FACTORS ASSOCIATED WITH BOWEL DISCOMFORT AFTER NON-EMERGENCY HYSTERECTOMY IN RAMATHIBODI HOSPITAL

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Kanokwan Bunwittaya

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ABSTRACT

Bowel discomfort is common among patients after total abdominal hysterectomy (TAH). There are many factors associated with postoperative bowel discomfort. The objectives of this study were to determine factors associated with bowel discomfort after non-emergency hysterectomy in Ramathibodi hospital, its incidence rate and treatment. This study was an analytical observational research. Post-operative patients of non-emergency TAH who were admitted into Gynecology ward, Ramathibodi hospital, were asked to fill up the questionnaires regarding bowel discomfort everyday until they are discharged from the hospital. Data from medical records was also collected. One hundred-twenty patients were recruited purposively according to the inclusion criteria during October 2003-Februry 2004. The statistics used for analysis included descriptive statistics, Chi-square test and Pearson correlation coefficient by using SPSS/PC+ statistic program.

The result of this study showed that within 8 hours after operation, no patients had the symptoms of bowel discomfort. Mild to severe bowel discomfort occurred within 9 – 56 hours after the operation, most occurred within 32 hours (41.8%) and 62.4% had duration of bowel discomfort for 8-40 hours. Totally the incidence of bowel discomfort post non-emergency TAH was 81.6%. In this study, the average age of patients was 43.78 ± 8.33 years. More than half (61.7%) of patients were diagnosed as having myoma uteri. The average length of surgical time was 131.62 ± 39.92 minutes and the average estimated blood loss was 377.67 ± 339.20 milliliters. Most patients received post-operative analgesic drugs (90%). Most patients did not have complications after operation (80%). Most patients passed stool on the 3rd post-operative day (49.2%).

In conclusion, bowel discomfort is common among patients after TAH and was significantly associated with complications after operation, age, day of passed stool and dosage of analgesia ($p<0.05$). Thus, cautions during TAH procedure should be exercised to help alleviate bowel discomfort after operation.

KEY WORDS: BOWEL DISCOMFORT/ HYTERECTOMY

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ปัจจัยที่มีความสัมพันธ์กับภาวะท้องอืดภายหลังการผ่าตัดมดลูกออกทางหน้าท้องแบบไม่ฉุกเฉิน ในโรงพยาบาลรามาธิบดี (FACTORS ASSOCIATED WITH BOWEL DISCOMFORT AFTER NON-EMERGENCY HYSTERECTOMY IN RAMATHIBODI HOSPITAL)

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บทคัดย่อ

ภาวะท้องอืดพบได้บ่อยในผู้ป่วยหลังผ่าตัดมดลูกออกทางหน้าท้อง โดยปัจจัยที่ทำให้เกิดภาวะท้องอืดหลังผ่าตัดนั้นมีอยู่หลายประการด้วยกัน การศึกษานี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีความสัมพันธ์กับภาวะท้องอืดภายหลังการผ่าตัดมดลูกออกทางหน้าท้องแบบไม่ฉุกเฉินในโรงพยาบาลรามาธิบดี อุบัติการณ์และวิธีการดูแลรักษา การศึกษาเป็นแบบสังเกตเชิงวิเคราะห์ โดยให้ผู้ป่วยหลังการผ่าตัดมดลูกทางหน้าท้องแบบไม่ฉุกเฉินที่หอผู้ป่วยนรีเวชในโรงพยาบาลรามาธิบดีตอบแบบสอบถามเรื่องภาวะท้องอืดภายหลังการผ่าตัดมดลูกทางหน้าท้องทุกวันจนกระทั่งจำหน่ายผู้ป่วยออกจากโรงพยาบาล ร่วมกับการเก็บข้อมูลทางเวชระเบียน โดยเลือกกลุ่มตัวอย่างแบบเจาะจงตามเกณฑ์ที่กำหนด จำนวน 120 ราย ระหว่างเดือนตุลาคม 2546 ถึงเดือนกุมภาพันธ์ 2547 สถิติวิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนา chi-square test และ Pearson correlation coefficient โดยใช้โปรแกรมสำเร็จรูป SPSS/PC+

ผลการศึกษาพบว่า ไม่มีอุบัติการณ์การเกิดภาวะท้องอืดหลังผ่าตัดภายใน 8 ชั่วโมงแรก แต่จะเริ่มมีภาวะท้องอืดเล็กน้อยถึงท้องอืดมากหลังผ่าตัดภายใน 9 - 56 ชั่วโมง ส่วนใหญ่(ร้อยละ 41.8) มีภาวะท้องอืดใน 32 ชั่วโมงแรกหลังผ่าตัดและร้อยละ 62.4 มีระยะเวลาที่มีอาการท้องอืด 8-40 ชั่วโมง โดยรวมความรุนแรงของการเกิดภาวะท้องอืดหลังผ่าตัดพบได้ร้อยละ 81.6 ในการศึกษานี้กลุ่มตัวอย่างมีอายุเฉลี่ย 43.78 ± 8.33 ปี ร้อยละ61.7ได้รับการวินิจฉัยว่าเป็นเนื้องอกมดลูก (Myoma uteri) ใช้ระยะเวลาในการผ่าตัดเฉลี่ย 131.62 ± 39.92 นาที เสียเลือดในการผ่าตัดเฉลี่ย 377.67 ± 339.20 มิลลิลิตร รับยาแก้ปวดหลังผ่าตัดร้อยละ 90 ไม่มีภาวะแทรกซ้อนหลังผ่าตัดร้อยละ80 สามารถถ่ายอุจจาระได้เองหลังผ่าตัดเฉลี่ยวันที่ 3 ร้อยละ 49.2

สรุป ภาวะท้องอืดหลังผ่าตัดมดลูกออกทางหน้าท้องพบได้มากพอสมควร และมีความสัมพันธ์กับภาวะแทรกซ้อนจากการผ่าตัด อายุ วันแรกที่ถ่ายอุจจาระและขนาดของยาแก้ปวดอย่างมีนัยสำคัญทางสถิติ ($p<0.05$) ดังนั้นการผ่าตัดที่ระมัดระวังจะช่วยลดภาวะท้องอืดหลังผ่าตัดได้ด้วย

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CHAPTER I
INTRODUCTION

Significance of the problem

Surgery is medical treatment of injuries or diseases by cutting open the body and often removing or replacing some parts. It takes the very important role in saving patients' lives or helping them live happily for the rest of their lives [1].

According to the statistic data of Faculty of Medicine, Ramathibodi Hospital from 1998 to 2001[2, 3, 4, 5], it is found that the number of patients who had total abdominal hysterectomy (TAH) increased every year. (Table 1).

Table 1 Number of Admission and number of patients who had TAH admitted into Gynecology ward, Ramathibodi hospital 1998-2001.

Year	Number of patients		%
	Number of Admission	Number of TAH	
1998	1,986	985	49.6
1999	2,065	996	48.2
2000	2,218	1,034	46.6
2001	2,111	1,134	53.7

Source: Medical Statistical unit of Faculty of Medicine at Ramathibodi Hospital, Mahidol University.

In addition it is found that among the most common major surgeries performed in the Faculty of Medicine, Ramathibodi Hospital, Mahidol University during 1998-2001, TAH is up from the fourth to the second in 2000 and to the first in 2001.

TAH can help patients' relief their pain and suffering from the disease of uterus and ovary. Indications of performing TAH include tumor of uterus such as myoma uteri and adenomyosis, tumor of the ovaries such as endometriotic cyst and infection such as tubo-ovarian abscess. Malignancy of uterus and ovary is also indicated.

Although the surgery is one of the effective treatments, with or without chemotherapy and radiation. Complications can occur after the surgery. As a result, before the surgery is scheduled, the doctors have to consider the necessity of the surgery [6].

The complications that often occur during 6-8 hours after the surgery are respiratory complications, shock and hemorrhage. Because of that, the aim of taking care of the patients in this stage is to maintain clear air way, observe the respiration, record blood pressure, vital signs and the conscious of the patients.

Other discomforts can also occur after surgery such as pain, nausea and vomiting, urinary retention, and bowel discomfort.

The bowel discomfort that is often found in post TAH patients. Patients usually complain about their sensations of pressure, fullness, or tenderness and may have gas pain, no belch, no flatus, and little or no peristaltic action. If the condition continues, the enlarged abdomen causes difficulty in breathing and effective coughing, so patients are in danger of developing atelectasis and pneumonia. They, also, have nausea and vomiting. These signs and symptoms make patients feel uncomfortable or suffering [7].

There are many methods to solve bowel discomfort. For example; using drugs such as carminative [8], antacid [9], laxative [10] and analgesic [11]; using nasogastric tube or rectal tube, NPO [12] or encouraging patients to early ambulate [13]. Some patients might feel better by using only one remedy; however, some patients might feel better after the combination of these methods. It is nurses' responsibility to make them comfortable and prevent these complications.

The influences of the causal factors on bowel discomfort in TAH had not yet been studied. So the researcher would like to study in incidence of bowel discomfort among post TAH patients admitted into Gynecology Ward, Faculty of Medicine,

Ramathibodi Hospital, and its associated factors as well as the treatment in order to find the better way in preventing and taking care of the patients.

Objective of the study

To study

1. Incidence rate of bowel discomfort among post TAH patients at Ramathibodi hospital.

2. Treatment of bowel discomfort among post TAH patients at Ramathibodi hospital.

3. Factors associated with bowel discomfort among post TAH patients at Ramathibodi hospital.

Scope and limitation of the study

This prospective study collected the data by asking post-operative patients of non-emergency TAH who were admitted into Gynecology ward, Ramathibodi hospital, to fill up the questionnaires regarding bowel discomfort everyday until they are discharged from the hospital. Data from medical records was also collected. One hundred-twenty patients were recruited purposively according to the inclusion criteria during October 2003-Februry 2004.

Definition of term

Bowel discomfort is the patients' sensation of pressure and fullness resulting from the accumulation of trapped air or trapped fluid in the gastrointestinal tract which may contribute gas pain and discomfort to them. Patients often have no belching, no flatus, absent or decreased bowel motility, and increased abdominal girth**.** Bowel discomfort is also evaluated by physical examination, observation, and interview.

Abdominal hysterectomy is a major operation which opens the abdomen into abdominal cavity in order to cut off the uterus, its cervix with or without the fallopian tube or the ovary.

Non-emergency is the operation that is performed as scheduled. Patients are asked to be admitted into the hospital 1-2 day before the surgery in order to prepare the patients for both physical and psychogenic health.

Parity is the number of deliveries that the patient had in the past.

Number of living children is the number of alive children.

Pre- operative diagnosis is the disease of uterus, fallopian tube, or ovary indicating the surgery. This research did not include cancer patients.

Type of patients is classified as the non-private type and the private type.

Non-private type is that the patient's operation was performed by resident in training (under staff control).

Private type is that the patient's operation was performed by staff only.

Length of surgical time is the amount of time since the patients receives the anesthesia until the operation finish. It is recorded in minutes on the anesthetic form of the Anesthesiology Department.

Blood loss is the amount of estimated blood loss during operation in milliliter. It is recorded on the anesthetic form of the Anesthesiology Department.

Conceptual Framework

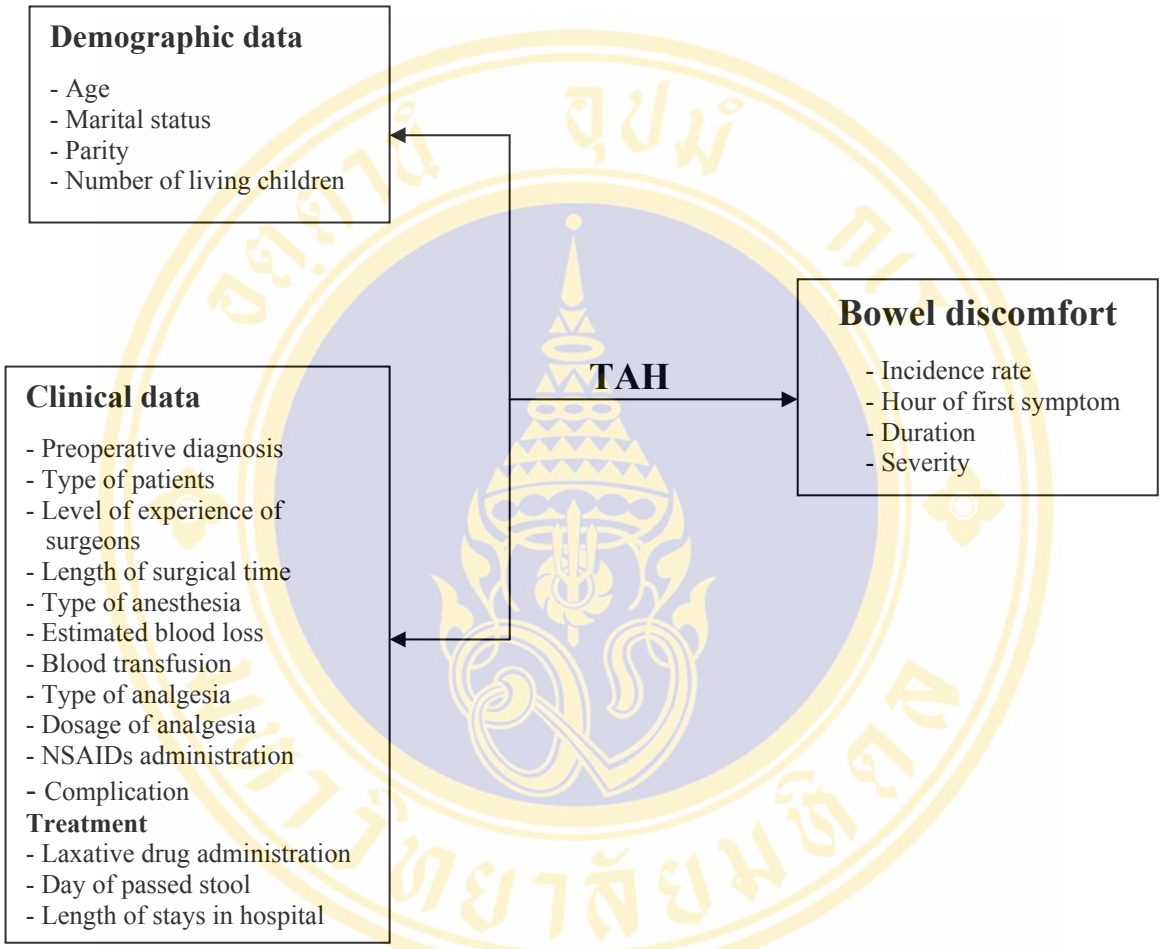


Figure 1 Conceptual Framework

CHAPTER II
LITERATURE REVIEW

In this study, the researcher has reviewed relevant information, theories, and findings from several studies about the factors influencing bowel discomfort in patients after TAH. The scopes of the review are as follows:

1. Hysterectomy
    - Total abdominal hysterectomy
    - Indications of total abdominal hysterectomy
    - Contraindications of total abdominal hysterectomy
    - Postoperative complications
2. Bowel Discomfort
    - Signs and symptoms of bowel discomfort
    - Mechanism of postoperative bowel discomfort
3. Factors associated with Postoperative bowel discomfort
    - Environmental factors
    - Health status factors
    - Self-care behavior

Hysterectomy [14]

Hysterectomy is the major surgical procedure most frequently performed on women of reproductive age. It can be performed abdominally or vaginally, depending on specific indications. Vaginal hysterectomy is preferred because there is no abdominal incision, the hospital stay is shorter, and recuperation is quicker. In the past, a 10- to 14-day hospital stay was not uncommon following hysterectomy. Today, a 3- to 4-day stay is common after abdominal hysterectomy and a 2- to 3- day stay after vaginal hysterectomy.

The patient must be informed about the nature of her problem, alternative methods of treatment, and the complication that must result from any of the treatment or from no treatment. This should be done in the clinic before admission to the hospital and again in the hospital, and her partner, if applicable, should be present on one or both occasions. Documentation in a format other than the signed informed surgical consent form is important, and the clinic record is the logical place to preserve the signed form.

Only benign diseased will be discussed.

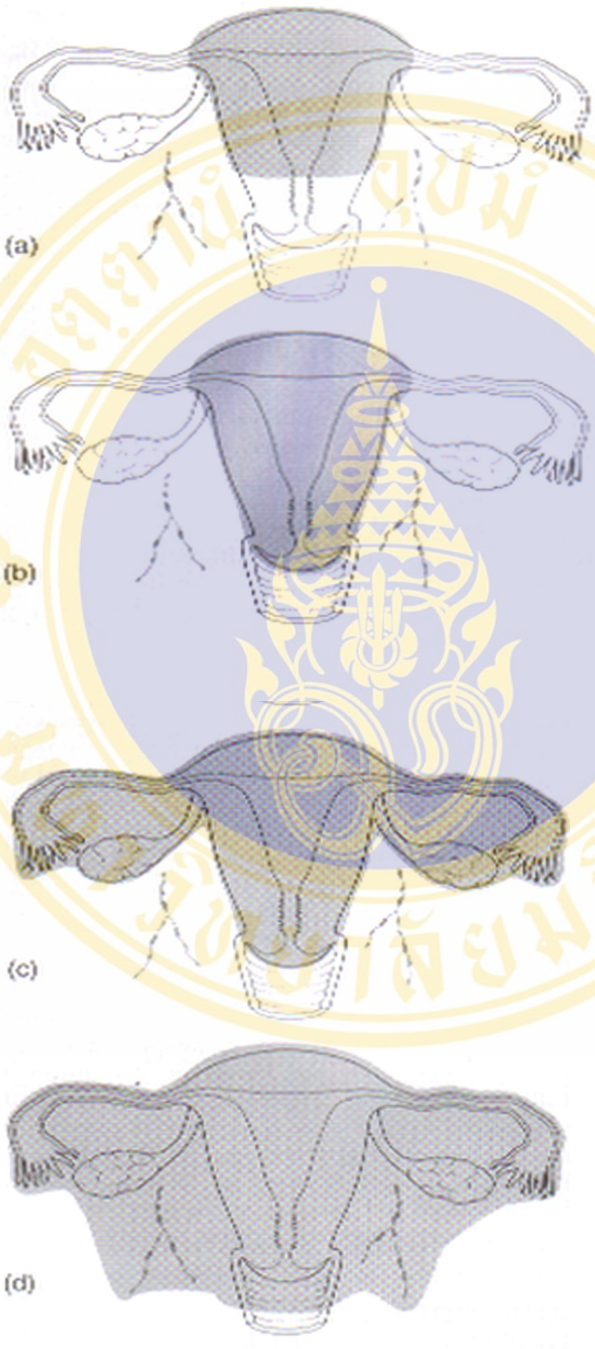
Total Abdominal Hysterectomy [14]

The uterus is usually completely removed i.e., total hysterectomy is usually performed. In rare circumstances, hysterectomy may be partial, with the cervix left in situ (subtotal hysterectomy, supracervical hysterectomy). To the lay public, "partial hysterectomy" means removal of the uterus and "complete hysterectomy" means removal of the tubes and ovaries as well, or salpingo-oophorectomy (figure 2). However, the term "hysterectomy" properly refers only to uterine removal. Unilateral or bilateral salpingo-oophorectomy is performed frequently at abdominal hysterectomy, depending on what lesions are present or the age of the patient. There is controversy about the appropriate age for "prophylactic" removal of otherwise normal ovaries. Older women with adnexal disease requiring surgical removal will usually also undergo hysterectomy.

In most instances, the abdominal approach is utilized when the uterus is too large to be removed vaginally or when disease involves the adnexa. The most frequent indication is uterine leiomyomatosis. Hysterectomy is almost always elective and is not performed until medical alternatives have been exhausted.

Antibiotic prophylaxis (one dose) may be beneficial.

Preoperative counseling should emphasize the importance of early ambulation and deep breathing. Early ambulation has greatly reduced the incidence of pulmonary embolism while hastening the return of normal gastrointestinal function. In certain cases, laparoscopy will enable the patient to undergo vaginal hysterectomy because contraindications can be removed with laparoscopic surgery.



a) Subtotal hysterectomy

b) Total hysterectomy

c) Total hysterectomy with bilateral salpingo-oophorectomy

d) Wertheim's radical hysterectomy

Figure 2 Abdominal Hysterectomy [15]

Indications of total abdominal hysterectomy (14)

1. Symptomatic uterine leiomyomas (pain, pressure, bleeding)
2. Asymptomatic leiomyomas (12-14 weeks' gestational size, rapid growth)
3. Symptomatic endometriosis refractory to medical management
4. Chronic pelvic pain refractory to medical management
5. Symptomatic dysfunctional uterine bleeding refractory to medical management
6. Uncontrollable bleeding after obstetric delivery (uterine atony, placenta accreta, uterine rupture)
7. Infection unresponsive to medical management
8. Stress urinary incontinence

Contraindications of total abdominal hysterectomy (14)

1. Undiagnosed abnormal uterine bleeding
2. Unknown results of Pap smear
3. Active infection
4. Pregnancy
5. Warfarin anticoagulation
6. Any condition in which regional or general anesthesia is contraindicated

Postoperative Complications (14)

Postoperative complications significantly increase surgical morbidity rates, lengthen the hospital stay and increase costs of care, and in rare cases are major factors in patient deaths. Women undergoing pelvic surgery are especially at risk for hemorrhagic or infectious complications. Complications may occur immediately after surgery or may not develop for days to weeks after the operation.

1. Hemorrhagic complications

Hemorrhage is potentially one of the most serious of all postoperative complications. Acute hemorrhage occurring in the immediate postoperative period is frequently life-threatening. Bleeding of a less acute nature may not be come clinically

apparent until the first postoperative day or later and is generally manifested as a hematoma.

2. Pulmonary complications

A variety of pulmonary complications may occur following female pelvic surgery. The most common and least serious is atelectasis, and the most life-threatening is pulmonary embolism. Other pulmonary complications include pneumonia and aspiration.

3. Gastrointestinal complications

The two most common gastrointestinal complications associated with pelvic surgery in women are adynamic ileus and bowel obstruction.

Prolonged or severe ileus should raise the possibility of other complications such as pelvic infection, hematoma, or leakage of uterine into the abdomen.

Bowel obstruction is a serious complication of pelvic or abdominal surgery-if associated with strangulation and sepsis, it is life-threatening too.

4. Infectious complications

Most infections involving the female pelvic are poly-microbial and arise from organisms indigenous to the female genital tract. Other organisms such as *Chlamydia trachomatis, Mycoplasma, Candida albicans, Neisseria gonorrhoeae,* herpes simplex virus, and *Trichomonas vaginalis* may also inhabit the female genital tract without causing obvious clinical infection.

The pathogenesis of these infections involves contamination and colonization of the operative site with potential bacterial pathogens from the normal vaginal flora followed by surgical trauma. This along with foreign material (sutures) and serous drainage serve to establish a favorable milieu for the proliferation of microorganisms, especially anaerobes.

Bowel discomfort

Bowel discomfort in patients with abdominal surgery is the patients' sensation of pressure and fullness resulting from the accumulation of trapped air or trapped fluid in the gastrointestinal tract which may contribute gas pain and discomfort to them. Patients often have no belching, no flatus, absent or decreased bowel motility, and increased abdominal girth [16, 17, 18, 19]. The study of the perception of gastric

distention, however, showed that gastric wall tension, but not intragastric volume, determines the perception of gastric distention [20].

Indicators of bowel discomfort

In general, the gastrointestinal tract has gastric juices consisting of electrolytes, enzymes, mucous, and hormones that are secreted from duct glands and ductless glands. These gastric juices affect GI absorption and digestion of food before they are absorbed into the bloodstream by permeability through GI wall, and some are eliminated. The gastrointestinal tract, moreover, has gas derived from four sources: 1) air swallowing, 2) bacterial action, 3) diffusion from the blood, and 4) reaction of hydrochloric acid from the stomach and bicarbonates from the small bowel [21, 22]. The amount of gas within the gut depend on types of foods that were eaten, intestinal mucosal absorption, intestinal mucosal vascularity, gas diffusion, bacterial action, belching, GI motility, physical activity, or emotional stress. Lasser, et al. measured the volume of intestinal gas in 10 fasting normal adults and found that the volumes recovered measured 199 ± 31 ml [23]. However, the gas that enters the GI tract escapes or is removed by 1) expulsion by belching or the passage of flatus from the rectum; 2) consumption by intestinal bacteria; and 3) diffusion into the blood, transportation to the lungs, and finally excretion in expired air. Eructation of gas occurs in particular after a large meal or after food has been eaten rapidly, moreover, the natural act of belching is impeded when an individual is supine. In this position, gas rises above the posterosuperiorly situated esophagogastric junction while fluid settles at the level of the orifice and tends to occlude it, then gas is instead propelled caudad into the gut. Furthermore, the number of daily gaseous discharges was 13.6 ± 5.6 and average amount expelled through the anus is usually about 0.6 liter. The remainder is absorbed through the intestinal mucosa [21, 22, 23]. Postoperative status differs from normal status. In post-operation, secretion and gas were decreasingly eliminated because of the effects of the surgery and pharmacological agents on bowel motility [24]. There were no bowel motility and flatus, consequently. During operation and post-operation, patients are supine for many hours, which impeded the eructation. Activity limitation, early ambulation, or anxiety affected bowel motility, too. So gas expulsion of postoperative patients can not function as in a normal status and causes bowel discomfort.

Bowel discomfort was separated into two distinct types. First, is postoperative ileus generated from a functional inhibition of propulsive bowel activity without evidence of mechanical obstruction, immediately following surgery, and resolving spontaneously within 2-3 days. Second, is paralytic ileus persisting beyond 3 days These two types of ileus have different pathogenetic mechanisms; the first type is most prominent in the colon and results from a transient inhibition of motility by extrinsic nerves, while the second type affects all segments of the gastrointestinal tract and probably arises from a prolonged inhibition of motility by both extrinsic and intrinsic regulatory mechanisms. Alternatively, paralytic ileus may simply represent a more severe form of postoperative ileus[25] . Bowel discomfort, however, frequently occurs for 2 to 3 days after surgery [26]

Signs and symptoms of bowel discomfort [7]

1. Abdominal firmness and tenderness
2. Gas pain
3. No passage of either feces or gas rectally
4. Hearing peristalsis is less than 5 times per minute or absent
5. Difficulty in breathing from abdominal pressure on diaphram
6. Nausea and Vomiting
7. Tympanic sounds during percussion
8. Supine abdominal film shows a dilated bowel with accumulations of gas and upright abdominal film shows air-fluid level

From these signs and symptoms, there are both subjective data and objective data, as a research study comparing the time to first flatus as noted by patients and as recorded by a carbon dioxide analyzer, found the two observed times coincided [27]. It is confirmation that reporting by the patient is acceptable. From another research study, the perception of gastric distension depends on gastric wall tension, whereas intragastric volume seems irrelevant; additionally, patients' sensations were measured by fullness and nausea [20]. Bowel discomfort, therefore, is detected by both subjective signs and objective symptoms.

Mechanism of postoperative bowel discomfort

Postoperative bowel discomfort is resulting from the decrease in or lack of gastrointestinal motility, leading to dilatation of bowel from accumulation of gas and secretion. Patients, consequently, sense fullness, do not belch, do not pass flatus, and have no bowel sound. In the gastrointestinal tract, there are not only secretions and gas but also desquamated cells, which are continuously replaced by new generative cells and normal flora. The study found that the about 17 thousand per million desquamated cells were replaced in a day [7]. These are swept by a special pattern of activity in the stomach and small intestine when the human being is fasting, called the "migrating motor complex: MMC." This activity occurs about every 100 minutes between meals until the next meal occurs. To clear the intestinal lumen, MMC causes moderately active peristaltic waves to sweep its contents slowly downward along the stomach and small intestine into the colon. Then approximately at the time that one MMC reaches the end of the ileum, a new one begins in the stomach [21, 24, 28]. MMC result from the ion changing of smooth muscle cells causing action potentials, which propagate through the lower intestine. It may be the result of some neurotransmitter substances that are released by the nerve endings of different types of enteric neurons. It, moreover, results from peptide substance that is released by the endocrine cells of the duodenum called motilin. Thus, these causes control the intestinal smooth muscle [7].

The incision through the abdominal musculature results in a transient inhibition of the MMC. Entry into the peritoneal cavity eliminates MMC activity because there are a lot of nerve and blood vessels at the peritoneum, and the incision has an impact on nerves controlling GI motility. The transaction of the muscular layer of the gut wall will be more inhibit MMC [25]. In general, the cell that makes up a layer of smooth muscle must function in unison. This requires mechanical and physiologic linkages between cells. Physiologic linkages between cells are provided through gap junctions, which have low electrical resistance. These junctions are points of contact where one cell approaches the next cell so closely that ions can flow from one cell to the other. The voltage of the resting membrane potential of the gastrointestinal smooth muscle can change to different levels, and this too can have important effects on the smooth muscle contraction causing gastrointestinal motility. Muscle cell-to-muscle cell connections, therefore, are required for optimal coordination [21, 28]. However, any

procedure that results in transection of the muscle layers of the gut wall makes the coordination across the transection lost. Although contractions will still occur if all pathways are transected because slow waves are generated at all levels of the gut, a loss of coordination across the transection will occur. Indeed, the slow waves themselves usually do not cause muscle contraction in most parts of the gastrointestinal tract. Instead, they mainly control the appearance of intermittent spike potentials, and spike potentials in turn actually cause most of the muscle contraction. Spike potentials appear on the depolarization peaks of the slow waves [21, 24]. It was found that spike potentials would drop or not occur if vagotomy was taken or sympathetic nervous system (SNS) was stimulated. Some neurotransmitter substances such as acetylcholine released by preglanglionic and postglanglionic nerve cells of parasympathetic nervous system (PNS) make more spike potentials. On the other hand, norepinephrine, which is a neurotransmitter substance released by postglanglionic nerve cells of SNS, inhibit spike potentials. If SNS is stimulated, gastrointestinal motility is inhibited [24]. Not only SNS and PNS but also the enteric nervous system consisting of the myenteric plexus and submucosa plexus control gastrointestinal contraction. Hormones in some oparative agents also inhibit gastrointestinal motility [21, 25].

As mention above, bowel discomfort results from a decrease in or no action of the migrating motor complex until the secretions and gas in GI tract are not excreted. Therefore, the operative procedure impacting on the gastrointestinal nervous systems, hormones, and neurotransmitter substances which affect the MMC are causes of bowel discomfort. If bowel discomfort continues over 3 days, patients may be suffering from mechanical obstruction, abscess, hemorrhage, or hypokalemia, which are severe complications [17]. Bowel discomfort, however, can be prevented by the insertion of a nasogastric tube to release secretions and gas, restricting oral intake, enema, rectal tube insertion, medication to stimulate the passage of flatus, and encouraging patients to turn frequently and to get up if allowed to ambulate. After that assessment for bowel discomfort is the important performance that is performed by observation about abdominal firmness, nausea, and vomiting; auscultation for bowel sounds; abdominal girth measurement and belching, flatus, and bloated feeling evaluation [16, 17, 26]. A study compared the gastrointestinal dysfunction resulting from narcotics and found

that the high stage of GI dysfunction patients reached the later in recovery they are. Moreover, 42.3% of patients with GI dysfunction received treatment by NPO, alteration in diet, or insertion of NG tube [29]. The study of Mongomery compared major abdominal surgical patients randomized into two groups: routine postoperative nasogastric decompression (NGD) group and selective NGD group and found that 51% of the selective NGD group required intubation due to incidence of emesis and bowel discomfort. In 51.35% of this group, intubation was ultimately necessary within the first 3 days after operation [30]. To let patients have severe bowel discomfort is allowing patients to have a long bowel discomfort time. It, therefore, is necessary to assess and relieve bowel discomfort before it is severe.

According to the literature review, there are many factors affecting postoperative bowel discomfort which were divided into 3 groups:

1. Environmental factors
2. Health status factors
3. Self-care behavior

Factors associated with Postoperative bowel discomfort

1. Environmental factors:

1.1 Anesthetic agents. Pre anesthetic agents producing a partial or complete loss of pain sensation, loss of consciousness, loss of reflexes, muscle relaxation, and interruption of autonomic nervous system[31]. Due to the properties of interruption of autonomic nervous system, anesthetic agents, thus, affect the GI function. They stabilize neural membranes and prevent depolarization and impede conduction. The greatest impact would be upon the colon whose motor activity is more influenced by neural mechanisms. Indeed, in animal studies, various anesthetic agents have been found to have little effect on gastric and small intestinal motor or myoelectic activity [25]. The two major types of anesthetic agents, divided by administrative method, are inhalation agents and intravenous agents, and the anesthetic agents causing bowel discomfort are the following:

1.1.1 Nitrous oxide, which is an inhalation agent, may diffuse into the GI tract and contribute to distention and bowel obstruction, especially in the presence of swallowed air [32].

1.1.2 Halothane or fluothane is an inhalation agent decreasing Gl motility and inhibiting the neostigmine action which develops GI motility. It makes patients have nausea and vomiting; however, its effect is less than the others [33, 34]. Halothane administration abolishes the MMC, an effect that persists for just a short time following anesthesia [25].

1.2 Pre-anesthetic medications are used before anesthetic agents to relieve anxiety, fear, and pain and to decrease the toxication resulting from the use of a lot of anesthetic agents such as, secretion, mucus, and unpleasant reflexes. Pre-anesthetic medications, however, have several side effects: respiratory depression, nervous system depression, nausea and vomiting, and cause thirst. Pre-anesthetic medications affecting GI motility are as follows:

1.2.1 Thiopental is a pre-anesthetic agent. When it is administered via intravenous 3-5 mg/kg, it will make patients be unconscious in 30 seconds. Instead, it may be used like an anesthetic agent in a minor operation by intravenous drip, and patient will return to consciousness quickly. Some literature showed that it has no effect on GI motility [25], whereas some presented that it only inhibited GI motility at an early time [34].

1.2.2 Atropine is a muscarinic blocking drug that made GI smooth muscle relax, muscle tone decrease, and GI motility be inhibited by inhibiting the parasympathetic control of GI tract. It is used as pre-anesthetic to depress salivary and bronchial secretion resulting from some inhalation anesthetic agents. At present, there are many effective anesthetic agents, however. Atropine, thus, isn't necessary; on the other hand it is used with the neostigmine drugs for preventing over musearinic receptors stimulation [35].

1.3 Analgesic drugs are used both pre-operation and post-operation, and most of them act on the-central nervous system and GI system. They cause pain relief, drowsiness, emotional change, respiratory depression, decreased GI motility, and nausea and vomiting by markedly altering gastric emptying, as well as small and

large intestinal transit [24, 35]. Analgesic drugs which affect GI motility are the following:

1.3.1 Morphine depresses the salivary gland function and GI secretions, increases sphincter function, decreases GI motility, delays gastric emptying time, and causes constipation[36] by spike activity disruption[25]. The nonpropulsive movement is increased by morphine, while the propulsive movement is decreased by it [37]. All of these cause bowel discomfort.

1.3.2 Pethidine is a synthetic agent acting like morphine and stimulating μ receptor at neuron and GI tract. It, however, develops less muscle spasms and less constipation than morphine [35, 37].

1.4 There are many types of surgery on the many organs in the abdominal cavity; furthermore, an operation on different organs will develop different periods of bowel discomfort. In a clinical study in human beings, while MMC activity returned within 3-6-hours following a simple cholecystectomy, in those undergoing colectomy MMC recoveries may be delayed for 17-115 hours [25]. The study of Saiyud Vatanatanyakum[38] in 1986, investigated the effects of abdominal exercise on postoperative bowel discomfort in patients with kidney and ureter surgery at Khonkaen Hospital and found that exercise could significantly relieve bowel discomfort at the level of .01 from the 3rd hour after bowel discomfort was recognized. The study of Wiyada Ratanasuwan[39] in 1992, examined the effects of planned exercise on bowel discomfort and gas pain in patients with GI surgery at Chiang Rai Prachanukroa Hospital and Phayao Hospital and it was found that the postoperative patients with planned exercise had less bowel discomfort than the control group with statistical significance at the level of .05 at the 4th hour after recognized bowel discomfort. Both studies illustrated the difference that bowel discomfort period of the patients with GI operation was longer than that of the patients with kidney and ureter operation. However, there are many types of operation which could have different of bowel discomfort periods.

1.5 Length of surgical time is an important factor for bowel discomfort. If the length of surgical time is long, the manipulation to the gastrointestinal will be much more; therefore, these organs will be more irritated from the surgery. GI

disturbance develops bowel discomfort, as a result [40]. In a long time, patients will take a large amount of the anesthetic agent, so it increases bowel discomfort.

2. Health status factors:

2.1 Anxiety has been extensively described as follows:

Anxiety is a universal experience. However, people vary significantly in their ability to tolerate feelings of anxiety and in their ability to cope with anxiety-producing, situations. It is both a psychological and physical experience, so an individual will report both psychological and somatic symptoms when anxiety is complained of. The symptoms are similar to fear, but they are triggered by internal states and are out of proportion to any reality of external stimuli or danger. Typical subjective psychological experiences of anxiety include descriptions of apprehension, fear, fright, inability to concentrate, irritability, nervousness, panic, tension, and restlessness. Typical physical signs and symptoms of anxiety include anorexia, butterflies in the stomach, tightness in the chest, dyspnea, hyperventilation, dry mouth, faintness, headache, pallor, nausea, vomiting, and urinary frequency [41].

Anxiety is a status of apprehension and severe unpleasantness, and it is an internal conflict between self and environment. Persons with anxiety perceive something threatening them and they cannot tell what it is. It is a defense mechanism which warns and responds to the danger. Mild anxiety helps persons to go on with their activity and their duties. Moderate anxiety stimulates persons to be alert and respond to their duties. Severe anxiety, nonetheless, cause stress and lack of control

In 1972, Spielberger, defined anxiety as an organismic emotional state, consisting of unpleasant, consciously perceived feelings, tension, and apprehension. Since feelings of tension and apprehension are also frequently observed in states of uncertainty, it is reasonable to assume that anxiety motivates activities that serve to reduce uncertainty [42]. Spielberger divided anxiety into 2 types: trait anxiety and state anxiety. Anxiety in post-operation is defined as state anxiety. When anxiety happens, it causes physiological change. Most of them result from the autonomic nervous system which is both SNS and PNS. SNS has more actions than PNS in mild to moderate anxiety [43]. In general, SNS action causes decreasing GI motility and bowel

discomfort. When persons have anxiety, the function of digestive system will be decreased to supply blood circulation to other organs [7].

2.2 Pain stimulates SNS that decreases blood flow, motility, and neural activity in the GI tract. The neural activity for peristalsis is provided by the vagal nerve which is part of PNS. Stimulation of SNS secondary to pain inhibits vagal effects on peristalsis; therefore, GI motility does not happen, but bowel discomfort does. Moreover, pain causes both skeletal muscle and smooth muscle to have spasms for immobilization and pain relief. GI tract is included also; thus, GI muscle is weak and low function, which causes fullness, constipation, and nausea and vomiting [44].

3. Self-care behavior

Self-care behavior is the learning behavior which has been developed from the child stage to adulthood. Having the highest development self-care behavior, adults completely perform self-care [45]. In postoperative patients with bowel discomfort, they are included as health deviation persons because they have GI dysfunction and distention. To maintain health status and comfort, and to prevent hazard, complications, and following pathologic conditions, patients should have self care behavior as health-deviation self-care requisites.

3.1 Bowel discomfort in postoperative patients occurs while patients are under nursing care; therefore, the source of knowledge about this discomfort is the nurse and health care provider. When patients have bowel discomfort and it cannot be resolved, they should get advice and care from nurses and doctors.

3.2 Patients perceive discomfort and pay attension to the effects of it. They have bowel discomfort, GI dysfunction and cannot eat anything as usual. Gas pain affects early ambulation, and difficulty in breathing from abdominal pressure on the diaphragm. Therefore, patients should continuously observe and assess their signs and symptoms.

3.3 If patients effectively carry out medically prescribed, diagnostic, therapeutic, and rehabilitative measures to prevent bowel discomfort, they will get the effective remedies. Treatment varies in each patient: NPO, NG tube insertion, rectal tube insertion, and early ambulation.

3.4 Patients should be aware of and attend to or regulate the discomforting or deleterious effects of medical care measures. Both taking nothing orally, and draining content and gas by tube make patients lost fluid and electrolytes, which lead to electrolytes imbalance; thus, fluid replacement is significant. Patients, however, must observe their dizziness and fainting; carefully move; observe belching, flatus, and sensation of GI motility; and report the recovery of GI function to nurses and doctors so they may start to take something orally. The sensation of fullness and gas pain are discomfort sensations that patient should prevent and relieve by making GI function return. Early ambulation is the effective methods. It is getting up to walk within 24-48 hours after surgery. It promotes blood supply to GI tract and promotes GI motility for gas expulsion [46]. The study about the effects of planned exercise on bowel discomfort and gas pain in patients with abdominal surgery found that it could relieve those patients' bowel discomfort [39].

3.5 Patients should modify the self-concept in accepting the effects of bowel discomfort, accepting treatment measures and prevention, and confiding in themselves that they can perform self-care and relieve bowel discomfort.

3.6 After surgery 2-3 days with bowel discomfort, if patients do not understand it, nor have self-care behavior to relieve it, they will suffer from it.

These self-care behaviors must be assessed by evaluating whether patients can follow. If they cannot, it is assessed that patients have some deficits which need dependent-care from nurses who directly take responsibility to help patients.

CHAPTER III
MATERIALS AND METHODS

Research design

This research was an analytical observational research which studied in patients underwent non-emergency total abdominal hysterectomy at the gynecology ward in Ramathibodi hospital.

Study location

Gynecology Ward, Department of Obstetric & Gynecology, Faculty of Medicine, Ramathibodi hospital.

Population and Sample

The populations in this study were the patients who were to undergo non-emergency total abdominal hysterectomy in Ramathibodi hospital and were admitted into Gynecology ward from October 2003 to February 2004.

Inclusion criteria

1. Not an emergency case (These patients were routinely hospitalized 1 day prior to their operation)
2. Good consciousness
3. Willingness to cooperate

Exclusion criteria

Had been diagnosed as having cancer of any organs

Sample size

The following formula was used for calculating the sample size.

$$n = \frac{Z^2 \alpha/_2 PQ}{d^2}$$

n = sample size

Z = standard normal deviation at 0.05 = 1.96

In pilot study, the incidence of bowel discomfort in post TAH patients was 35% and it was used for calculating the sample size.

P = proportion of moderate to severe bowel discomfort in population = 0.35

Q = (1 – P) = 0.65

d = allowable error in this studies=25%of35%=0.087

$$n = \frac{(1.96)^2 (0.35) (0.65)}{(0.087)^2}$$

$$= 114.9 \simeq 115$$

Therefore, the minimal calculated sample size was 115 cases, but 120 cases were collected in this study.

Variables and Measurements

Variables

1. Independent variables under control were:
    1.1 Demographic data
        - Age
        - Marital status
        - Parity
        - Number of living children

1.2 Clinical data

- Pre-operative diagnosis leading to TAH
- Type of patients
- Level of experience of surgeons
- Length of surgical time
- Type of anesthesia
- Estimated blood loss during operation
- Blood transfusion during and after operation
- Type of analgesia
- Dosage of analgesia
- Non-steroidal anti-inflammatory drugs (NSAIDs) administered after operation
- Post- operative complications others than bowel discomfort
- Laxative drug administered after operation
- Post-operative day when the patients passed stool
- Length of stays in hospital

2. Dependent variable was the bowel discomfort after TAH

Measurements (See Appendix)

1. Bowel Discomfort Assessment Record was applied in Gynecology Ward, Department of Obstetric & Gynecology, Ramathibodi hospital. The Bowel Discomfort Assessment Record consists of five levels of assessment:

Score 0 = No bowel discomfort
1 = Mild bowel discomfort
2 = Moderate bowel discomfort
3 = Severe bowel discomfort
4 = Very Severe bowel discomfort

2. The data from medical records was collected using the record form constructed by the researcher according to the objective of study. It was divided into 3 parts as follow.

Part 1: Demographic data of the patients such as name, hospital number, age, marital status, parity and number of living children.

Part 2: Clinical data on TAH procedure such as pre-operative diagnosis, type of patients, level of experience of surgeons, length of surgical time, type of anesthesia, estimated blood loss, blood transfusion during and after operation, type of analgesia, dosage of analgesia, non-steroidal anti-inflammatory drugs (NSAIDs) administered after operation, laxative drug administered after operation, post-operative day when the patients passed stool and length of stays in hospital.

Part 3: Post- operative complications and management.

Data collection procedure

Data collection procedure was conducted in the following sequence:

1. Researcher asking for assistance from the Head nurse of the Gynecology Ward, Department of Obstetric & Gynecology, Ramathibodi hospital, to collect data from the Bowel Discomfort Assessment Record.
2. Collecting data from the medical records.
3. Verifying the completion of data from record.
4. Data analysis

Data analysis

1. Data Preparation

   Collecting and verifying data then record into diskette. Analyze data with computer by using SPSS/PC+ (Statistical Package for the Sciences/Personal Computer Plus)

2. Statistics

   The statistics used for data analysis were as followed:

   2.1 Descriptive statistics: Frequency, percentage, average and standard deviation were calculated to characteristic of patients.

   2.2 Analytical statistics: Data was analyzed by using Chi-square test $\alpha = 0.05$ and Pearson correlation coefficient.

CHAPTER IV
RESULTS

The purpose of this analytical observational research was to study the factors associated with bowel discomfort after non-emergency hysterectomy in Ramathibodi Hospital from October 2004 to February 2005. The sample size calculated was equal to 115 cases and 5 percent added for data loss or incomplete record. Total sample size was equal to 120 cases. Data was analyzed by using SPSS for window. Results of this study were presented in this chapter as follows:

Part 1: Demographic data of patients

Part 2: Clinical data on TAH procedures

Part 3: Incidence rate, hour of first symptom, severity and duration of bowel discomfort

Part 4: Factors associated with bowel discomfort after TAH

Part 5: Factors associated with duration of bowel discomfort after TAH

Part 1: Demographic data of patients

Most of patients were in the age group were more than 35 years (90%) and average age were 43.78 ± 8.33 years. Regarding marital status, most patients were married (67.5%), while 22.5% were single and 10% were widowed, divorced or separated**.** For the parity and the number of living children, 42.5% had no children or 1-2 living children. (Table 2)

Table 2 Demographic characteristic of the patients

Characteristics	Number (N = 120)	%
Age (years)		
< 20	3	2.5
21 – 35	9	7.5
36 – 50	90	75.0
≥ 51	18	15.0
Mean ± SD = 43.78 ± 8.33	**Min = 14 , Max = 68**	
Marital status		
Single	27	22.5
Married	81	67.5
Widowed, divorced, separated	12	10.0
Parity		
0	51	42.5
1	22	18.3
2	29	24.2
≥ 3	18	15.0
Number of living children		
0	51	42.5
1	22	18.3
2	29	24.2
≥ 3	18	15.0

Part 2: Clinical data on TAH procedures

2.1 Pre-operative diagnosis leading to TAH

More than half (61.7%) of patients were diagnosed as having myoma uteri while 20% were diagnosed as having adenomyosis, 16.6% were diagnosed as having ovarian tumor and 1.7% were diagnosed as having tubo-ovarian abscess. (Table 3)

2.2 Type of patients

The largest group of type of patients was in the non-private type (80.8%). (Table 3)

2.3 Level of experience of surgeons

Most of TAH were performed by resident in training (77.5%) (Under staff control) and were performed by staff in only 22.5% of patients. (Table 3)

2.4 Length of surgical time

The average length of surgical time was 131.62 ± 39.92 minutes (range from 60 – 240 minutes). Most of the operation (60 cases or 50%) took 60-120 minutes. (Table 3)

2.5 Type of anesthesia

The majority of patients were received general anesthesia (92.5%). Spinal or epidural block was performed in 5.8% of cases. (Table 3)

2.6 Estimated blood loss during operation

The average estimated blood loss during operation was 377.67 ± 339.20 milliliters (range from 50 – 2,050 milliliters). Most of the patients (39cases or 32.5%) lost the amount of blood ranged from 200 - 399 milliliters. (Table 3)

2.7 Blood transfusion during and after operation

Most of patients did not receive blood transfusion during and after operation (90.8%). (Table 3)

2.8 Type of analgesia after operation

The majority of patients received analgesic drugs to control pain (90%). Most patients received pethidine (88.9%) while 10.2% received morphine. (Table 3)

2.9 Dosage of analgesia

After operation, the dose of the morphine or pethidine which the patients received averaged 107.59 ± 78.91 milligrams. Most of the patients (56 cases or 51.9%) received both the morphine and pethidine at the dose of less than 100 milligrams. (Table 3)

2.10 Non-steroidal anti-inflammatory drugs (NSAIDs) administered after operation

The majority of patients received NSAIDs in combination with analgesic drug to control pain (80.8%). The largest group received by injection (44.3%), 38.2% received combination of injection and oral route. (Table 3)

2.11 Post-operation complications others than bowel discomfort

Most of the patients did not have complications after operation (80%). Among 20% of patients who had postoperative complications, hemorrhage is the most common. Other type of complication included drug allergy, organ injuries such as ureter or urinary bladder injuries. (Table 3)

2.12 Laxative drug administered after operation

Most of the patients did not receive laxative drug after operation (84.2%). Its meant that they could pass stool by themselves. (Table 3)

2.13 Post operative day when the patients passed stool

Most of the patients passed stool on the 3rd post-operative day (49.2%) while 23.3% passed stool on the 4th post-operative day. Only 0.8% passed stool on the 6th – 7th post-operative day. (Table 3)

2.14 Length of stays in hospital

The average length of stays in hospital was 6.58 ± 2.10days (range 5 – 16 days). (Table 3)

Table 3 Clinical data on TAH procedures

Clinical data	Number (N = 120)	%
Pre-operative diagnosis		
Myoma uteri	74	61.7
Adenomyosis	24	20.0
Ovarian tumor	20	16.6
Tubo-ovarian abscess	2	1.7
Type of patients		
Non-private	97	80.8
Private	23	19.2
Level of experience of surgeons		
Resident 2	48	40.0
Resident 3	45	37.5
Staff	27	22.5
Length of surgical time (minute)		
60 – 120	60	50.0
121 – 180	48	40.0
≥ 181	12	10.0
Mean ±SD = 131.62 ± 39.92	**Min = 60 , Max = 240**	

Table 3 Clinical data on TAH procedures (continue)

Clinical data	Number (N = 120)	%
Type of anesthesia		
General anesthesia (GA)	111	92.5
Spinal or Epidural block	7	5.8
Combine technique (GA + block)	2	1.7
Estimated blood loss (ml.)		
≤ 199	35	29.2
200 – 399	39	32.5
400 – 599	23	19.2
600 – 799	10	8.3
≥ 800	13	10.8
Mean ± SD = 377.67 ± 339.20	**Min =50 , Max= 2,050**	
Blood transfusion		
Not received	109	90.8
Received	11	9.2
1 unit	4	36.4
2 unit	4	36.4
≥ 3 unit	3	27.2
Type of analgesia after operation		
No analgesia	12	10.0
Received	108	90.0
Morphine	11	10.2
Pethidine	96	88.9
Morphine + Pethidine	1	0.9

Table 3 Clinical data on TAH procedures (continue)

Clinical data	Number (N = 120)	%
Dosage of Analgesia		
No analgesia	12	10.0
Received	108	90.0
≤100 mg.	56	51.9
101 - 200 mg.	37	34.2
> 200 mg.	15	13.9
Mean ± SD = 107.59 ± 78.91	**Min = 0 , Max = 375**	
NSAIDs administration		
Not received	23	19.2
Received	97	80.8
Injection	43	44.3
Oral	17	17.5
Injection + Oral	37	38.2
Complications others than bowel discomfort	96	80.0
None	24	20.0
Presented	6	25.0
Hemorrhagic complications	3	12.5
Pulmonary complications	4	16.7
Infectious complications	11	45.8
Others*		

* Other complications = drug allergy, tear bladder, vertigo, ureterovaginal fistula

Table 3 Clinical data on TAH procedures (continue)

Clinical data	Number (N = 120)	%
Laxative drug administration		
Not received	101	84.2
Received	19	15.8
Day of pass stool		
Post-op day 1	2	1.7
Post-op day 2	26	21.7
Post-op day 3	59	49.2
Post-op day 4	28	23.3
Post-op day 5	3	2.5
Post-op day 6	1	0.8
Post-op day 7	1	0.8
Mean ± SD = 3.09 ± 0.91	**Min = 1 , Max = 7**	
Length of stays in hospital		
5 day	27	22.5
6 day	62	51.7
7 day	13	10.8
> 7 day	18	15.0
Mean ± SD = 6.58 ± 2.10	**Min = 5 , Max = 16**	

Part 3: Incidence rate, hour of first symptom, severity and duration of bowel discomfort

Incidence rate of bowel discomfort after TAH

Within 8 hours after operation, no patients had the symptom of bowel discomfort. Mild to severe bowel discomfort occurred within 9 – 56 hours postoperatively. Regarding bowel discomfort, most patients had mild bowel discomfort 45.8% during 33 – 40 hours postoperative and 10% had moderate bowel discomfort during 33 – 40 hours postoperative too. Severe bowel discomfort was experienced in 2.5% of patients at 25 – 32 hours after operation. (Table4 and figure 3)

Table 4 Incidence and severity of bowel discomfort after TAH (N=120)

Post-op (hr.)	No Bowel discomfort	Mild Bowel discomfort	Moderate Bowel discomfort	Severe Bowel discomfort	Discharge	Total
	Number(%)	Number(%)	Number(%)	Number(%)	Number (%)	Number (%)
0-8	120 (100.0)	-	-	-	-	**120 (100.0)**
9-16	114 (95.0)	4 (3.3)	2 (1.7)	-	-	**120 (100.0)**
17-24	101 (84.2)	16 (13.3)	3 (2.5)	-	-	**120 (100.0)**
25-32	61 (50.8)	47 (39.2)	9 (7.5)	3 (2.5)	-	**120 (100.0)**
33-40	51 (42.5)	55 (45.8)	12 (10.0)	2 (1.7)	-	**120 (100.0)**
41-48	58 (48.3)	54 (45.0)	6 (5.0)	2 (1.7)	-	**120 (100.0)**
49-56	62 (51.7)	52 (43.3)	4 (3.3)	2 (1.7)	-	**120 (100.0)**
57-64	79 (65.9)	37 (30.8)	4 (3.3)	-	-	**120 (100.0)**
65-72	80 (66.7)	31 (25.8)	4 (3.3)	-	5 (4.2)	**120 (100.0)**
73-80	81 (67.5)	24 (20.0)	1 (0.8)	-	14 (11.7)	**120 (100.0)**
81-88	78 (65.0)	18 (15.0)	1 (0.8)	-	23 (19.2)	**120 (100.0)**
89-96	58 (49.2)	13 (10.8)	1 (0.8)	-	47 (39.2)	**120 (100.0)**
97-104	39 (32.5)	8 (6.7)	-	-	73 (60.8)	**120 (100.0)**
105-112	29 (24.2)	6 (5.0)	1 (0.8)	-	84 (70.0)	**120 (100.0)**
113-120	23 (19.2)	1 (0.8)	2 (1.7)	-	94 (78.3)	**120 (100.0)**
121-128	15 (12.5)	2 (1.7)	-	-	103 (85.8)	**120 (100.0)**
129-136	14 (11.7)	2 (1.7)	-	-	104 (86.7)	**120 (100.0)**
137-144	9 (7.5)	1 (0.8)	-	-	110 (91.7)	**120 (100.0)**

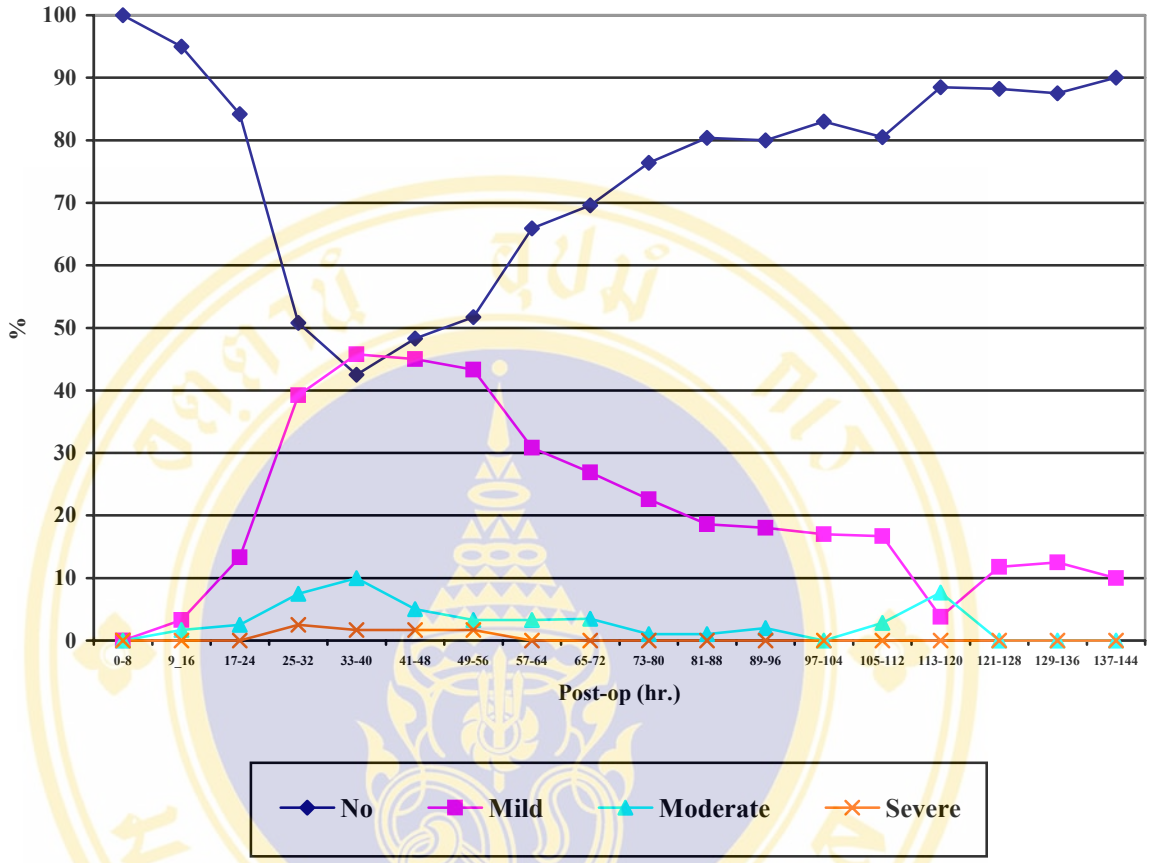


Figure 3 Incidence and severity of bowel discomfort after TAH (N=120)

Hour of first symptom of bowel discomfort after TAH (N=98)

Most of the patients (41 cases or 41.8%) had first symptom of bowel discomfort after TAH within 32 hours. (Table 5)

Duration of bowel discomfort after TAH (N=120)

Most of the patients (19 cases or 15.8%) had duration of bowel discomfort after TAH for 32 hours. Seventy-five patients (62.4%) had duration of bowel discomfort for 8-40 hours. (Table 6)

Table 5 Hour of first symptom of bowel discomfort (N=98)

First symptom of bowel discomfort (hr.)	Number(N=98)	%	Cumulative Percent
16	6	6.1	6.1
24	14	14.3	20.4
32	41	41.8	62.2
40	18	18.4	80.6
48	5	5.1	85.7
56	6	6.1	91.8
64	4	4.1	95.9
72	1	1.0	96.9
80	1	1.0	98.0
88	1	1.0	99.0
104	1	1.0	100.0

Table 6 Duration of bowel discomfort after TAH (N=120)

Duration of bowel discomfort (hr.)	Number(N=98)	%	Cumulative Percent
0	22	18.3	18.3
8	15	12.5	30.8
16	13	10.8	41.7
24	12	10.0	51.7
32	19	15.8	67.5
40	16	13.3	80.8
48	3	2.5	83.3
56	5	4.2	87.5
64	3	2.5	90.0
72	4	3.3	93.3
80	6	5.0	98.3
96	2	1.7	100.0

Severity of bowel discomfort after TAH (N = 120)

Most patients had mild bowel discomfort (55.8%) and moderate to severe bowel discomfort (25.8%).Totally the incidence of bowel discomfort (mild to severe) was 81.6%.(Table 7)

Table 7 Severity of bowel discomfort after TAH (N = 120)

Post-op	No Bowel discomfort	Mild Bowel discomfort	Moderate Bowel discomfort	Severe Bowel discomfort
	Number (%)	Number (%)	Number (%)	Number (%)
Total	22 (18.4)	67 (55.8)	24 (20.0)	7 (5.8)

Part 4: Factors associated with bowel discomfort after TAH

All factors had no statistically significant association with post TAH bowel discomfort by Chi-square test ($p<0.05$). (Table8)

But when correlation analysis was applied, there were significant statistical association between age ($r = -0.189$, $p<0.05$), day of passed stool ($r = -0.190$, $p<0.05$) and bowel discomfort. (Table 9)

Table 8 Factors associated with bowel discomfort after TAH

Factors	No bowel discomfort Number (%) (N = 22)	Have bowel discomfort Number (%) (N=98)
Age (years)		
≤ 50	16 (72.7)	86 (87.8)
≥ 51	6 (27.3)	12 (12.2)
χ^2= 3.182, df = 1, p-value=0.074		

Table 8 Factors associated with bowel discomfort after TAH (continue)

Factors	No bowel discomfort Number (%) (N = 22)	Have bowel discomfort Number (%) (N=98)
Marital status		
Single,widowed,divorced,separated	4 (18.2)	35 (35.7)
Married	18 (81.8)	63 (64.3)
χ^2= 2.517, df =1, p-value = 0.113		
Parity		
0	7 (31.8)	44 (44.9)
1	4 (18.2)	18 (18.4)
2	7 (31.8)	22 (22.4)
$\geq$ 3	4 (18.2)	14 (14.3)
χ^2=1.158, df = 3, p-value=0.669		
Number of living children		
0	7 (31.8)	44 (44.9)
1	4 (18.2)	18 (18.4)
2	7 (31.8)	22 (22.4)
$\geq$ 3	4 (18.2)	14 (14.3)
χ^2=1.158, df = 3, p-value=0.669		
Diagnosis		
Myoma uteri	10 (45.5)	64 (65.3)
Adenomyosis	5 (22.7)	19 (19.4)
Ovarian tumor + Tubo-ovarian abscess	7 (31.8)	15 (15.3)
χ^2=3.920,df = 2,p-value =0.141		

Table 8 Factors associated with bowel discomfort after TAH (continue)

Factors	No bowel discomfort Number (%) (N = 22)	Have bowel discomfort Number (%) (N=98)
Type of patients		
Non-private	18 (81.8)	79 (80.6)
Private	4 (18.2)	19 (19.4)
χ^2=0.017, df =1, p-value =0.897		
Level of experience of surgeons		
Resident 2	9 (40.9)	39 (39.8)
Resident 3	8 (36.4)	37 (37.8)
Staff	5 (22.7)	22 (22.4)
χ^2=0.015, df=2, p-value =0.992		
Length of surgical time		
60 – 120 min.	9 (40.9)	51 (52.0)
≥121 min.	13 (59.1)	47 (48.0)
χ^2 = 0.891, df =1, p-value= 0.345		
Type of anesthesia		
General anesthesia (GA)	22 (100.0)	89 (90.8)
Spinal, Epidural, GA + block	0 (0.0)	9 (9.2)
Fisher Exact Test p-value=1.000		
Estimated blood loss (ml.)		
≤ 199	7 (31.8)	28 (28.6)
200 – 399	7 (31.8)	32 (32.7)
≥ 400	8 (36.4)	38 (38.8)
χ^2=0.096, df=2, p-value = 0.953		

Table 8 Factors associated with bowel discomfort after TAH (continue)

Factors	No bowel discomfort Number (%) (N = 22)	Have bowel discomfort Number (%) (N=98)
Blood transfusion		
Not received	20 (90.9)	89 (90.8)
Received	2 (9.1)	9 (9.2)
Fisher Exact Test p-value=1.000		
Dosage of analgesia		
≤ 100 mg.	13 (59.1)	55 (56.1)
≥ 101 mg.	9 (40.9)	43 (43.9)
χ^2=0.064, df=1, p-value = 0.800		
NSAIDs administration		
Not received	5 (22.7)	18 (18.4)
Received	17 (77.3)	80 (81.6)
χ^2=0.220, df=1 , p-value =0.639		
Complications		
No	16 (72.7)	80 (81.6)
Yes	6 (27.3)	18 (18.4)
χ^2=0.891,df=1,p-value = 0.345		
Laxatives		
Not received	19 (86.4)	82 (83.7)
Received	3 (13.6)	16 (16.3)
Fisher Exact Test p-value=1.000		

Table 8 Factors associated with bowel discomfort after TAH (continue)

Factors	No bowel discomfort Number (%) (N = 22)	Have bowel discomfort Number (%) (N=98)
Day of pass stool		
Post-op day 1 - 3	13 (59.1)	74 (75.5)
Post-op day ≥ 4	9 (40.9)	24 (24.5)
χ^2=2.429, df=1, p-value = 0.119		
Length of stays		
5 day	8 (36.4)	19 (19.4)
6 day	10 (45.5)	52 (53.1)
≥ 7 day	4 (18.2)	27 (27.6)
χ^2=3.113, df=2 , p-value =0.211		

Table 9 Conclusion of association of factors with bowel discomfort after TAH

Variables	χ^2	df	p*	r	p**
Age	3.182	1	0.074	-0.189	0.039
Marital status	2.517	1	0.113	-	-
Parity	1.158	3	0.669	-0.132	0.151
Number of living child	1.158	3	0.669	-0.132	0.151
Diagnosis	3.920	2	0.141	-	-
Type of patients	0.017	1	0.897	-	-
Level of experience of surgeons	0.015	2	0.992	-	-
Length of surgical time	0.891	1	0.345	-0.052	0.572
Type of anesthesia	-	-	1.000***	-	-
Estimated blood loss	0.096	2	0.953	0.009	0.924
Blood transfusion	-	-	1.000***	0.001	0.990
Dosage of analgesia	0.064	1	0.800	0.132	0.152
NSAIDs administration	0.220	1	0.639	-	-
Complications	0.891	1	0.345	-	-
Laxatives	-	-	1.000***	-	-
Day of pass stool	2.429	1	0.119	-0.190	0.037
Length of stays in hospital	3.113	2	0.211	0.048	0.604

* p-value of Chi-square test

** p-value of correlation

*** Fisher Exact Test

Part 5: Factors associated with duration of bowel discomfort after TAH

Only the factor of post-operative complication had statistically significant association with duration of bowel discomfort after TAH by Chi-square test ($p < 0.05$). (Table 10)

When correlation analysis was applied, there was significant statistical association between dosage of analgesia ($r = 0.222$, $p<0.05$) and duration of bowel discomfort. (Table 11)

Table 10 Factors associated with duration of bowel discomfort after TAH

Factors	Duration of bowel discomfort 8 - 24 hours Number (%) (N = 40)	Duration of bowel discomfort > 24 hours Number (%) (N = 58)
Age (years)		
≤ 50	32 (80.0)	54 (93.1)
≥ 51	8 (20.0)	4 (6.9)
χ^2=3.783, df=1, p-value= 0.052		
Marital status		
Single, widowed, divorced, separated	14 (35.0)	21 (36.2)
Married	26 (65.0)	37 (36.8)
χ^2=0.015, df=1, p-value=0.902		
Parity		
0	19 (47.5)	25 (43.1)
1	8 (20.0)	10 (17.2)
2	7 (17.5)	15 (25.9)
≥ 3	6 (15.0)	8 (13.8)
χ^2=0.962, df=3, p-value=0.811		
Number of living children		
0	19 (47.5)	25 (43.1)
1	8 (20.0)	10 (17.2)
2	7 (17.5)	15 (25.9)
≥ 3	6 (15.0)	8 (13.8)
χ^2= 0.962, df=3, p-value=0.811		

Table 10 Factors associated with duration of bowel discomfort after TAH (continue)

Factors	Duration of bowel discomfort 8 - 24 hours Number (%) (N = 40)	Duration of bowel discomfort > 24 hours Number (%) (N = 58)
Diagnosis		
Myoma uteri	21 (52.5)	43 (74.2)
Adenomyosis	10 (25.0)	9 (15.5)
Ovarian tumor + Tubo-ovarian abscess	9 (22.5)	6 (10.3)
χ^2= 5.080, df=2, p-value=0.079		
Type of patients		
Non-private	32 (80.0)	47 (81.0)
Private	8 (20.0)	11 (19.0)
χ^2=0.016, df=1, p-value=0.899		
Level of experience of surgeons		
Resident 2	17 (42.5)	22 (37.9)
Resident 3	12 (30.0)	25 (43.1)
Staff	11 (27.5)	11 (19.0)
χ^2= 1.969, df=2, p-value=0.374		
Length of surgical time		
60 – 120 min.	22 (55.0)	29 (50.0)
≥ 121 min.	18 (45.0)	29 (50.0)
χ^2 =0.237, df= 1, p-value=0.626		

Table 10 Factors associated with duration of bowel discomfort after TAH (continue)

Factors	Duration of bowel discomfort 8 - 24 hours Number (%) (N = 40)	Duration of bowel discomfort > 24 hours Number (%) (N = 58)
Type of anesthesia		
General anesthesia (GA)	34 (85.0)	55 (94.8)
Spinal, Epidural, GA + block	6 (15.0)	3 (5.2)
Fisher Exact Test p-value=0.153		
Estimated blood loss (ml.)		
< 199	9 (22.5)	19 (32.8)
200 – 399	13 (32.5)	19 (32.8)
≥ 400	18 (45.0)	20 (34.5)
χ^2=1.548, df=2, p-value=0.461		
Blood transfusion		
Not received	35 (87.5)	54 (93.1)
Received	5 (12.5)	4 (6.9)
χ^2= 0.891, df=1, p-value = 0.345		
Dosage of analgesia		
≤100 mg.	25 (62.5)	30 (51.7)
≥ 101 mg.	15 (37.5)	28 (48.3)
χ^2= 1.116, df=1, p-value = 0.291		

Table 10 Factors associated with duration of bowel discomfort after TAH (continue)

Factors	Duration of bowel discomfort 8 - 24 hours Number (%) (N = 40)	Duration of bowel discomfort > 24 hours Number (%) (N = 58)
NSAIDs administration		
Not received	10 (25.0)	8 (13.8)
Received	30 (75.0)	50 (86.2)
χ^2= 1.983, df=1 , p-value = 0.159		
Complications		
No	28 (70.0)	52 (89.7)
Yes	12 (30.0)	6 (10.3)
χ^2= 6.100,df=1,p-value = 0.014		
Laxatives		
Not received	36 (90.0)	46 (79.3)
Received	4 (10.0)	12 (20.7)
χ^2= 1.980, df=1, p-value = 0.159		
Day of pass stool		
Post-op day 1 - 3	31 (77.5)	43 (74.1)
Post-op day $\geq$ 4	9 (22.5)	15 (25.9)
χ^2= 1.145, df=1, p-value = 0.704		

Table 10 Factors associated with duration of bowel discomfort after TAH (continue)

Factors	Duration of bowel discomfort 8 - 24 hours Number (%) (N = 40)	Duration of bowel discomfort > 24 hours Number (%) (N = 58)
Length of stays		
5 day	7 (17.5)	12 (20.7)
6 day	21 (52.5)	31 (53.4)
≥ 7 day	12 (30.0)	15 (25.9)
χ^2= 0.275, df=2 , p-value = 0.871		

Table 11 Conclusion of association of factors with duration of bowel discomfort after TAH

Variables	χ^2	df	p*	r	p**
Age	3.783	1	0.052	-0.100	0.279
Marital status	0.015	1	0.902	-	-
Parity	0.962	3	0.811	-0.025	0.789
Number of living child	0.962	3	0.811	-0.025	0.789
Diagnosis	5.080	2	0.079	-	-
Type of patients	0.016	1	0.899	-	-
Level of experience of surgeons	1.969	2	0.374	-	-
Length of surgical time	0.237	1	0.626	-0.045	0.627
Type of anesthesia	-	-	0.153***	-	-
Estimated blood loss	1.548	2	0.461	-0.092	0.318
Blood transfusion	0.891	1	0.345	-0.098	0.289
Dosage of analgesia	1.116	1	0.291	0.222	0.015
NSAIDs administration	1.983	1	0.159	-	-
Complications	6.100	1	0.014	-	-
Laxatives	1.980	1	0.159	-	-
Day of pass stool	1.145	1	0.704	-0.166	0.070
Length of stays in hospital	0.275	2	0.871	0.076	0.409

* p-value of Chi-square test

** p-value of correlation

*** Fisher Exact Test

CHAPTER V
DISCUSSION

The discussion will be presented in 2 parts.

1. Research Methodology of this study
2. Result of this study

Part 1: Research Methodology

1. Research design: This research was an analytical observational research. The design is appropriate according to the objectives of the study in patients underwent non-emergency TAH at the Gynecology Ward in Ramathibodi hospital. Because the data was collected by asking post TAH patients to fill up the questionnaires regarding bowel discomfort everyday until they are discharged from the hospital, together with collecting the data from medical records about clinical data on TAH procedure and also the treatment of bowel discomfort after the surgery.

2. Population and sample: The populations in this study were the patients who underwent non- emergency hysterectomy in Ramathibodi hospital and were admitted into Gynecology Ward from October 2003 to February 2004. Patients would be recruited purposively according to the inclusion criteria. In this study, the proportion of moderate to severe bowel discomfort in TAH patients obtained from the pilot study in Ramathibodi hospital in 2003, was estimated to be 35% and was used to calculate the sample size. The minimal sample size was 115 samples and 5 percent were added for data loss or incomplete records. Total sample size was equal to 120 cases and it is adequate for analysis.

Part 2: Result of the study

The results will be presented according to the objectives:

1. Demographic data of patients

In this study, most of the patients were in the age group of more than 35 years (90%) and average age was 43.78 ± 8.33 years. Older women seemed to have more problems of uterus and ovary. There were no striking characteristics among patients underwent TAH at Ramathibodi hospital.

2. Clinical data on TAH procedures

More than half (61.7%) of patients were diagnosed as having myoma uteri. The average length of surgical time was 131.62 ± 39.92 minutes (range from 60 – 240 minutes) and the average estimated blood loss in operation was 377.67 ± 339.20 milliliters (range from 50 – 2,050 milliliters). After operation, the most patients received pethidine with 88.9% while 10.2% received morphine and 80% did not have complications. In this study, TAH was safe, took no long time and was without serious complications.

3. Incidence rate of bowel discomfort among post TAH patients at Ramathibodi hospital (Objective 1)

Within 8 hours after operation, no patients had the symptom of bowel discomfort. Mild to severe bowel discomfort occurred within 9 – 56 hours postoperative. Regarding bowel discomfort, most patients had mild bowel discomfort 45.8% during 33 – 40 hours postoperative and 10% had moderate bowel discomfort during 33 – 40 hours postoperative too. Severe bowel discomfort was experienced in 2.5% of patients 25 – 32 hours after operation.

Most of the patients (41 cases or 41.8%) had first symptom of bowel discomfort after TAH within 32 hours.

Regarding the duration of bowel discomfort, the symptom of bowel discomfort usually lasted for 8 – 40 hours (64.2%). The longest duration was 96 hours (4 days). Thus, most of bowel discomfort post TAH were mild and of short duration.

Regarding the severity of bowel discomfort, Most patients had mild bowel discomfort (55.8%) and moderate to severe bowel discomfort (25.8%).Totally the incidence of bowel discomfort (Mild to severe) was 81.6%.

This incidence rate was rather high but only small portion severely affected the condition of patients. There was no study to compare.

The study of Saiyud Vatanatanyakum[38] in 1986, investigated the effects of abdominal exercise on postoperative bowel discomfort in patients with kidney and ureter surgery at Khonkaen Hospital and the study of Wiyada Ratanasuwan[39] in 1992, examined the effects of planned exercise on bowel discomfort and gas pain in patients with GI surgery at Chiang Rai Prachanukroa Hospital and Phayao Hospital, Both studies illustrated the difference that bowel discomfort period of the patients with GI operation was longer than that of the patients with kidney and ureter operation. However, there are many types of operation which could have different of bowel discomfort periods.

In this study, we collected data of bowel discomfort post TAH only. There was no other type of surgery but the incidence rate should be comparable with those from GI study.

4. Treatment of bowel discomfort and length of stay in hospital (Objective 2)

In this study there are many methods to solve bowel discomfort and was applied to every patients i.e. encouraging patients to do early ambulation and drugs such as carminative, antacid, laxative and analgesic were prescribed according to the patient's condition.

The result of the study showed that the most of the patients did not receive laxative drug after operation (84.2%). Its means they could pass stool by themselves and passed stool on the 7^{th} post-operative day. The average length of stays in hospital was 6.58 ± 2.10 days (range from 5 – 16 days). But we found those were not significant association with bowel discomfort by chi-square test. When correlation analysis was applied there was significant association with day of pass stool ($p<0.05$).

Payao Kasetsomboon [47] studied the effects of early movement and ambulation in gastrointestinal surgical patients and found that the average period from the operation to the beginning of bowel sound and length of stays in hospital in the experimental group (received help and promotion from the investigator to move i.e. to turn, sit, stand and walk, early after the operation day) were less than those in the

controlled group (received routine postoperative nursing care or received no help and promotion from the investigator)($p<0.05$).

Saiyud Vatanatunyakum [38] studied the effect of structured abdominal exercises on abdominal distention in patients with kidney and ureter surgery and found that the structured abdominal exercises can reduce distention ($p< 0.01$).

5. Factors associated with bowel discomfort after TAH(Objective 3)

It seemed that older women who underwent TAH had more probability to have bowel discomfort. We found that age had no significant by Chi-square test but significant by correlation association with bowel discomfort ($p<0.05$).

However, the result of the study showed no difference between TAH performed by resident in training (under supervision of staff) and that performed by staff only.

In this study the bowel discomfort after operation was not significantly with any factors by Chi-square test. But when correlation analysis was applied, there were significant statistical association between age, day of passed stool and bowel discomfort ($p<0.05$).

Regarding the duration of bowel discomfort, it was significantly associated with complications of TAH by Chi-square test ($p<0.05$). And when correlation analysis was applied, there was significant statistical association between dosage of analgesia and bowel discomfort ($p<0.05$).

Tippawan Wattanawech [7] studied factors influencing abdominal distention in patients with abdominal surgery and found that anxiety, together with self- care behavior, could explain the variation of abdominal distention by 24.5% on the first day. Anxiety, length of surgical time, self- care behavior, and frequency of analgesia dose could explain that on the second day by 36.6%.And anxiety, frequency of analgesia dose, self- care behavior, and pethidine type of analgesia were predictors that accounted for 41.9% of variability of abdominal distention on the third day.

In conclusion, bowel discomfort is common among after TAH and were significantly associated with age, day of pass stool, dosage of analgesia and complication after operation. Thus, cautions during TAH procedure should be exercised to help alleviate bowel discomfort after operation.

CHAPTER VI
CONCLUSION

Bowel discomfort is common among patients after total abdominal hysterectomy (TAH) [17, 18]. There are many factors causing postoperative bowel discomfort [7]. This study was designed to determine factors associated with bowel discomfort after non-emergency hysterectomy in Ramathibodi hospital. The objectives were to study incidence rate, treatment of bowel discomfort and factors associated with bowel discomfort among post TAH patients. This was an analytical observational research. Post-operative patients of non-emergency TAH who were admitted into Gynecology Ward, Ramathibodi hospital, were asked to fill up the questionnaires regarding bowel discomfort everyday until they are discharged from the hospital. Data from medical records was also collected. One hundred-twenty patients were recruited purposively according to the inclusion criteria during October 2003-Februry 2004. The statistics used for analysis included descriptive statistics, Chi-square test and Pearson correlation coefficient. Analyze data with computer by using SPSS/PC+.

The result of this study showed that within 8 hours after operation, no patients had the symptoms of bowel discomfort. Mild to severe bowel discomfort occurred within 9 – 56 hours after the operation, most occurred within 32 hours (41.8%) and 62.4% had duration of bowel discomfort for 8-40 hours. Totally the incidence of bowel discomfort post non-emergency TAH was 81.6%. The most of patient had average age 43.78 ± 8.33 years. More than half (61.7%) of patients were diagnosed as having myoma uteri. The average length of surgical time was 131.62 ± 39.92 minutes. The average estimated blood loss in operation was 377.67 ± 339.20 milliliters. Most patients received pethidine 88.9% while 10.2% received morphine and NSAIDs in combination with analgesic drug to control pain 80.8%.These patients did not have complications after operation (80%). Among 20% of patients who had postoperative complications, hemorrhage is the most common. Other type of complication included

drug allergy, organ injuries such as ureter or urinary bladder injuries. Most of the patients did not receive laxative drug after operation (84.2%) and 49.2% passed stool on the 3rd post-operative day. The lengths of stays in hospital after operation were at least 5-6 day (74.2%).

In conclusion, bowel discomfort is common among after TAH and were significantly associated with age, day of passed stool, dosage of analgesia and complications after operation ($p<0.05$). Thus, cautions during TAH procedure should be exercised to help alleviate bowel discomfort after operation.

Recommendation for Application

1. Bowel discomfort is common among patients after total abdominal hysterectomy (TAH).Nurses and doctors should pay attention and record symptoms of bowel discomfort in every patient. Formal forms to record bowel discomfort in patients should be constructed.

2. Caution should be exercised to avoid complications to decrease the incidence of bowel discomfort.

Recommendation for Further Research

1. Role of early ambulation and early feeding after TAH.

2. Drugs to stimulate bowel activity after surgery and to decrease bowel discomfort.

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APPENDIX

แบบประเมินภาวะท้องอืด

ชื่อ-สกุล .....HN.....

ผ่าตัด ☐ Vagina ☐ Abdominal

วันที่	เวร	ท้องไม่อืด 0	อืดเล็กน้อย 1	อืดปานกลาง 2	อืดมาก 3	อืดมากที่สุด 4	หมายเหตุ
	7-15น.						
	15-23น.						
	23-7น.						
	7-15น.						
	15-23น.						
	23-7น.						
	7-15น.						
	15-23น.						
	23-7น.						
	7-15น.						
	15-23น.						
	23-7น.						
	7-15น.						
	15-23น.						
	23-7น.						
	7-15น.						
	15-23น.						
	23-7น.						

ลำดับที่ .....

แบบเก็บข้อมูล

ชื่อ ..... HN.....

อายุ .....ปี

สภาพสมรส ☐ โสด ☐ คู่ ☐ หม้าย ☐ หย่า ☐ แยก

จำนวนการคลอด .....ครั้ง

จำนวนบุตร ..... คน คนสุดท้ายอายุ.....ปี

วินิจฉัยก่อนผ่าตัด .....

แพทย์ ☐ สามัญ ☐ พิเศษ

แพทย์ผู้ผ่าตัด ☐ R_2 ☐ R_3 ☐ S

ระยะเวลาผ่าตัด .....นาที

การดมยาสลบ ☐ ดมยา ☐ ฉีดเข้าไขสันหลัง ☐ ทั้ง 2 อย่าง

เสียเลือด .....มิลลิลิตร

การให้เลือด ☐ ไม่ให้ ☐ ให้ ..... unit

การให้ยาแก้ปวด ☐ Mo ☐ Pethidine ☐ ทั้ง 2 อย่าง

จำนวนที่ได้รับ.....มิลลิกรัม

การให้ยาNSAIDs ☐ไม่ให้ ☐ ให้.....

วันแรกที่จ่ายอุจจาระ วันที่.....

การให้ยาระบาย ☐ ไม่ให้ ☐ ให้.....

เวลานอนโรงพยาบาล.....วัน

ภาวะแทรกซ้อน ☐ ไม่มี ☐ มี ระบุ.....

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