

Patient's Recovery From Sedation For Daycare Procedures Using Post-Anaesthesia Discharge Scoring System

Dr.Vijayakumar Dokala¹, Dr.Vasudevarao Hanumanthu², Dr.Guntireddi pradeep³,
Dr.Bh.K.Vamsikrishna⁴, Dr.Pratibha⁵, Dr. Hemavijitha karatam⁶

Background & Objective: The simplification of the admission procedure and a shorter stay in hospital leads to less interference in patients' everyday life, and a faster return to the comfort of their own homes. Hence study was initiated with a objective to assess patient recovery from sedation for day care procedures using Post Anaesthesia Discharge scoring system (PADSS).

Material & Methods: A Prospective, randomized study conducted among study population undergoing elective surgeries under short general anaesthesia at GVP hospital, Visakhapatnam. Sample size was 104 calculated based on previous study¹ Group A was the control group and Group B was PADSS-group.² After surgery, the patients were followed up in the recovery room, and 20 min after the end of elective surgeries and re-assessed every 20 min, until two consecutive PADSS scores ≥ 9 were achieved. Data was entered in MS Excel and analysed by using SPSS software version 21.

Results: Recovery time was faster in PADSS group (56.8 ± 12.8) than in control group (92.1 ± 11.3) and this difference was found to be statistically significant ($p < 0.05$). About 51% of study participants in control group and 32% in PADSS group had mild delayed post discharge symptoms.

Conclusion: The Post Anaesthetic Discharge scoring system was safe clinical assessment and allows for an earlier patient discharge after day care surgeries done under sedation.

Keywords: Post anaesthesia discharge score, Recovery, Sedation

Introduction:

The decision to use premedication and the kind of premedication are influenced by national and cultural differences among countries^[1] and by the rules regulating the drugs use. Propofol Deep Sedation is frequently used in some countries such as United States, whereas conscious sedation induced by means of a combination of a benzodiazepine and an opiate is more frequently used in other countries such as Italy^[2-5] because of its excellent analgesic and sedative effects^[6]. The simplification of the admission procedure and a shorter stay in hospital leads to less interference in patients' everyday life, and a faster return to the comfort of their own homes. This also reduces the risk of severe postoperative complication such as cross-infections and venous thrombo embolism.

The decision to discharge a patient undergoing surgery is a major step in the hospitalization pathway, because it must be achieved without compromising the quality of care, thus ensuring the same assistance and wellbeing as for a long-term stay. The Post Anaesthetic Discharge Scoring System (PADSS), which considers six criteria: vital signs, ambulation, nausea/vomiting, pain, bleeding and voiding. Each criterion is given a score ranging from 0 to 2. Only patients who achieve a score of 9 or more are considered ready for discharge. At the time of discharge from the digestive endoscopy center, patients should be home-ready: they should be clinically stable and able to rest at home. Although the discharge after ambulatory surgery and anesthesia can involve legal implications ^[7,8].

Aim & Objective:

- To assess patient recovery from sedation for day care procedures using Post Anaesthesia Discharge scoring system (PADSS).

Methodology:

Study design: A Prospective, randomized study

Study setting: Conducted at the Anaesthesia department, GVP Hospital, Visakhapatnam.

Study period: 1 month, June-July 2023

Study population: study population undergoing elective surgeries under short general anaesthesia

- Inclusion criteria:
 - Patients aged between 18 and 60 years of age
 - both male and female.
 - ASA grade I & II.
- Exclusion criteria:
 - Refused
 - ASA grade III & IV
 - Psychiatric diseases or on longterm psychiatric drug addiction.
 - Pregnancy or lactation.

Sample size:

Calculated based on following formula. Based on previous study done by Trevisani L et al.^[10] considering the recovery time between groups.

$$n \geq \frac{\left(Z_{1-\alpha/2} + Z_{1-\beta} \right)^2 \left(\sigma_1^2 + \frac{\sigma_2^2}{r} \right)}{(\mu_1 - \mu_2)^2}$$

Alpha (α) = 0.05, Beta (β) = 0.2

Mean in group 1 (μ_1) = 95.14

Standard deviation in group 1 (σ_1) = 10.85

Mean in group 2 (μ_2) = 58.75

Standard deviation in group 2 (σ_2) = 18.67

Ratio (Group 2 / Group 1) = 1.0

The minimum sample size required for each group is 52

Study procedure:

Group A was the control group in which discharge decision to based on clinical evaluation. Group B was the study group in which the discharge will be based on the modified Post Anaesthetic Discharge Scoring System (PADSS-group).After surgery, the patients were followed up in the recovery room, and 20 min after the end of elective surgeries scored using the Modified PADSS Age, gender, blood pressure (BP), oxygen saturation (SpO₂), and heart rate (HR) were recorded. ASA status were recorded.Afterwards, they were re-assessed every 20 min, until two consecutive PADSS scores ≥ 9 were achieved. The investigator was called each patient 24-48 h after discharge to administer a standardized questionnaire, to detect any delayed complications.

Ethical considerations: After Institutional Ethics Committee approval, written informed consent was taken from all patients included in the study.

Study tool: The Post Anaesthetic Discharge Scoring System (PADSS) [10], which considers six criteria: vital signs, ambulation, nausea/vomiting, pain, bleeding and voiding. Each criterion is given a score ranging from 0 to 2. Only patients who achieve a score of 9 or more are considered ready for discharge.

Statistical analysis: Data was entered in MS Excel and analysed by using SPSS software version 21. Categorical data was represented as percentages and chi-square test was be used to know statistical significance. Quantitative data was represented in means and standard deviation and unpaired t test was used to know statistical significance between two groups. P value <0.05 was considered as statistically significant.

Observations & Results:**Tab 1: Gender distribution of study population**

GENDER	Group A (Control)	Group B (PADSS)	Total
MALE	26 (50%)	26 (50%)	52 (50%)
FEMALE	26 (50%)	26 (50%)	52 (50%)
TOTAL	52 (100%)	52 (100%)	104 (100%)
	p=1.0		

In the present study, Out of 104 study population, 52 (50%) were male and 52(50%) were female. Both male and female were equally distributed in both groups.

Tab 2: Distribution of study population based on mean age

Age	Group A	Group B
Mean	56.21	59.34
Standard deviation	10.57	11.64
	p=0.15	

In the present study mean age among Group A participants was 56.21 ± 10.57 years and among Group B was 59.34 ± 11.64 years.

Tab 3: ASA grade distribution of study population

ASA grade	Group A (Control)	Group B (PADSS)	Total
I	21 (40.4%)	22 (42.3%)	52 (50%)
II	31 (59.6%)	30 (57.7%)	52 (50%)
TOTAL	52 (100%)	52 (100%)	104 (100%)
	p=0.84		

Among Group A, 21(40.4%) were in ASA grade I and 31(59.6%) were in grade II and among Group B, 22(42.3%) were in ASA grade I and 30(57.7%) were in grade II.

Table 4 : Comparison of recovery time between two groups

Group	Mean recovery time (mins)	Standard deviation	P value
Group A (Control)	92.1	11.35	0.001
Group B (PADSS)	56.8	12.87	

Recovery time was faster in PADSS group (56.8 ± 12.8) than in control group (92.1 ± 11.3) and this difference was found to be statistically significant.

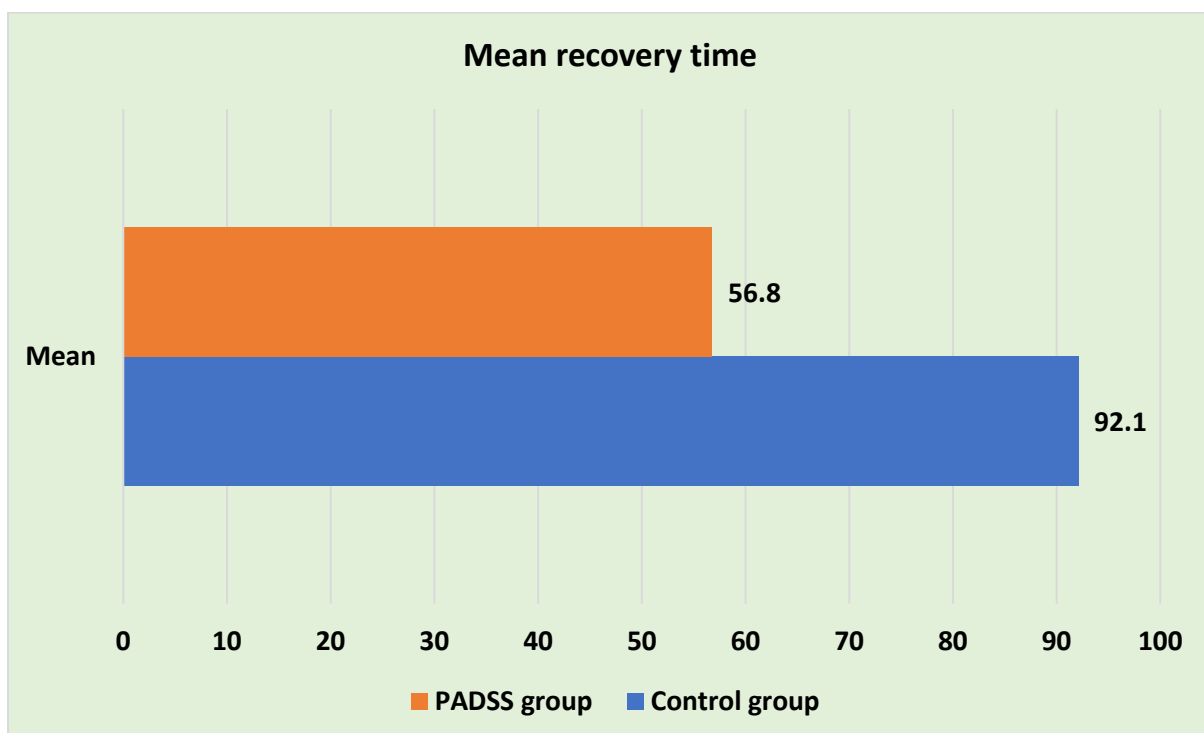
**Figure 1: Comparison of mean recovery time between groups**

Table 5: Comparison of mean Pain score between two groups

Group	Mean pain score	Standard deviation	P value
Group A (Control)	1.9	1.2	0.56
Group B (PADSS)	1.8	0.4	

Table 6: Patient characteristics

Characteristics	Group A (Control)	Group B (PADSS)
Recovery time < 60 min	0 (0%)	38 (73%)
Mild post discharge complications	27 (51%)	17 (32%)

Recovery time resulted shorter than 60 min among 38 patients of PADSS group and in no patient of control group. About 51% of study participants in control group and 32% in PADSS group had mild delayed post discharge symptoms. The most common symptoms were drowsiness, weakness, abdominal distension.

Discussion:

The White and Song scale¹⁵ incorporated the evaluation of emetic symptoms and pain in Aldrete's, especially intending to evaluate outpatient discharge. This scale also adopts scores of zero to two for each evaluated item, being fourteen the maximum score. The patient is considered fit for discharge when it reaches at least twelve points, in which no item can score less than one. The Aldrete and White scores are widely used as parameters for discharge in different PACUs. Gartner et al.¹³ proposed the inclusion of respiratory rate, systolic blood pressure and heart rate, all with predetermined objective values, without considering previous patient measures. Song et al.¹⁴ considered necessary to have no blood pressure difference greater than 30% in relation to preoperative levels and respiratory stability was evaluated by frequency and presence of cough reflex. Most of the studies consider oxygen saturation greater than 94% in room air suitable for discharge, being a parameter of easy evaluation and standardization, which provides essential information about the cardiopulmonary system. In the present study Recovery time was faster in PADSS group (56.8±12.8) than in control group (92.1±11.3) and this difference was found to be statistically significant. Similar findings were found in a study done by Trevisani L et al.^[10] Recovery time resulted shorter than 60 min among 38 patients of PADSS group and in no patient of control group. Similar findings were found in a study done by Trevisani L et al.^[10] the use of our modified discharge criteria were associated with a short-ending of recovery time, while increase in surgical time, use of intraoperative/postoperative opioids, and postoperative antiemetics were associated with a prolongation of recovery time¹¹ Awaiting physician release can account for over 50% of delay in PACU and discharge delays are commonly a result of inefficient organizational factors¹² Recovery time was faster in PADSS group (56.8±12.8) than in control group (92.1±11.3) and this difference was found to be statistically significant. Recovery time resulted shorter than 60 min among 38 patients of PADSS group and in no patient of control group. At follow up phone call, no patient declared any hospital re admission because of problems related to day care surgery. About 51% of study participants in control group and 32% in PADSS group had mild delayed post discharge symptoms. The most common symptoms were drowsiness, weakness, abdominal distension.

Conclusion:

The Post Anaesthetic Discharge scoring system was safe as the clinical assessment and allows for an earlier patient discharge after day care surgeries done under sedation. In conclusion, the Post-Anaesthesia Discharge Scoring System (PADSS) emerges as a valuable tool in assessing patients' recovery from sedation for daycare procedures. Through this research paper, we have highlighted the significance of employing objective criteria to gauge patients' readiness for discharge post-sedation, ensuring both safety and efficiency in healthcare settings. By utilizing PADSS, healthcare providers can confidently determine when patients are fit for discharge, minimizing the risks associated with premature discharge while optimizing resource allocation and patient satisfaction. However, further studies are warranted to validate the effectiveness of PADSS across diverse patient populations and procedural contexts. Overall, integrating PADSS into routine practice holds promise in enhancing the quality of care and optimizing patient outcomes following sedation for daycare procedures.

References:

- 1) Ladas SD, Satake Y, Mostafa I, Morse J. Sedation practices for gastrointestinal endoscopy in Europe, North America, Asia, Africa and Australia. *Digestion* 2010; 82: 74-76 [PMID: 20407247 DOI: 10.1159/000285248]
- 2) Froehlich F, Harris JK, Wietlisbach V, Burnand B, Vader JP, Gonvers JJ. Current sedation and monitoring practice for colonoscopy: an International Observational Study (EPAGE). *Endoscopy* 2006; 38: 461-469 [PMID: 16767580 DOI: 10.1055/s-2006-925368]
- 3) Lee H, Kim JH. Superiority of split dose midazolam as conscious sedation for outpatient colonoscopy. *World J Gastroenterol* 2009; 15: 3783-3787 [PMID: 19673020 DOI: 10.3748/wjg.15.3783]
- 4) Radaelli F, Meucci G, Minoli G. Colonoscopy practice in Italy: a prospective survey on behalf of the Italian Association of Hospital Gastroenterologists. *Dig Liver Dis* 2008; 40: 897-904 [PMID: 18395500 DOI: 10.1016/j.dld.2008.02.021]
- 5) Waring JP, Baron TH, Hirota WK, Goldstein JL, Jacobson BC, Leighton JA, Mallery JS, Faigel DO. Guidelines for conscious sedation and monitoring during gastrointestinal endoscopy. *Gastrointest Endosc* 2003; 58: 317-322 [PMID: 14528201 DOI: 10.1067/S0016-5107(03)00001-4]
- 6) Wong RC. The menu of endoscopic sedation: all-you-can-eat, combination set, à la carte, alternative cuisine, or go hungry. *Gastrointest Endosc* 2001; 54: 122-126 [PMID: 11427864 DOI: 10.1067/mge.2001.116115]
- 7) Forceville X, Oxeda C, Leloup E, Bouju P, Amiot JF, Dupouey B, Arnaud F. Is it possible to avoid a penal offence in carrying out ambulatory anesthesia?. *Cah Anesthesiol* 1991; 39: 427-433 [PMID: 1773373]
- 8) Vayre P, Jost JL. Medico-legal implications of ambulatory surgery. *Chirurgie* 1993-1994; 119: 137-140; discussion 140-141 [PMID: 7995120]
- 9) Trevisani L, Cifala V, Gilli G, Matarese V, Zelante A, Sartori S. Post-Anaesthetic Discharge Scoring System to assess patient recovery and discharge after colonoscopy. *World J Gastrointest Endosc* 2013;5(10):502-507.
- 10) Chung F, Chan VW, Ong D. A post anesthetic discharge scoring system for home readiness after ambulatory surgery. *J Clin Anesth* 1995;7:500-506.
- 11) TRUONG*, J. L. MORAN†, P. BLUM, Post Anaesthesia Care Unit Discharge: A Clinical Scoring System Versus Traditional Time-based Criteria. *Anaesth Intensive Care* 2004; 32: 33-
- 12) Seago JA, Weitz S, Walczak S. Factors influencing stay in the post-anesthesia care unit: a prospective analysis. *J Clin Anesth* 1998; 10:579-587.
- 13) Gärtner R, Callesen T, Kroman N, et al. Recovery at the post anaesthetic care unit after breast cancer surgery. *Dan Med Bull.* 2010;57:A4137.
- 14) Song D, Chung F, Ronayne M, et al. Fast-tracking (bypassing the PACU) does not reduce nursing workload after ambulatory surgery. *Br J Anaesth.* 2004;93:768-774.

15). White PF, Song D. New criteria for fast-tracking after outpatient anesthesia. *Anesth Analg.* 1999;88:1069---72.

Conflicts of interest: No

Source of funding: Nil