بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Intraperitoneal Versus Intravenous Dexamethasone Effect on Postoperative Nausea and Vomiting in Patients Undergoing Laparoscopic Cholecystectomy

Thesis

Submitted for Partial Fulfillment of Master Degree in ANESTHESIOLOGY

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2021

Acknowledgment

*First and foremost, I feel always indebted to **God**, the Most Kind and Most Merciful.*

*I'd like to express my respectful thanks and profound gratitude to **Prof. Mohamed Abd El Khalek Mohamed Ali**, Professor of Anesthesiology, Intensive Care and Pain Management Faculty of Medicine- Ain Shams University for his keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.*

*I am also delighted to express my deepest gratitude and thanks to **Dr. Ayman Ahmed El Sayed Abd El Latef**, Assistant Professor of Anesthesiology, Intensive Care and Pain Management Faculty of Medicine-Ain Shams University, for his kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.*

*I am also delighted to express my deepest gratitude and thanks to **Dr. Samar Mohamed Abdeltawab Soliman**, Lecturer of Anesthesiology, Intensive Care and Pain Management Faculty of Medicine-Ain Shams University, for her great help, outstanding support, active participation and guidance.*

Marco Samir

List of Contents

List of Tables

List of Figures

List of Abbreviations

Abb.	Full term
PONV	Postoperative nausea and vomiting
PACU	Post-Anesthesia Care Unit
LC	Laparoscopic cholecystectomy
CTZ	Chemoreceptor trigger zone
IV	Intra venous
IP	Intra peritoneal
VAS	Visual analogue scale
IAP	Intra-abdominal pressure
V/Q	ventilation-perfusion
P6	Pericardium 6
HPA	Hypothalamic–pituitary–adrenal
DNA	deoxyribonucleic acid
ACTH	Adrenocorticotropic hormone
5-HT3	5- hydroxytryptamine
D2	Dopamine receptor
QTc	Corrected QT Interval
MW	Molecular weight

Introduction

INTRODUCTION

Post-operative nausea and vomiting (PONV) are the most common distressing symptoms occurring in the first 24 post-operative hours. Almost 30% of all patients undergoing general anesthesia experience PONV. Although the precise mechanism of PONV is still unknown, it is believed that high frequency of PONV in 40-70% of patients undergoing laparoscopic operation may be due to pneumoperitoneum **(Kaul et al., 2017).**

The introduction of volatile agents such as ether and chloroform in the 1840s was heralded as the most important medical innovation. However, the phenomenon of PONV became evident within only two years, and remains as a major complication for general anesthesia today. The first report on the devastating effect of PONV was published in 1848 by Dr. John Snow, a British anesthesiology pioneer who described his findings on this disturbing complication associated with surgery and anesthesia **(Zorab, 1992).**

Post-operative nausea and vomiting has attracted a great deal of attention since Kapur described it as the big "little problem" in 1991 **(Kapur, 1991).**

Untreated PONV can increase the risk of some post-operative complications, such as gastric aspiration, bleeding, wound dehiscence, dehydration, and electrolyte disturbances. Moreover, the duration of Post-Anesthesia Care Unit (PACU) stay could be prolonged, which would significantly increase the overall health care costs **(Apfel et al., 2004) .**

Post-operative nausea and vomiting is a common unwanted effect in patients undergoing laparoscopic cholecystectomy (LC). Post-operative nausea and vomiting can be very distressing to the patient, sometimes more than the surgery itself. Several factors have been implicated specifically in LC such as CO_2 insufflation, distension of the abdomen and irritation of the diaphragm and other abdominal viscera. In addition, other factors have also been associated such as female gender, history of motion sickness, length of surgery, post-operative pain, use of opioids, and use of inhalational anesthetics **(Kaul et al., 2017).**

The vomiting center, which is located in the lateral reticular formation of the medulla oblongata in close proximity to the nucleus of the solitary tract in the brain stem, has access to the motor pathways that are responsible for the visceral and somatic output involved in vomiting. Main sensors of somatic stimuli are located in the gut and chemoreceptor trigger zone

(CTZ) in the area postrema. Other stimuli are those from oropharynx, mediastinum, peritoneum, and genitalia as well as afferents from the central nervous system **(Bunce and Tyers, 1992) (Wynn et al., 1993).**

Laparoscopy is one of the most common methods of diagnosis and treatment used all over the world. It has many advantages such as faster recovery and shorter hospital stay. Laparoscopic cholecystectomy has been a standard surgical method for the treatment of cholelithiasis, and also for some cases of cholecystitis and cholecystic polyp. The operative procedure of LC has been perfected and the surgical outcome is satisfactory because it is of short duration, small incisions, low rate of immediate complications and doesn't disrupt gastrointestinal homeostasis **(Kaul et al., 2017).**

Glucocorticoids have analgesic, anti-inflammatory, immunomodulatory, and also antiemetic effects **(Chu et al., 2014).**

The corticosteroid dexamethasone effectively prevents nausea and vomiting in postoperative patients. A prophylactic dose of 4 to 5 mg IV for patients at increased risk for PONV is recommended. For PONV prophylaxis, the efficacy of dexamethasone 4 mg IV is similar to ondansetron 4 mg IV and droperidol 1.25 mg IV **(Gan et al., 2014).**

In previous studies dexamethasone was administered via the intravenous route with different doses. A few studies injected dexamethasone into the peritoneal cavity, no previous studies have compared the effect of intraperitoneal versus intravenous dexamethasone administration in reducing the incidence of PONV in patients undergoing LC.

Aim of the Work