

Impact of ketamine or propofol on quality of recovery after laparoscopic surgery in Iraqi women

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SUMMARY

AUTHORS' CONTRIBUTION: (A) Study Design · (B) Data Collection · (C) Statistical Analysis · (D) Data Interpretation · (E) Manuscript Preparation · (F) Literature Search · (G) No Fund Collection

Introduction: It is important to recognize that the recovery process following surgery and anesthesia can be influenced by a number of factors. These may include the patient's condition, the specific procedure performed, the type of anesthesia administered, and the potential adverse effects. It is worth noting that while ketamine is a dissociative anesthetic that produces sedation, immobility, pain relief and amnesia, it is also misused for its hallucinogenic properties. Similarly, while propofol is an intravenous anesthetic used for procedural sedation and considered safe during pregnancy, it can cross the placenta and lead to central nervous system and respiratory depression in newborns.

Aim: The study assesses the quality of recovery in Iraqi women based on the duration of recovery, the incidence of nausea and vomiting, and the prevalence of post-surgery drowsiness induced by either ketamine or propofol.

Methods: A prospective two-armed Study. All collected data were saved anonymously, and informed consent was requested from all patients. A total 88 women were divided into two groups, 64 patients have used ketamine as an anesthetic in laparoscopic surgery. 22 patients have used propofol as an anesthetic in laparoscopic surgery

Results: In this study, we analyzed the effect of both propofol and ketamine on the duration of recovery in minutes with both age and weight, we noticed in all the results, either ketamine or propofol, that it was there is a non-significant direct relationship between age and recovery time in minutes and between weight and recovery time in minutes. The study of both ketamine and propofol on the recovery period after laparoscopic surgery showed that propofol was better than ketamine because the recovery period was less than the recovery period with ketamine.

Conclusion: Surgery and anesthesia recovery is challenging and depends on patient, surgical, and anesthetic characteristics, as well as painful sequelae and pharmacological side effects. Recent studies on anesthesia and operation recovery have focused on physiological endpoints, recovery lengths, and adverse consequences like morbidity and death. These parameters should be checked, but rarely consider the patient.

Keywords: Recovery time; Ketamine; Propofol; Anesthesia

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INTRODUCTION

Recovery after surgery and anaesthesia is complex and depends on several factors based on patient, surgical, and anaesthetic characteristics, as well as the presence of numerous adverse sequelae or medication side effects [1,2]. Recent studies evaluating recovery after anaesthesia and surgery have focused primarily on physiological endpoints, recovery times, and the incidence of adverse events, such as major morbidity and mortality. Although these parameters are essential and should be measured, they mostly ignore the patient's perspective [3]. Patient-related outcomes can be assessed with tools designed for that purpose, such as the Quality of Recovery-15 (QoR-15 Questionnaire). QoR-15 provides an easy-to-use method to measure the quality of a patient's recovery from surgery and anaesthesia [4]. Ketamine is a dissociative anesthetic that has some hallucinogenic effects; it distorts perceptions of sight and sound and makes the user feel disconnected and not in control. It is an injectable, short-acting anesthetic for use in humans and animals. It is referred to as a "dissociative anesthetic" because it makes patients feel detached from their pain and environment. Ketamine can induce a state of sedation (feeling calm and relaxed), immobility, relief from pain, and amnesia (no memory of events while under the influence of the drug). It is abused for its ability to produce dissociative sensations and hallucinations [5]. Propofol is an intravenous anesthetic used for procedural sedation, during monitored anaesthesia care, or as an induction agent for general anaesthesia [6]. It may be administered as a bolus or an infusion, or some combination of the two. Propofol is prepared in a lipid emulsion which gives it the characteristic milky white appearance [7]. Strict aseptic technique must be used when drawing up propofol as the emulsion can support microbial growth [8].

Propofol was formerly listed as a Category B drug for use in pregnancy. However, in late 2014 the FDA removed the lettering system to denote the degree of potential harm in pregnancy or lactation and moved to a more descriptive system based on the individual effects of pharmacologic agents [9-11].

This study aims at evaluating the quality of recovery in a sample of Iraqi patients in terms of recovery time, nausea and vomiting and post-surgery drowsiness that could be evoked by either ketamine or propofol.

METHODS

Between January 11, 2023, to February 1, 2024, the patients were followed up from numerous government and commercial hospitals or institutions from Al-Kindi Hospital in Baghdad, Marjan Hospital in Babylon, and Al-Hajjah Hospital in Karbala. Study was conducted in accordance with the Declaration of Hel-sinki. All collected data were saved anonymously, and in-formed consent was requested from all patients. 88 women with age 30-50 years old who are undergo general anaesthesia in laparoscopic surgery, sixty-four of them used ketamine and twenty-two of them used propofol. Collected them from several hospitals in Iraq.

Inclusion criteria: An elective operation and woman who used ketamine or propofol as anaesthesia protocol during the operation.

Exclusion criteria: Emergency surgery, which did not use ketamine or propofol during operation, women who have sensitivity to ketamine or propofol, and history of CVD.

Ethical approval: A request has been submitted to the hospitals mentioned above, as well as anesthesiologists, to obtain approval to read patients' tympanics and obtain the information we need.

Follow up: The data collection process was completed on 10 January, with the bags themselves being collected on 2 January. Therefore, the entire collection process took approximately four months to complete.

RESULTS

The data indicate that there is no statistically significant

direct correlation between age and weight with recovery time in the propofol groups (P-value = 0.364, 0.073 respectively). However, there is significant direct correlation between the age and weight of patients with the recovery time in minutes in the ketamine group (P value = 0.021, 0.20 respectively) **Tab. 1.** and **Fig. 1.**

Tab. 1. illustrates the relationship between study parameters and recovery time. The P value is 0.020, thereby indicating that a statistically significant direct correlation exists between weight and recovery time in minutes for the ketamine group. While there is insignificant in the case of propofol group. **Fig. 1.** shows the correlation exist between age and weight of patients with recovery time in minutes in both groups.

DISCUSSION

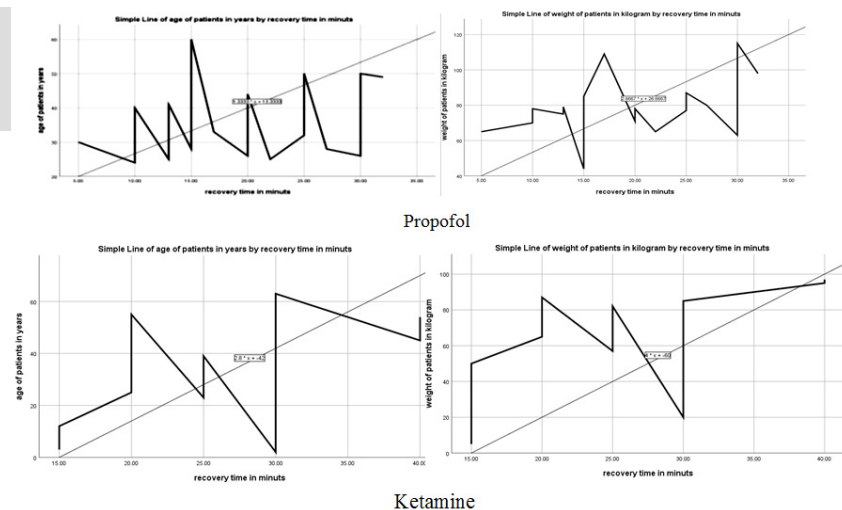
In the present study, the effect of both anesthesia and ketamine on the duration of recovery in minutes has been analyzed with respect to both age and weight, and in all cases, whether ketamine or anesthesia, a significant direct relationship has been found between age and recovery time in minutes, and between weight and recovery time in minutes. This result is inconstant with that found by Antunes L, et al., they found that significant correlation between age and recovery time in minutes in the propofol group [9,10]

This result is inconstant with that found by Muta L, et al., they found that significant correlation between weight and recovery time in minutes in propofol group [10,11], While the relationship between age and the period of recovery in the ketamine group is considered novel, as well as the relationship between weight and the period of recovery in the ketamine group is considered novel.

Tab. 1. Relationship between age and weight with the recovery time of women.

Groups	Medicine	Mean ± SD	Mean Recovery Time ± SD	P-value
Age	Propofol	36.82 ± 10.271	20.18 ± 7.878	0.364
	Ketamine	27.56 ± 16.257	25.00 ± 7.071	0.021
Weight	Propofol	78.55 ± 15.299	20.18 ± 7.878	0.073
	Ketamine	63.92 ± 25.035	25.00 ± 7.071	0.02

Fig. 1. Correlation exist between age and weight of patients with recovery time in minutes in both groups.



CONCLUSION

The effect of anesthesia and ketamine on recovery time in minutes has been analyzed with respect to age and weight. In all cases, whether ketamine or anesthesia, a significant direct relationship has been found between age and recovery time in minutes, and between weight and recovery time.

FUNDING

This study did not receive any funding.

ETHICAL CLEARANCE

This study had received ethical clearance from the Health Research Ethics Committee Faculty of Medicine Universitas Kufa (No. 245/2023) on Jan. 2, 2023.

CONFLICT OF INTEREST

The authors declared there is no conflict of interest.

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