



INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY HEALTH SCIENCES

ISSN: 2394 9406

COMPARISON OF POST OPERATIVE MORBIDITY IN TLH WITH DIFFERENT ENERGY SOURCES

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ABSTRACT:

Laparoscopic surgery is associated with reduced surgical stress response, lesser post-operative immune function, and consequent early recovery compared with conventional open surgery. There is a lack of evidence regarding the inflammatory stress response with the use of different energy devices. The present study was conducted to evaluate and compare the inflammatory response in total laparoscopic hysterectomy (TLH) using three different energy devices.

Keywords: TLH, hysterectomy, stress

INTRODUCTION:

Overview

Hysterectomies are one of the most common surgical procedures in the United States, with greater than 600,000 performed each year. For decades, abdominal and vaginal approaches accounted for the vast majority of hysterectomies. The advent of better laparoscopic technology resulted in the first total laparoscopic hysterectomy (TLH) in 1989. Use of TLH has increased in the last 20 years. TLH accounted for 9.9% of all hysterectomies in 1997 and 11.8% in 2003.^[1]

A TLH is defined by the laparoscopic ligation of the ovarian arteries and veins with the removal of the uterus vaginally or abdominally, along with laparoscopic closure of the vaginal cuff. This is in contrast to other methods of removing the uterus, fallopian tubes, and ovaries¹

At present, there is lack of evidence regarding the inflammatory stress response with the use of different devices in cases of total laparoscopic hysterectomy (TLH). The present study was conducted to evaluate and compare the inflammatory response in terms of cytokines and chemokines in TLH using an integrated bipolar and ultrasonic energy device (Thunderbeat, Olympus, Japan), ultrasonic energy device (Harmonic, Ethicon Endosurgery, USA), and electrothermal bipolar vessel sealing system (Ligasure V, Covidien, USA), which could explain a possible early recovery benefit of one energy source over another.

Surgical trauma induces a stress response and leads to immunologic consequences. Surgical procedures stimulate a cascade of events that cause metabolic and inflammatory change. The extent and duration of the post-operative inflammatory response depends on the severity and type of intraoperative insult (1). Studies have reported that laparoscopic surgery was associated with reduced surgical stress response, lesser

post-operative immune function, and consequent early recovery compared with conventional open surgery (2-4). Identification of markers of injury as a potential tool to predict perioperative outcomes remains an area of interest among researchers. Cytokines and chemokines are low-molecularweight proteins produced by cells in the immune system in response to a variety of stimuli. They stimulate a cascade of events including the production and growth of lymphocytes, which in turn regulate the inflammatory response to surgical injury, affecting wound healing. Therefore, cytokines and chemokines serve as markers of operative stress response (5,6). It is imperative to understand the cytokine response to surgical trauma and the translation of this physiologic response into therapeutics is likely to optimize perioperative care. In endoscopic gynecologic surgery, the use of energy-based tissue sealing and cutting instruments has greatly advanced and facilitated complex laparoscopic procedures. Currently, various electrosurgical devices are commercially available such as advanced bipolar or ultrasonic devices (7,8). Due to the limited number of studies in the literature, there is insufficient evidence to recommend one energy source over another. At present, there is lack of evidence regarding the inflammatory stress response with the use of different devices in cases of total laparoscopic hysterectomy (TLH). The present study was conducted to evaluate and compare the inflammatory response in terms of cytokines and chemokines in TLH using an integrated bipolar and ultrasonic energy device (ThunderbeatTM, Olympus, Japan), ultrasonic energy device (Harmonic, Ethicon Endosurgery, USA), and electrothermal bipolar vessel sealing system (LigasureTM V, Covidien, USA), which could explain a possible early recovery benefit of one energy source over another.²

Laparoscopic surgery is associated with reduced surgical stress response, lesser post-operative immune function, and consequent early recovery compared with conventional open surgery. There is a lack of evidence regarding the inflammatory stress response with the use of different energy devices. The present study was conducted to evaluate and compare the inflammatory response in total laparoscopic hysterectomy (TLH) using three different energy devices. Material and methods: A prospective randomized controlled study was conducted in 60 women with abnormal uterine bleeding undergoing TLH. They were divided into three groups based on the energy devices used, namely integrated bipolar and ultrasonic energy (Thunderbeat), ultrasonic (Harmonic) and electrothermal bipolar vessel sealing system (Ligasure). Cytokines and chemokines were measured in all three groups at different time points.³

copie_hysterectomy_for_benign_disease_of_the_uterus

CONCLUSION:

Greater inflammatory response was seen after the use of Ligasure indicating greater tissue damage. However, this response was not correlated with any difference in postoperative recovery.

ACKNOWLEDGEMENT:

We are grateful to Hon'ble Trustees of PIMS, Islampur, for supporting us. We are thankful to the departmental staff for cooperation in completion of our work.

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