The Roles and Responsibilities of Nurse Before and After Laparoscopic Urologic Surgery

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PREOPERATIVE
Preoperative
(Patient preparation)

The patient preparation before laparoscopic urologic surgery start with assessment of the patient as in other surgical procedures.
Preoperative
(Assessment of patient)

The purpose of assessment of patient in preoperative period:

- To reduce and determine the risks associated with laparoscopic surgery and anesthesia,
- To improve the quality of care before surgery/ to reduce costs
- To move the patient to the desired function level,
- To get approval of the patient for the surgical procedure,
- To determine the method to be applied anesthesia,
- To provide premedication,
- To determine the psychological, physical and pharmacological condition of the patient.
Preoperative evaluation of patients will shorten the length of hospital stay, will prevent the postponement or cancellation of the scheduled surgery.

Therefore, preoperative evaluation should be well planned and organized.

Preoperative evaluation of patients starts with taking a medical history.
The important points in terms of laparoscopic surgery during the patient history in preoperative period:

- Age
- Physiological status
- Immune system status
- Gastrointestinal system status
- Cardiovascular and pulmonary system status
- Hematological system status
- Endocrine system status
- Hepatic and renal function status
- Nutritional and fluid status
- Drug and alcohol use status
The aim of preoperative education teaches the knowledge and skills which need for patient.

The patient education must be started to give education in polyclinic or clinic as soon as a decision to surgery.
Preoperative (Preoperative education)

- It reduces anxiety of the patient and the amount of the analgesia used.
- It prevents possible complications.
- It early allows the normalization of gastrointestinal function.
- It reduces the length of hospital stay.
- It improves quality of life.
Preoperative education
(Preoperative education)

The patient education should be individualized.

Education should be given with “their sentences” in such a way they can understand.

The different methods such as telling, listening, reading, observation and video presentation should be used in the patient education.
The patients may require information about postoperative pain, activity tolerance, possible complications, care of the surgery area, laparoscopic surgery system, the length of hospital stay, expectations after and during discharge.

The nurses should give information about preoperative, intraoperative and postoperative period to the patients and their family, and reduce their anxiety.
Preoperative
(Preoperative education)

The preoperative patient education should be given in the afternoon or a day earlier at night.

It may be forgotten if this education is given early, or if it is given just before surgery, the patient may not perceive because the patient is very anxious.
Preoperative (Preoperative education)

Preoperative education includes the following:

- Bowel preparation,
- Duration of perioperative fasting
- Explanations about surgery,
- Location of the incision,
- The place where the patient will stay after surgery,
- To teach applications that the patient need to do in order to prevent postoperative complications,
- Visiting hours with relatives,
- Discharge education.
Preoperative
(Preoperative fasting)

Fasting before surgery; the patients have been fasted a night before surgery and sometimes longer until recently.

American Society of Anesthesiologists has made new recommendations for the patients who will undergo elective surgery.
Preoperative (Preoperative fasting)

It is stated that long-term food and fluid restriction no require except for the patients who have respiratory disease, pregnancy, obesity, diabetes, gastro-esophageal reflux, ileus, bowel obstruction, enteral tube feeding.

Because catabolic response and insulin resistance created by the hunger increase when preoperative fasting period is longer.
Preoperative (Preoperative fasting)

Recommendations of the fasting period varies according to the patient's age and the type of ingested food.

For example; the patients who eat fatty foods are considered to fast 8 hours, milk products 4 hours, clear liquids 2 hours, and then they can be elective surgery.
Preoperative
(Preoperative fasting)

All patients who will undergo elective surgery are asked not to take any food and drink orally after midnight in order to prevent to enter into lungs of the stomach contents.

The patients shouldn’t be feeding orally until 8 hours before surgery because applied trendelenburg position and giving gas to the west may led to increase intra-abdominal pressure and risk of aspiration in the patient when veres needle enters.
Preoperative
(Mechanical bowel preparation)

Mechanical bowel preparation is to clean the colon of solid waste.

It is contemplated that infectious complications can be reduced by decreasing the amount of fecal and the number of bacteria in the intestines.
The number of colonic bacteria doesn’t reduce with mechanic bowel preparation.

This can only be achieved with the use of antibiotics. However, in patients during mechanical bowel preparation often can develop abdominal discomfort and fluid and electrolyte losses.

The bowel preparation is not recommend to prevent only the surgical areas.
Preoperative
(Skin preparation)

The cleansing enema is recommended the night before and morning of surgery to drain the gastrointestinal gas in the laparoscopic surgery procedures.

The purpose of this preparation reduces the number of bacteria without damaging the skin.

If the patient doesn’t get emergency surgery, the patient is told to clean the surgical site with antibacterial soaps a few days before surgery, and provide to reduce the number of microorganism in the skin.
If hair and bristles are generally in incision area or need to clean, they must be done with electric shavers immediately before surgery.
Venous thrombosis is observed in the deep veins of the lower extremities. Venous thromboembolism prophylaxis is applied to the high-risk patients groups in order to prevent DVT and pulmonary embolism. Venous transformation of the lower extremities decreases because of pneumoperitoneum in laparoscopic surgery.
Venous thrombosis is more evident in patients in the reverse Trendelenburg position for upper abdominal surgery. Therefore, all patients should be applied to prophylaxis for deep vein thrombosis before surgery.

If the patients is not found in the risk of deep vein thrombosis, it is recommend to apply compression (pressure) stockings the lower extremities.

Compression stockings and subcutaneous heparin should be administered to patients with the risk of DVT (obesity, paralysis, trauma, malignancy, coagulation disorder, lithotomy position) before surgery.
The surgeon who will perform the operation should tell to patients what will face during and after surgery, inform about the risks and benefits of the methods which will apply. Also it must be obtained the patient’s written/verbal permission, and signed the legal permit.

The patient should be informed alternatives and possible complications about the scheduled laparoscopic procedure, and also informed about possible open surgery and complications.
POSTOPERATIVE
The general practices in the patient care after laparoscopic surgery are similar with the patient care after open surgery.

Early mobilization of the patient should be provided after laparoscopic surgery as open surgery.
The nurse should be provided the following after surgery:

- Maintaining of airway patency,
- Monitoring of vital signs,
- Following of possible bleedings,
- Listening of bowel sounds,
- Informing the patient’s family about surgery area care,
- Monitoring patient for infection risk,
Postoperative

Laparoscopic surgery procedures has some differences than open surgery procedures in terms of the applied technique and used equipment.

Therefore, there are some situations in which the property in patient care after minimally invasive procedures.
Postoperative (Postoperative pain)

Although the pain after laparoscopic surgery is less than open surgery, the patients may be greatly disturbed by this situations.

It is reported that 63% of the patients had pain in their shoulder and neck areas after laparoscopic surgery.

This may results from failure evacuation of CO₂ gas in the procedures performed by transperitoneal method.
Postoperative (Postoperative pain)

| The patients complain of pain, particularly in the trocar insertion sites. The opioid analgesics administered these patients relieve them. |

| However, these drugs are not preferred so much because of side effects such as nausea, vomiting, sedation and respiratory depression. |

| Nonsteroidal anti-inflammatory drugs; such as acetaminophen, are other drugs that can be used in the treatment of postoperative pain. |
Postoperative
(Postoperative nausea and vomiting)

Nausea and vomiting after laparoscopic procedures are one of the most frequent complaints.

Tracheal blockage of mucus plugging, increased secretion, bronchospasm, lung disease and obesity; are some of the factors that cause nausea and vomiting.
Nasotracheal suctioning should be performed for the vomiting caused by increased secretions and mucus plug and also N-acetyl cysteine should be administered intravenously. Corticosteroids (prednisolone) should be used to treat bronchospasm.
CO₂ is used to provide pneumoperitoneum inside the intraperitoneal space in a certain pressure.

While pneumoperitoneum is provided, patient may have:

- Hypotension,
- Bradycardia,
- Bradisritmy,
- Hipercarbia,
- Acidosis,
- Subcutan emphysema,
- Pneumothorax,
- Hypotension due to decrease in venous return,
- Oliguria ve
- Hypoxemia
Postoperative (Pneumoperitoneum)

- Arterial blood gas test must be performed, if the patient, who hasn’t any lung disease before surgery, has signs such as shallow breathing, deep and difficult breathing, cyanosis after surgery.

- It should also be inflicted antero-posterior chest X-ray of the patient on the bed.
Postoperative (Pneumoperitoneum)

If $PCO^2$ is higher than 45 mmHg, hipercapnia should be suspected.

The hipercapnia can develop as a result of gas embolism, pulmonary embolism, pneumothorax and subcutaneous emphysema depending pneumoperitoneum.
Postoperative (Hipercapnia)

The patient with hipercapnia should be given 100% O\textsuperscript{2}.

If hipercapnia is considered as a result of pneumoperitoneum and PCO\textsubscript{2} is not lower, the patient must be connected mechanical ventilator.

The patient with pneumothorax should be requested thoracic surgery consultation. The existing pathology of the patient can improve with tube thoracostomy and 100% O\textsuperscript{2} gas. Bicarbonate replacement should be performed in patients developing acidosis.
Postoperative (Subcutaneous emphysema)

The CO2 gas which is used to create pneumoperitoneum may occur subcutaneous emphysema due to accumulation in the subcutaneous tissue of the abdomen, chest, neck and facial fields during the placing of trocar or wrong localization of Veress needle.

After surgery the patient feels excessive tension on the skin and crepitus is felt under the skin during palpation. Hypotension, hypercapnia, and acidosis may occur in the patient.
Postoperative
(Subcutaneous emphysema)

These patients are treated with emptying of the accumulated gas under the skin with intravenous catheter.
Postoperative (Thromboembolism / Bleeding - Hematoma)

Patients should be mobilized early and low molecular weight heparin derivatives should be initiated in order to reduce the risk of thromboembolism in the postoperative period of laparoscopic interventions as in open surgery.

Also drain which placed in the pelvic region should be checked because of the risk of delayed postoperative bleeding and hematoma. If bleeding is determined blood count test should be performed. Additional blood transfusion and the monitoring of vital signs should be considered.
The patients who underwent laparoscopic surgery often discharge within 3 days except for specific conditions.

Thus, discharge education should be scheduled and applied early.

Also in the context of education plan, the written booklets should be given the patients.
thank you