize that there may be disagreement about the need and time frame for reacting to the problems encountered. However, we have biased our classification scheme to minimize the role of an ICU by: 1) requiring more than one grade 3 problem or multiple therapies at different times for a single grade 3 problem to consider the ICU beneficial; 2) grading a therapy only once regardless of its duration. We conclude that an important percentage of patients electively admitted to the ICU for observation only because of the nature of their surgery benefit from overnight intensive care because potentially serious problems are immediately recognized and treated.

OPERATIVE GROUP	TOTAL NUMBER OF PATIENTS	BENEFITED FROM ICU	
		TOTAL STAY	AFTER 4 HOURS
MAJOR VASCULAR	59	34%	29%
PERIPHERAL VASCULAR	59	29%	26%
CAROTID ENDARTERECTOMY	48	67%	56%
SUPRATENTORIAL CRANIOTOMY	54	13%	11%
SUBTENTORIAL CRANIOTOMY	17	18%	18%
INTRACRANIAL VASCULAR	26	50%	35%
ANTERIOR CERVICAL LAMINECTOMY	12	0%	0%