

INTRODUCTION

Intestinal obstruction (I.O) is anything that stops, delays, or changes the advancing of solid and liquid material through the small and large bowel (*Freeman, 2007*). I.O is a blockage of small intestine or colon that prevents food and fluid from passing through. It occurs when a blockage obstructs the normal flow of contents through the intestinal tract. It is commonly a medical emergency (*Turnage, 2010*).

Intestinal obstruction may be caused by a narrowing of the intestine from inflammation or damage to the bowel, tumors, scar tissue, hernias, twisting of the bowel, and pressure on the bowel from outside the intestinal tract. It can also be caused by factors that interfere with the function of muscles, nerves, and blood flow to the bowel. Most bowel obstructions occur in the small intestine and are usually caused by scar tissue or hernias (*Ruscher et al., 2011*).

Regarding to the types for I.O., the two major types of I.O. are mechanical and neurogenic or nonmechanical. Mechanical obstructions include, intestinal adhesions bands of fibrous tissue in the abdominal cavity that often form after abdominal or pelvic surgery. Hernias portions of intestine that protrude into another part of body. Tumors in the small intestine, inflammatory bowel diseases such as Crohn's disease, twisting of the intestine (volvulus) and telescoping of the intestine (intussusception) are considered mechanical causes for I.O. (*Nikolic, 2011*).

Mechanical obstruction of the colon, less common than in the small intestine. Causes of mechanical colonic obstruction can include colon cancer, diverticulitis and twisting of the colon (volvulus). Narrowing of the colon caused by inflammation and scarring (stricture). Paralytic ileus

can cause signs and symptoms of I.O., but doesn't involve an actual obstruction. In paralytic ileus, the intestines don't function properly due to muscle or nerve problems. Movement of the intestines is greatly reduced or absent, making it difficult for food and fluid to flow smoothly through the digestive system (*Torrey, 2009*).

A nonmechanical bowel obstruction (also called adynamic ileus or paralytic ileus), is an inability of the intestines to move normally even though there is nothing blocking them. The most common cause of a nonmechanical bowel obstruction is temporary paralysis of the intestines after abdominal surgery. Other causes include; an imbalance of minerals (electrolytes) as in the bloodstream. Some medicines including those for high blood pressure and narcotic pain medicines (such as morphine) (*Karrer et al., 2012*).

Symptoms of I.O depend on whether the blockage is in the small intestine or large intestine. Abdominal pain in small bowel obstruction occurs around the periumbilical area, but in large bowel obstruction occurs below periumbilical area. Vomiting usually green if the obstruction is in the upper small intestine and brown if it is in the lower small intestine, vomiting is not common with large bowel obstruction, there is a rare bleeding in stool, diarrhea occurs when there is partial blockage, constipation and breath odor are also found (*Lewis & Glick, 2012*).

Signs of I.O. are abdominal distention and flatulence, which is lower when the blockage in the upper part of the intestine and more at the blockage of the colon. Pain and stiffness of the abdominal muscles also occur as a result of blockage. In early obstruction of the small and large intestine, tenderness and rigidity are usually minimal; the temperature is

rarely $>37.8^{\circ}\text{C}$ (100°F). The appearance of shock, tenderness, rigidity and fever indicates that contamination of the peritoneum with infected intestinal content has occurred (*Peterson, 2009*).

Diagnostic testing include a complete blood count (CBC), electrolytes (sodium, potassium, chloride) and other blood chemistries, blood urea nitrogen (BUN), and urinalysis. Coagulation tests may be performed if the child requires surgery. Abdominal X- rays, computed tomography (CT scan), or an ultrasound evaluation of the abdomen. Abdominal ultrasound is able to be effectively visualized and diagnose most obstructions. The X-ray images may be enhanced by giving the child a barium enema (*Branco et al., 2010*).

Physical examination, including children's bowel sounds. An unusually high-pitched bowel sound is heard when listening to the abdomen if the early stage of obstruction is present, as the intestine is working hard in attempting to recover from the obstruction. Later on, if strangulation develops, an absent or low-pitched bowel sound may be heard. However, the diagnostic value of intestinal sounds is debated and further tests are required to confirm diagnosis (*Mckenzie & Evers, 2012*).

The diagnoses based on the symptoms are initially confirmed by abdominal X-rays. The radiograph often presents bowel enlargement and presence of multiple gas levels on different areas. CT scanning with barium-contrast swallowed or given as an enema to the child. Blood tests may reveal dehydration and infection. A high white blood cell count means rupture with infection, and high hematocrit signifies dehydration and lost blood plasma (*Jang et al., 2011*).

Medical management requires the treatment of I.O. to enter the child to hospital. The work of the venous line to give the solution of which is given fluids and salts (sodium, chloride and potassium) to replace the fluids lost from the body. Pass a tube is placed into the stomach or intestine is entered through the nasogastric (NG) tube to suction the air and fluid that accumulates the highest obstruction and to reduce the pressure of the fluid on the wall of the gastrointestinal tract, development of catheter urinary bladder (*Villalona et al., 2010*).

Surgical treatment is almost always needed when the intestine is completely blocked or when the blood supply is cut off. The type of surgical procedure performed depends on the cause of the obstruction and whether or not the intestine is gangrenous. Some of the common surgical procedures used to treat bowel obstructions include, lysis of adhesions, hernia repair and resection with end-to-end anastomosis. "Resection" means to remove part or all of a tissue or structure (*Fry et al., 2012*).

After the obstruction and diseased tissue is removed, an ileostomy or colostomy is created. Ileostomy is a surgical procedure in which the small intestine is attached to the abdominal wall; waste then exits the body through an artificial opening called a stoma and collects in a bag attached to the skin with adhesive. Colostomy is a similar procedure with the exception that the colon is the part of the digestive tract that is attached to the abdominal wall (*Soriano & Davis, 2011*).

Preoperative nursing care is the preparation, assessment and management of a child prior to surgery. This care includes physical and psychological preparation. The nurse should prepare the child physically and psychologically for surgery tend to have better outcomes after surgery. Nursing care of children with I.O include, pre operative care

such as check the requested of routine laboratory tests before surgery such as CBC, electrolyte tests and coagulation studies. If clinically significant blood loss is anticipated, the child's blood should be typed and screened or cross-matched, so that blood can be immediately available if needed in the operating room (*Ruscher et al., 2011*).

The nurse explains to the child or his parents why should be nothing per Orem (NPO) or nothing by mouth for 6 hours before surgery fasting time determined according to the type of operation. In addition, the nurse also should explains what to expect before, during and after the surgery, diagnostic tests, treatment and preparing the child for the possibility of surgery, if possible use preoperative teaching tools such as pamphlets and videotapes to reinforce the information, allow as much time as is needed to answer question and explain surgical and post operative procedures. The post operative nursing care includes monitoring the child's cardiopulmonary response and identifying surgical complications. The highest priority for the nurse is to maintain airway, breathing and circulation, care for the surgical site and notify the physician if she observe any signs of poor wound healing, bleeding or infection (*Janice & Kerry, 2009*).