

The Post-Anesthesia Recovery Score Revisited

To the Editor:

For nearly 25 years, the Post Anesthesia Recovery (PAR), or Aldrete, score, has been applied in Postanesthesia Care Units (PACU) to clinically assess the physical status of patients recovering from the anesthetic expe-

rience and to follow their awakening process. It has also served as a basis to discharge patients from the PACU to either the hospital ward or their homes after ambulatory surgery. This method of assessment has been adopted as the suggested criteria for discharge from the PACU by the Joint Commission of Accreditation of Health Care Organizations in the United States, and by similar regulatory agencies in Mexico, Colombia, Panama, Argen-

Table 1. The Aldrete Score

			Admission	5 min	15 min	30 min	45 min	60 min	Discharge
Able to move 4 extremities voluntarily or on command	2								
Able to move 2 extremities voluntarily or on command	1	Activity							
Unable to move extremities voluntarily or on command	0								
Able to breathe deeply and cough freely	2								
Dyspnea or limited breathing	1	Respiration							
Apneic	0								
BP \pm 20% of pre-anesthetic level	2								
BP \pm 20% to 49% of pre-anesthetic level	1	Circulation							
BP \pm 50% of pre-anesthetic level	0								
Fully awake	2								
Arousable on calling	1	Consciousness							
Not responding	0								
Able to maintain O ₂ saturation >92% on room air	2								
Needs O ₂ inhalation to maintain O ₂ saturation >90%	1	O ₂ Saturation							
O ₂ saturation <90% even with O ₂ supplement	1								
TOTALS									

Modified from Aldrete JA, Kroulik D: A postanesthetic recovery score. *Anesth Analg* 1970; 49:924-34.

BP = blood pressure.

tina, Brazil, and Spain. In addition, it has been implemented in many hospitals in other countries.

Two significant changes have taken place in the practice of anesthesia that merit substantial modification of the PAR score as it was initially described in 1970.¹

1) Soliman *et al.*² first noted that the criteria for discharge derived from the PAR score did not correlate with the presence of hypoxemia in children. Chung *et al.*³ proposed to incorporate values of oxygen saturation (SaO₂) instead. Since pulse oximetry has been accepted as a more precise means of measuring adequate blood oxygenation, I have replaced the color index from the original score with values of SaO₂ with its respective 0, 1, or 2 grading (Table 1). This change also complies with the concern expressed by Kamal *et al.*,* who also proposed substituting SaO₂ for color. Moreover, this index settles the issue of when a patient needs to receive supplemental oxygen (O₂) in the immediate postanesthetic period. With few exceptions, when SaO₂ is 92% or higher on room air, there is no need to routinely administer O₂, as has been recently noted by Downs.⁴

2) The other trend that has markedly changed our practice is the popularity of ambulatory anesthesia. This particular approach to surgical care has required that we not only provide criteria for discharge from the PACU, but also criteria to define "street fitness" so that patients can be discharged home. Essentially, five other variables pertinent to "same day surgery" patients were added to the modified PAR score and similarly graded 0, 1, or 2, according to the criteria described in Table 2 and elaborated in detail in another publication.⁵ These two methods of assessment have been tested and found to be clinically useful, reliable, and easy to apply, and they have been used as complementary tools for the implementation of peer review and quality assurance, among others.

This modification includes five signs as follows:

- 1) Appearance of the dressing. This is in the event blood, urine, or any other fluid drains through a wound.
- 2) Severity of the pain at the surgical site, or at any other related point prior to discharge. Also consider the administration of an appropriate analgesic to relieve or ameliorate the pain when that analgesic may produce somnolence.
- 3) Ability to stand up and ambulate. These functions allow patients to care for themselves and accomplish their most basic activities, *i.e.*, walk to the bathroom and get dressed, among others.
- 4) Tolerance of oral fluids. This is essential to take oral medications and eventually to ingest foods.
- 5) Ability to urinate spontaneously. This is important because some analgesics and muscle relaxants may affect this function. In case of subarachnoid or epi-

*Kamal GD, Hassell SM, Pyle RS, Carnes RS: Measuring arterial hemoglobin saturation (SaO₂) after anesthesia: time for new post anesthesia recovery Score [Abstract]. *Anesth Analg* 1992;74(Suppl): 156.

Table 2. Modified Postanesthetic Recovery (PAR) Score for Patients Having Anesthesia on an Ambulatory Basis

Able to move 4 extremities voluntarily or on command	2	
Able to move 2 extremities voluntarily or on command	1	Activity
Unable to move extremities voluntarily or on command	0	
Able to breathe deeply and cough freely	2	
Dyspnea, limited breathing or tachypnea	1	Respiration
Apneic or on mechanical ventilator	0	
BP ± 20% of pre-anesthetic level	2	
BP ± 20% to 49% of pre-anesthetic level	1	Circulation
BP ± 50% of pre-anesthetic level	0	
Fully awake	2	
Arousable on calling	1	Consciousness
Not responding	0	
Able to maintain O ₂ saturation >92% on room air	2	
Needs O ₂ inhalation to maintain O ₂ saturation >90%	1	O ₂ Saturation
O ₂ saturation <90% even with O ₂ supplement	0	
Dry and clean	2	
Wet but stationary or marked	1	Dressing
Growing area of wetness	0	
Pain free	2	
Mild pain handled by oral medication	1	Pain
Severe pain requiring parenteral medication	0	
Able to stand up and walk straight*	2	
Vertigo when erect	1	Ambulation
Dizziness when supine	0	
Able to drink fluids	2	
Nauseated	1	Fasting-feeding
Nausea and vomiting	0	
Has voided	2	
Unable to void but comfortable	1	Urine Output
Unable to void and uncomfortable	0	
TOTALS		

*May be substituted by Romberg's test, or picking up 12 clips in one hand.

BP = blood pressure.

dural (lumbar or caudal) anesthesia, patients may be unable to void for some time, even after obtaining full recovery or sensory and motor functions.

These modifications were used to evaluate 750 adult ambulatory patients and to determine criteria for discharge: 462 (61.6%) patients reached 18 or more points

within an hour of arrival at the PACU; at 2 hours of observation, another 212 patients (28.2%) had met the criteria for street fitness, while 62 and 12 patients remained 3 and 4 hours, respectively, in the facility before discharge.

Two other patients were transferred to a hospital for overnight care. Therefore, I believe patients can be discharged to home when their total score is 18 or higher.

J. Antonio Aldrete, M.D., M.S.
Medical Director
Center for Pain Management
107 Melvin Street
Destin, FL 32541

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