



## THE ROLE OF INTRAVENOUS ANALGESIC AGENTS IN PATIENTS ON MECHANICAL VENTILATION

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### Abstract

This paper aims to assess and know the role of intravenous analgesic agents in patients on mechanical ventilation

A survey was conducted in Baghdad Hospital, where 150 patients were collected, divided into two groups, and the average age ranged between forty to 60 years.

The questionnaire questions were also relied upon in addition to the information in the electronic record in the hospital, and all statistical data was analyzed by the reliance on the program. IBM SPSS soft 25 and MS excel

The process of treating patients in life-threatening situations in the intensive care unit (ICU) does not exclude the conduct of diagnostic and treatment procedures outside

The role of intravenous analgesics in anaesthesia has always been fundamental to practical anaesthesia. Their inclusion as a specific component of balanced anaesthesia is widely accepted and has certain advantages. Use of intravenous analgesics during induction of anaesthesia, induction becomes smoother, drugs required to stop consciousness decrease, and the cardiovascular response to laryngoscopy and endotracheal intubation is reduced.

**Keywords:** ICU, ventilation, TCI, intravenous, complications.

### Introduction

Narcotic analgesics in anaesthesia are a group of drugs that are used as a component of general anaesthesia, sedation, and sedation. In resuscitation, drugs are used mainly to relieve pain, often using prolonged mechanical ventilation in order to synchronize the patient with the respiratory system.



Modern narcotic analgesics in anesthesia include fentanyl, sufentanyl, fentanyl, remifentanyl, morphine, and tramadol [1,2].

The use of narcotic analgesics in anesthesia is limited by strict indications because they are strong substances. Accurate dosing helps avoid side effects, serious accidents, and even more complications. The table presents the average narcotic analgesic doses, infusion rate, and doses for maintaining general anesthesia [3,4].

The mechanism of action of narcotic analgesics (opioids) should be considered in the context of brain neural networks that modulate analgesia and the functions of different types of receptors in these networks. The analgesic effects are due to the ability of opioids to block the transmission of nociceptive information at the level of the dorsal horns of the spinal cord and to activate analgesic pathways descending from the midbrain through the ventral and rostral regions of the brain to the dorsal horns of the spinal cord [5,6,7,8].

In the spinal cord, opiates act at the synaptic level, either presynaptic or postsynaptic. Opiate receptors are abundantly expressed in the gelatinous substance, in which opiates interfere with the release of substance P from primary sensory neurons. The actions of opioids in the bulbar tract are critical to their analgesic efficacy. The action of opioids on the forebrain appears to enhance pain relief [9,10,11].

Postoperative nausea and vomiting are not uncommon in anaesthesia. Use of narcotic analgesics during the procedure is a known risk factor for nausea and vomiting after surgery. stimulate intravenous analgesic [12,13]

Trigger chemoreceptor region in the rhomboid fossa of the medulla oblongata, possibly via receptors, leading to nausea and vomiting. Compared to roughly equivalent doses of fentanyl and sufentanyl, fentanyl intake is associated with a lower incidence of postoperative nausea and vomiting. [14,15]

## **Material and method**

### **Patient sample**

150 patients were collected from different hospitals in Baghdad, Iraq, where a survey was conducted on patients who underwent mechanical ventilation to know the role of intravenous analgesic agents, and the study was approved by our Institutional Review Board

### **Study design**

One hundred fifty patients were included in this study, and a survey was conducted on them. This study consisted of two groups, septic, and non-septic. The preliminary information required for this study was collected, which included age and body mass index.

The results were taken into account and recorded, such as total fluid inputs, BG, CRP, and CRP: ALB. The differences in these measurements between the different groups were not statistically significant (P-value > 0.05),

The values between the two tested groups were compared using an independent t-test for continuous variables and

Chi-Square test for nominal data in which file continuous variables were expressed for all patients and mean  $\pm$  SD and nominal data were expressed as numbers in percentages.



Statistical analyzes were performed using IBM SPSS ver. 25 and P values of 0.05 were considered statistically significant.

### Study period

The study period for collecting demographic data and information for patients was a full year, which also included statistical analyzes by the specialist. The study period was from 22-3-2020 to 11-4-2021

### Aim of research

This paper aims to assessment and know the role of intravenous analgesic agents in patients on mechanical ventilation

### Results

Table 1- demographic results

P	G 1 (N=100 )	G2 (N=50)
<b>Age (N)</b>		
40-44	20	11
45-49	30	9
50-54	35	20
55-60	15	10
<b>BMI (N)</b>		
18.5 to <25	33	20
25.0 to <30	40	20
30.0 or higher	23	10
<b>Demographic</b>		
C-reactive protein mg/dl	11.95±4.21	12.2±3.88
Albumin (g/dl)	2.39±0.88	2.41±0.12
TCI (Cal/day)	670.2±60.6	664.2±87.2
Protein density input (g/100 Cal)	1.46±0.82	1.33±0.99
Blood Urea Nitrogen (mg/dl)	12.77±4.88	13.89±6.1
Total fluid input. (ml/day)	2691±455	2674±531
Potassium (mEq/l)	2.79±0.23	2.95±0.66

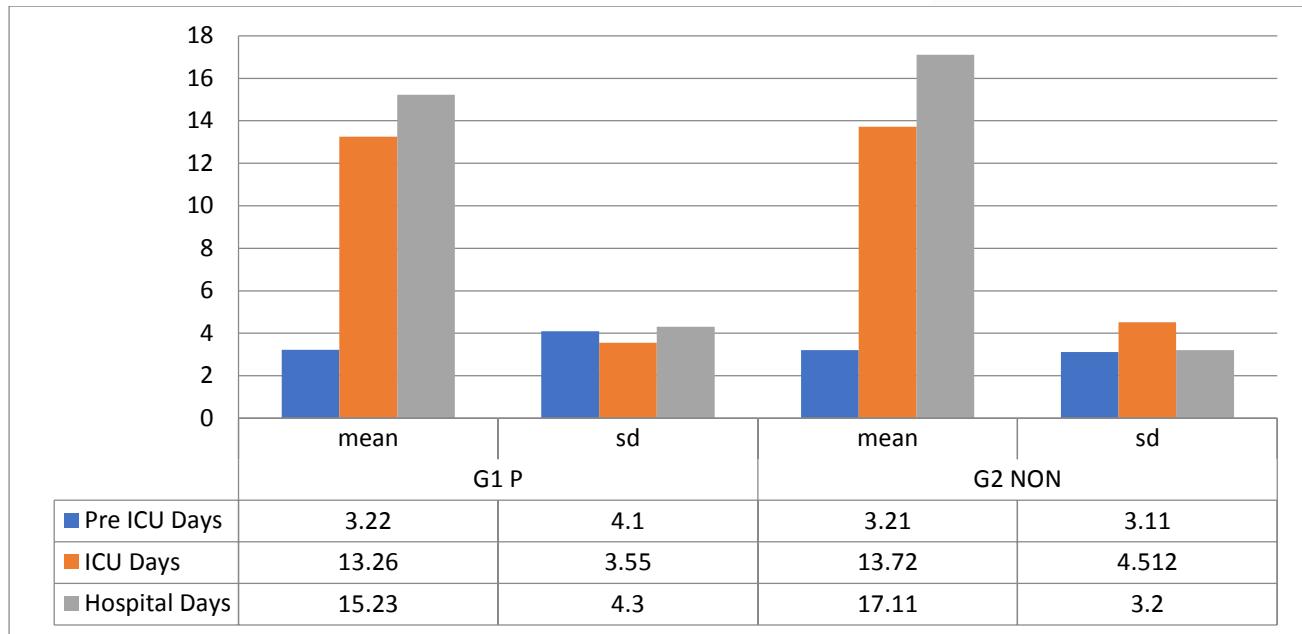


Fig 1- Result of study according to

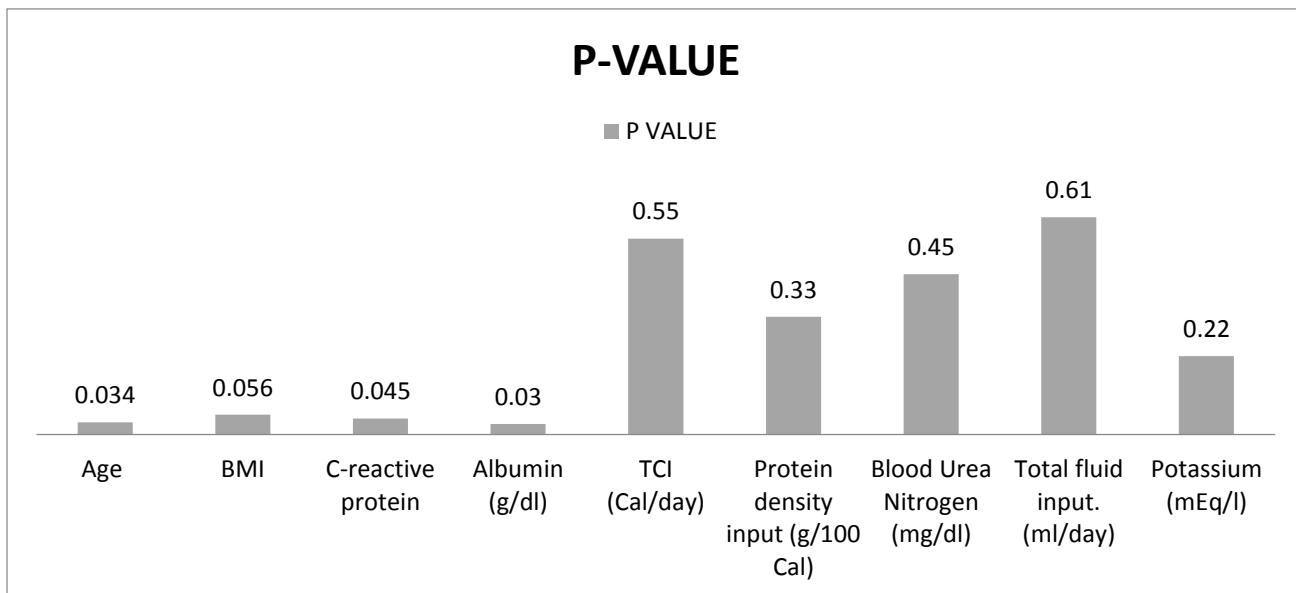


Fig 2- p-value between groups

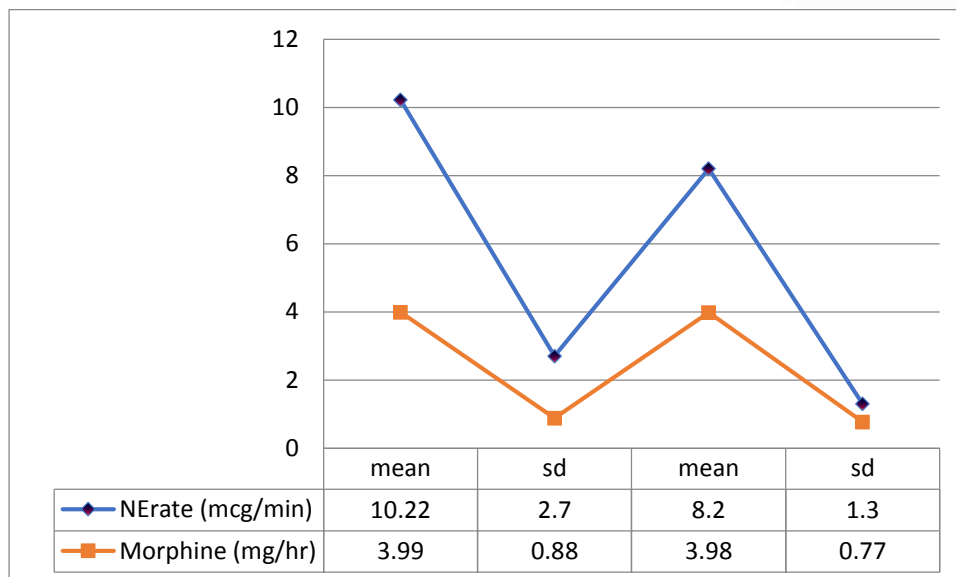


Figure 3- outcomes results of study related to anaesthesia

Table 2- results of study according to blood pressure (unit mmHg)

	G1		G2	
	m	sd	m	sd
Systolic Blood Pressure.	112.1	8.6	99.4	8.8
Diastolic Blood Pressure	69.11	5.55	64.4	1.9
Heart Rate	82.1	6.6	88.2	5.32
Mean Arterial Pressure	90.2	8.8	77.10	5.9

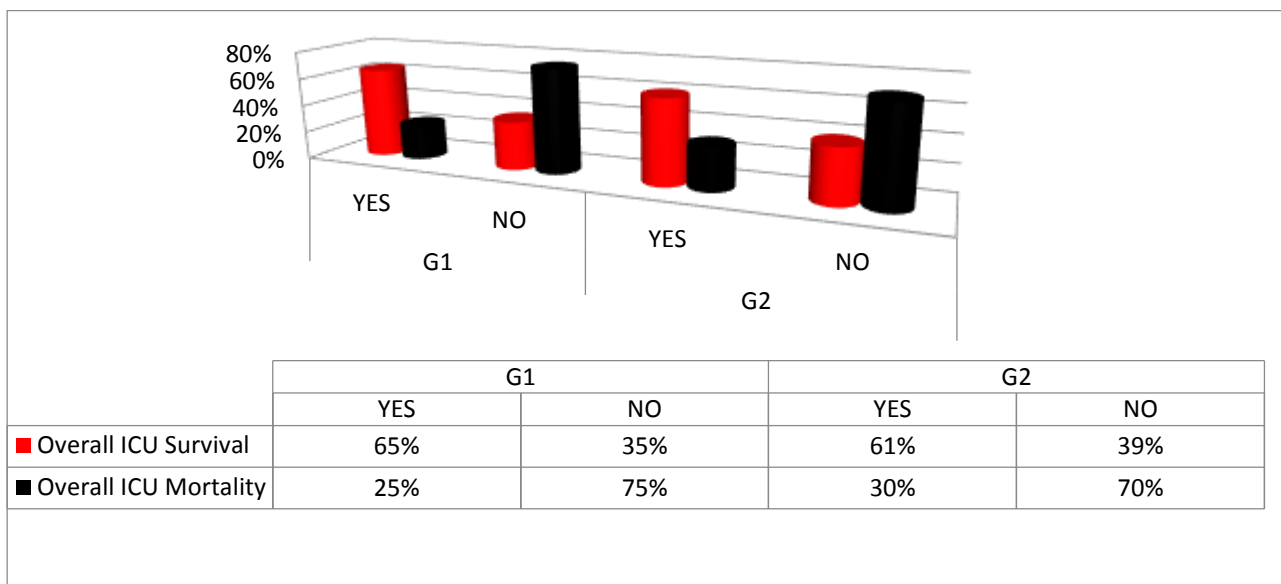


Fig 4-out comes results at ICU



### **Discussion**

One hundred fifty patients were collected from the hospital, and the necessary and required analyzes were performed on them to collect information and demographic data about them. The average age of the disease ranged between forty to 60 years for the two groups, and it was noted that there was a high percentage in the body mass index. 40 patients whose BMI ranges from 25 to 30 (Kg/m<sup>2</sup>); in addition to that, there are 23 patients whose BMI is above 30 (Kg/m<sup>2</sup>)

Patients on continuous morphine infusions had a marked increase in hemodynamic parameters compared to Baseline measurements, however, at the expense of increased requirements for vascular compressor in mechanically ventilated septic critically ill patients compared to non-septic.

The process of treating patients in life-threatening situations in the intensive care unit (ICU) does not exclude the conduct of diagnostic and treatment procedures outside the department, which requires the transfer of the patient. In-hospital transport can cause complications, the prevention of which should be part of a strategy to reduce the risk of adverse outcomes. The decision to conduct a transfer should be made, and both the benefits of the planned procedure and the risk of complications evaluated from [1]. The transfer phase is one of the most difficult operations for both the patient and the medical staff performing the transfer, depending on the degree of danger, the possibility of sudden complications, the costs of materials and time,

Every year, anesthesiologists are increasingly raising issues of safe and effective medical transportation for critically ill patients, whether pre-hospital, in-hospital, or in-hospital [Even considering the relatively short duration, transport is a potentially destabilizing factor for the patient's condition and can May cause the development of secondary and sometimes iatrogenic complications. The most common risk factors are hypoxemia ( $p a O_2 < 60$  mm Hg) and arterial hypotension (systolic blood pressure - SBP < 90 mm Hg) [1]. According to separate studies, complications reach 45%, more than 30% of which are associated with equipment malfunctions, and a deterioration in the patient's condition is noted in 1/4 of all cases

### **Conclusion**

Anesthesia is one of the essential and crucial elements in the management of patients undergoing mechanical ventilation due to several reasons, including the unpredictability of the effect of the drug in addition to the risks of inaccurate anesthesia. Which is directed by the doctor in order to provide the least amount of anesthesia necessary, and that leads to patient comfort

Whereas anesthesia aims to provide comfort to patients who are undergoing mechanical ventilation, reduce their distress, and make some kind of adaptation to the ventilator, in addition to reducing the percentage of oxygen consumed





## Recommendations

1. Optimal use of analgesics and sedatives can provide relief to patients on mechanical ventilation, accelerate ventilator release, and may reduce the incidence of chronic pain.
2. “Analgesia” prefers the use of an analgesic before a sedative to manage pain with sedative properties

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