

Title: OXYGEN DESATURATION FOLLOWING TIME IN THE RECOVERY ROOM

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INTRODUCTION: Oxygen desaturation in the postoperative period has been demonstrated during transport to the recovery room¹ as well as during the recovery room stay.² As a result it is common practice to use supplemental oxygen during this time. The incidence of hypoxia during transport from the recovery room to the patient's room has not been studied. These patients do not routinely receive oxygen supplementation despite the fact that many of these same patients will receive oxygen supplementation upon arrival at their nursing station.

METHODS: After obtaining institutional review board approval, 93 postoperative patients were studied during transport from the recovery room to the postoperative surgical floor. Patients in the study ranged from ASA class I to III and had undergone a variety of abdominal, urologic, orthopedic, ophthalmologic, and ENT operations. Anesthetic management and management during the stay in the recovery room was at the discretion of the consulting anesthesiologist. The only criteria for entry into the study was that each patient was scheduled for routine transport to their hospital floor without supplemental oxygen and that they had had an uneventful stay in the recovery room and had not had pulse oximetry monitoring while there. Each patient entered into the study had a pulse oximeter (Nellcor® N-100) attached to a finger after discharge from the recovery room and transcutaneous oxygen saturation (SaO₂) was recorded at the time the patient left the recovery room and each minute thereafter until arrival in the patient's hospital room. The paired t-test was used for statistical analysis. P < .05 was considered significant.

RESULTS: There was a statistically significant difference in SaO₂ from the time of the recovery room departure to the minimum value obtained during transport.

Twenty-five of 93 cases had a minimum SaO₂ of less than 90% during transport. Of these 25, 8 had a SaO₂ of less than or equal to 90% prior to transport from the PAR; 6 had a SaO₂ of 90 or 91% prior to departure; 8 had a SaO₂ of 92, 93, or 94% prior to departure; and 3 had a SaO₂ of greater than or equal to 95% prior to departure from the recovery room.

Of the 76 patients who had SaO₂ of greater than or equal to 92% at the time of departure from the recovery room, only 11 (14%) had a minimum SaO₂ of less than 90% during transport. Of the 47 patients who had a SaO₂ greater than or equal to 95% at the time of departure from the recovery room, only 3 (6%) had a minimum SaO₂ of less than 90% during transport.

The table shows the mean changes in SaO₂ and S.D. with time after discharge from the recovery room.

DISCUSSION: The resurgence in the clinical use of pulse oximetry has brought about a startling awareness of the incidence of hypoxemia during the perioperative period.

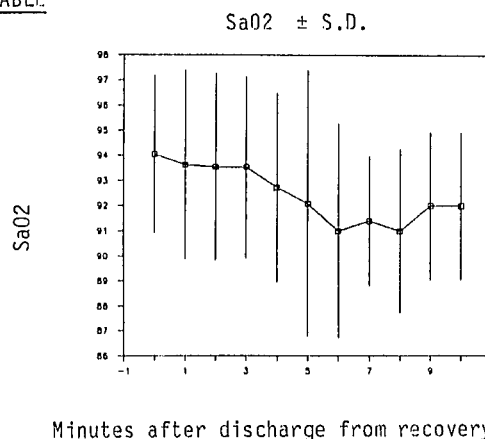
Following a stay in the recovery room, during which time supplemental oxygen is provided to almost all patients, the vast majority of these patients have their oxygen discontinued and are transported breathing room air for up to 10 minutes until they arrive at a postsurgical hospital ward.

Traditionally, the decision to administer supplemental oxygen during transport is based on the patient's color, respiratory status, level of consciousness, and vital signs and is made by the anesthesiologist. All of these patients were seen prior to discharge from the recovery room and were assessed as stable and not in need of supplemental oxygen during transport.

This study shows a surprisingly high (27%) incidence of oxygen desaturation to less than 90% in this group of patients. Although some of these patients had borderline SaO₂ at the time of discharge, none had clinical signs severe enough to be considered as significant by the attending anesthesiologist. Three of the 25 had a normal SaO₂ (greater than or equal to 95%) at the time of discharge from the recovery room.

Based on this study, we recommend that all patients should have SaO₂ measured prior to discharge from the recovery room (while breathing room air, if the intent is to transport the patient in this fashion). Those patients with a SaO₂ of less than 95% should be transported with supplemental oxygen.

TABLE



REFERENCES:

1. Tyler IL, Tantisira B, Winter PM, Motoyama EK: Continuous monitoring of arterial oxygen saturation with pulse oximetry during transfer to the recovery room. *Anesth Analg* 64:1108-1112, 1985
2. Buschman A, Morris R, Warren D, Philip J, Raemer D: Pulse oximetry and the incidence of hypoxemia during recovery from anesthesia. *Anesthesiology* 67:A481, 1987