Nurses' Knowledge regarding Nursing Care of Tonsillectomy Patients at Wad Medani Pediatric and Wad Medani Teaching Hospitals, Gezira State, Sudan (2017)

By

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B.Sc. in Nursing
University OF Gezira (2010)

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Department of Nursing
Faculty of Applied Medical Sciences

2017
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Nurses' Knowledge regarding Nursing Care of Tonsillectomy Patients at Wad Medani Pediatric and Wad Medani Teaching Hospitals, Gezira State, Sudan (2017)

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Examination Committee

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Date of Examination: 9/11/2017
I dedicate this project to:

- My mother.
- My father.
- To brothers and sister.
- With my love.
Acknowledgment

I would like to thank my great Allah for giving me ability to continuation my study.

I would like to thank Dr. Ietimad Ibrahim Abdelrahman the door to doctor Kamabal office was always open whenever, I ran into trouble spot or had a question about my research or writing. She consistently allowed this paper to be my own work, but street me in right direction whenever she thought I needed it.

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Nurses' Knowledge regarding Nursing Care of Tonsillectomy Patients at Wad Medani Pediatric and Wad Medani Teaching Hospitals, Gezira State, Sudan (2017)

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Abstract

Tonsillectomy is a surgical procedure in which each tonsil is removed from a recess in the side of the pharynx called the tonsillar fossa. A descriptive hospital based study was conducted at Wad Medani Pediatrics and Wad Medani Teaching Hospitals, aimed at assessing nurses’ knowledge regarding nursing care of tonsillectomy during the period from June to October 2017. The sample size consisted of all (59) available nurses at setting hospitals. Data was collected using a structured questionnaire designed for the purposes of the study. Data was analyzed by using statistical package for social sciences (SPSS). The results showed that (32.2% and 32.2%) of the study sample responded with correct complete answers regarding definition of tonsillectomy and medical uses respectively. (42.4% and 44.1%) of the study sample responded with correct answers regarding effectiveness of tonsillectomy and Surgical procedure respectively. (44.1% and 42.4%) of the study sample responded with correct answers regarding during surgery and Post-operative care respectively. (50.8% and 35.6%) of the study sample responded with correct answers regarding general instructions and follow-up care and complications respectively. Finally this study showed that (42.4%, 44.1% and 44.1%) of the study sample responded with correct answers regarding risks during a tonsillectomy, impact on immune system and nursing diagnoses for tonsillectomy respectively. The study concluded that nurses' knowledge regarding nursing care of pediatrics patients with tonsillectomy was weak with total mean (45.5%). It recommended that nurses should be encouraged to attend specific seminars, programs, workshops and seminars in concern of pre and post tonsillectomy to be acquainted with the most recent, advances and skills in the field. To establishment training courses for the nursing staff to increase their knowledge and develop their expertise.
معرفة الممرضين والممرضات عن الرعاية التمريضية لمرضى استئصال اللوزتين في مستشفى الأطفال ومستشفى ود مدني التعليمي، ولاية الجزيرة السودان (2017)

أسيل عبد الإله سر الختم محمد

ملخص الدراسة

استئصال اللوزتين هو إجراء جراحي حيث يتم إزالة كلا اللوزتين من جانب البلعوم بسمى الحفرة اللوزية.

أجرت الدراسة الوصفية في مستشفى ودمدني للأطفال ومستشفى ودمدني التعليمي. هدفت الدراسة إلى تقييم معرفة الممرضين والممرضات عن الرعاية التمريضية قبل/بعد استئصال اللوزتين خلال الفترة من يونيو إلى أكتوبر 2017. بلغ حجمي الدراسة (59) ممرض وممرضة. تجمع البيانات باستخدام استبانة استبانة صممت لأغراض الدراسة. تم تحليل البيانات باستخدام الحزمة الإحصائية للعلوم الاجتماعية (SPSS). أظهرت النتائج أن (32.2% و 32.2%) من أفراد عينة الدراسة كانت إجاباتهم صحيحة فيما يتعلق باللوزتين والإجراءات الطبية للاستئصال على التوالي. (42.4% و 44.1%) من أفراد عينة الدراسة كانت إجاباتهم صحيحة فيما يتعلق بفعالية استئصال اللوزتين والعمليات الجراحية على التوالي. (44.1% و 42.4%) من أفراد عينة الدراسة كانت إجاباتهم صحيحة فيما يتعلق بالجزء الجراحي، وبعد العملية الجراحية. (41.1% و 42.4%) من أفراد عينة الدراسة كانت إجاباتهم صحيحة فيما يتعلق بخلفية استئصال اللوزتين والعمليات الجراحية على التوالي. (44.1% و 42.4%) من أفراد عينة الدراسة كانت إجاباتهم صحيحة فيما يتعلق بالمعلومات العامة ومتتابعة الرعاية والمضاعفات على التوالي. أيضاً أظهرت هذه الدراسة أن (42.4%, 44.1%, 44.1%) من أفراد عينة الدراسة كانت إجاباتهم صحيحة عن المخاطر أثناء استئصال اللوزتين، والتأثير على الجهاز المناعي والتشخيص التمريضي للوزن اللوزي على التوالي. خلصت الدراسة إلى أن معرفة الممرضين والممرضات فيما يتعلق بالرعاية التمريضية للأطفال قبل وبعد استئصال اللوزتين كانت ضعيفة بمتوسط حسابي (45.5%). أوصت الدراسة بضرورة تشجيع الممرضين والممرضات على حضور سeminars وبرامج وحلقات عمل وحلقات دراسية فيما يتعلق بمرحلة ما قبل وبعد استئصال اللوزتين للتعرف على أحدث التطورات والمهارات في هذا المجال. إنشاء دورات تدريبية للكادر التمريضي لزيادة معرفتهم وتطوير خبراتهم.
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1. Introduction

1.1 Background:

Throat tonsils or adenoids are consisted of lymphatic tissue and are close to the nose pharynx posterior wall. Beta hemolytic-streptococci group A is the most common cause of tonsillitis. (WHO 2011). Enlarged adenoids may cause mouth breathing, ear ache, colds, recurrent bronchitis, halitosis, difficulty in swallowing, sound disorder and noisy breathing. Infected adenoids are frequently along with acute tonsillitis. (Smeltzer, 2012). Tonsillectomy is an operation to remove the tonsils from the throat. The tonsils lie on either side of the throat. These infections may clear up on their own, generally becoming less frequent as get older. Sometimes, however, the attacks of tonsillitis become a recurring problem when they may be advised to have tonsils removed. Once they have recovered from the operation it will be less likely to suffer from throat infections. Evidence also shows that for people over the age of two, removing the tonsils does not reduce their resistance to general infections. (Fida & Sendi, 2013). Tonsillectomy with or without Adenoidectomy is still the most common surgery in the field of Ear Nose and Throat (ENT). There are several serious post tonsillectomy complications; pain is the most common post tonsillectomy complaint. Pain is a subjective experience that its presence or absence can’t be proved. According to the definition of pain international association, pain is an unpleasant sensory and emotionally experience that is due to actual or probable tissue damage. Although, no pain can be actually monitored, nowadays they are considered as the fifth vital signs in clinical cares. Children cannot express pain verbally until achieving speaking ability completely and it is necessary to use concrete tools for measuring their pain (Sadeghi et al., 2012).

1.2 Problem Statement:

Worldwide knowledge survey regarding tonsillectomy, the nurses’ perceived tonsillectomy and pain management for children survey, calculations of the ordered analgesia administered by the nurse, and the Oucher scale for intensity of children’s pain. Most nurses demonstrated knowledge about relieving children’s pain but lacked knowledge about the incidence of respiratory depression and thought that children over report their pain. Inadequate or insufficient physician medication orders for pain were identified by 99% of nurses as the greatest barrier to optimal pain management.
The children’s mean pain level was 1.63 (scale of 0 to 5). Of the 117 children who reported pain, 74% received analgesia. Nurses administered means of 37.9% of available morphine and 22.8% of available total analgesia. Nurses in practice need to become more aware of the adequacy of their analgesic administration, the value of children’s self-report of pain, and the limitations of relying on children’s behavioral manifestations to judge pain intensity. (Van Hulle Vincent, Catherine, RN 2015).

Whereas in developed countries: A study done by Fateme S., et al (2015). Stated nursing process in post tonsillectomy pain diagnosis for decreasing loss of appropriate opportunities in nursing cares and achieving appropriate results in taking care of the patients. Effective nursing measurements for relieving post tonsillectomy pain include: decreasing children’s anxiety through children and their families’ psychological preparation by nurses and other caregivers, using cold compress to reduce neck and jaw pain, presenting distraction techniques, offering fluids and cold foods immediately in the period after surgery, creating a comfortable environment for the children, avoiding too much of talking and adequate sleep. (Fateme S., et al 2015).

As well as in developing countries: In South African (SA) Adeno-/tonsillectomy is a commonly performed procedure with internationally standardized and recognized indications. Despite this, there exists considerable international (190 - 850/100 000 people ≤19 years of age) and regional variation in rates. This cannot be accounted for by differences in clinical need or regional morbidity. The tonsillectomy rate in the SA private healthcare sector was 1 888/100 000 people ≤19 years of age in 2012. In 2013. This is more than double the highest national tonsillectomy rate reported in the literature. The adeno-/tonsillectomy rate in the SA private healthcare sector is substantially higher than international norms. The reasons for this discrepancy require further consideration. (Douglas-Jones P et al 2014).

In Sudan: Tonsillectomy is the most frequently performed otolaryngological procedure. especially in young children according to Khartoum ENT Teaching Hospital, Khartoum, Sudan (2011). Three or more episodes of exudative tonsillitis per year and upper airway obstruction were the commonest indications for tonsillectomy or adenotonsillectomy accounting for 72.5% and 16.7% of the operations. Intra-operative bleeding occurred in 63 (52.5%) of the patients. It is concluded that as bleeding, both intra- and post-operative is the main complication of tonsillectomy, its incidence can be reduced to minimal levels by careful selection of patients, in whom
the operation is carried out under general anaesthesia with gentle handling of tissues and detention of the patients post-operatively for two to three days. They also found out that coagulation tests need not be routinely requested and reserved for patients with a history of bleeding tendencies. (Shamboul. K. and Yoesuf. Y. M. 2011).

1.3 Justification:

Nursing is the profession with the greatest patient contact. One of the important nursing cares includes alleviation of bleeding and pain since pain is an unpleasant sensory and emotional experience. Lack of specific and up-to-date nursing instructions and their low quality show the necessity of designing evidence-based and specific instructions with high quality in different parts. (Alavi F. S, et al, 2013).

Designing nursing cares instructions for promoting health services, considering patients’ rights and creating uniformity in presenting health policies especially in children make the cares valuable and correct the results. So it is recommended to the nursing managers and nurses to perform cares achieved from this systematic review to achieve appropriate results regarding pre and post-operative complications such as (bleeding and pain relief and etc.). The study focused on nurses' knowledge because they should be have correct knowledge regarding nursing care of pre/post tonsillectomy in children. The nurses should be aware of the right knowledge and they should be engaged in educational and training programs about pre/post tonsillectomy in children, if they have to provide safety and more proper administration and health education for patients or their families. Also there was no studies done about this topic in the area of this study. And to open many of studies on the knowledge and practices of nursing staff about nursing care for children with pre and post tonsillectomy.
1.4 Objectives:

1.4.1 General Objective:

- To study Nurses' knowledge regarding Nursing Care about Tonsillectomy at Wad Medani Pediatric and Wad Medani Teaching Hospitals, during the period from June to October 2017

1.4.2 Specific Objectives:

- To assess the biographic data of study population such as (age groups, gender, educational level, years of experience and etc.) during the period from June to October 2017.
- To identify nurses' knowledge regarding Tonsillectomy such as (definition, causes, medical uses, surgical procedures and etc.) during the period from June to October 2017.
- To identify Nurses' knowledge regarding Nursing Care about Post-operative Tonsillectomy, during the period from June to October 2017
2. Literature Review

2.1 Definition of Tonsil:

Tonsils are collections of lymphoid tissue facing into the aerodigestive tract. The set of lymphatic tissue known as Waldeyer’s tonsillar ring includes the adenoid tonsil, two tubal tonsils, two palatine tonsils, and the lingual tonsil. When used unqualified, the term most commonly refers specifically to the palatine tonsils, which are masses of lymphatic material situated at either side of the back of the human throat. The palatine tonsils and the nasopharyngeal tonsil are lymphoepithelial tissues located near the oropharynx and nasopharynx (parts of the throat). (Randel, A, 2011)

2.2 Function:

These immunocompetent tissues are the immune system’s first line of defense against ingested or inhaled foreign pathogens, and as such frequently engorge with blood to assist in immune responses to common illnesses such as the common cold. Tonsils have on their surface specialized antigen capture cells called M cells that allow for the uptake of antigens produced by pathogens. These M cells then alert the underlying B cells and T cells in the tonsil that a pathogen is present and an immune response is stimulated. B cells are activated and proliferate in areas called germinal centres in the tonsil. These germinal centres are places where B memory cells are created and secretory antibody (IgA) is produced. Recent studies have provided evidence that the tonsils produce T lymphocytes, also known as T-cells, in a manner similar to, but different from, the way the thymus does.(Ahmadi N. 2013)

Clinical significance:

Tonsils can become enlarged (adenotonsillar hyperplasia) or inflamed (tonsillitis) and may require surgical removal (tonsillectomy). This may be indicated if they obstruct the airway or interfere with swallowing, or in patients with frequent recurrent tonsillitis. However, different mechanisms of pathogenesis for these two subtypes of tonsillar hypertrophy have been described, and may have different responses to identical therapeutic efforts. In older patients, asymmetric tonsils (also
known as asymmetric tonsil hypertrophy) may be an indicator of virally infected tonsils, or tumors such as lymphoma or squamous cell carcinoma. Tonsillitis is a disorder in which the tonsils are inflamed (sore and swollen). The most common way to treat it is with anti-inflammatory drugs such as ibuprofen, or if bacterial in origin, antibiotics, e.g. amoxicillin and azithromycin. Often severe and/or recurrent tonsillitis is treated by tonsillectomy. (Randel, A, 2011).

A tonsillolith is material that accumulates on the tonsil. They can range up to the size of a peppercorn and are white/cream in color. The main substance is mostly calcium, but they have a strong unpleasant odor because of hydrogen sulfide and methyl mercaptan and other chemicals. Tonsil enlargement can affect speech, making it hypernasal and giving it the sound of velopharyngeal incompetence (when space in the mouth is not fully separated from the nose's air space). Tonsil size may have a more significant impact on upper airway obstruction for obese children than for those of average weight. As mucosal lymphatic tissue of the aerodigestive tract, the tonsils are viewed in some classifications as belonging to both the gut-associated lymphoid tissue (GALT) and the mucosa-associated lymphoid tissue (MALT). Other viewpoints treat them (and the spleen and thymus) as large lymphatic organs contradistinguished from the smaller tissue loci of GALT and MALT. (Ahmadi N. 2013)

At the back of the throat, two masses of tissue called tonsils act as filters, trapping germs that could otherwise enter your airways and cause infection. They also produce antibodies to fight infection. But sometimes the tonsils themselves become infected. Overwhelmed by bacteria or viruses, they swell and become inflamed, a condition known as tonsillitis. Tonsillitis is common, especially in children. The condition can occur occasionally or recur frequently. (Alavi F. S, et al, 2013).

Causes of Tonsillitis

Bacterial and viral infections can cause tonsillitis. A common cause is Streptococcus (strep) bacteria. Other common causes include:

- Adenoviruses
- Influenza virus
- Epstein-Barr virus
- Parainfluenza viruses


- Enteroviruses

**Symptoms of tonsillitis:**

The main symptoms of tonsillitis are inflammation and swelling of the tonsils, sometimes severe enough to block the airways. Other symptoms include:

- Throat pain or tenderness
- Redness of the tonsils
- A white or yellow coating on the tonsils
- Painful blisters or ulcers on the throat
- Headache
- Loss of appetite
- Ear pain
- Difficulty swallowing or breathing through the mouth
- Swollen glands in the neck or jaw area
- Fever, chills
- Bad breath. (Randel, A, 2011).

In children, symptoms may also include:

- Nausea
- Vomiting
- Abdominal pain

**Treatments for Tonsillitis**

Treatment for tonsillitis will depend in part on the cause. To determine the cause, your doctor may perform a rapid strep test or throat swab culture. Both tests involve gently swabbing the back of the throat close to the tonsils with a cotton swab. A lab test can detect a bacterial infection. A viral infection will not show on the test, but may be assumed if the test for bacteria is negative. In some cases, the physical findings are convincing enough to diagnose a probable bacterial infection. In these cases, antibiotics may be prescribed without performing a rapid strep test. If tests reveal bacteria, treatment will consist of antibiotics to cure the infection. Antibiotics may be given as a single shot or taken 10 days by mouth. Although symptoms will
likely improve within two or three days after starting the antibiotic, it's important to take all of the medication your doctor prescribes to make sure the bacteria are gone. Some people need to take a second course of antibiotics to cure the infection.

If the tonsillitis is caused by a virus, antibiotics won't work and your body will fight off the infection on its own. In the meantime, there are things you can do to feel better, regardless of the cause. They include: (Alavi F. S, et al, 2013).

- Get enough rest
- Drink warm or very cold fluids to ease throat pain
- Eat smooth foods, such as flavored gelatins, ice cream, or applesauce
- Use a cool-mist vaporizer or humidifier in your room
- Gargle with warm salt water
- Suck on lozenges containing benzocaine or other anesthetics
- Take over-the-counter pain relievers such as acetaminophen or ibuprofen.

**Tonsillectomy:**

Tonsillectomy is a surgical procedure in which each tonsil is removed from a recess in the side of the pharynx called the tonsillar fossa. The procedure is performed in response to repeated occurrence of acute tonsillitis, sleep surgery for obstructive sleep apnea, nasal airway obstruction, diphtheria carrier state, snoring, or peritonsillar abscess. For children, the adenoids (also known as a pharyngeal tonsil or nasopharyngeal tonsil) are usually removed, a procedure called adenoidectomy (or tonsilloadenoidectomy or adenotonsillectomy when combined). Adenoidectomy is uncommon in adults in whom the adenoids are usually vestigial. Although tonsillectomy is performed less frequently than in the 1950s, it remains one of the most common surgical procedures in children in the United States and many other western countries. (Ahmadi N. 2013)

**History**

Tonsillectomies have been practiced for 2,000 years, with varying popularity over the centuries. The procedure is claimed in some books as "Hindu medicine" about 1000 BC (non-evidence based literature). Others refer to it as cleaning of tonsil using the nail of the index finger. Roughly a millennium later the Roman aristocrat
Aulus Cornelius Celsus (25 BC – 50 AD) described a procedure whereby using the finger (or a blunt hook if necessary), the tonsil was separated from the neighboring tissue before being cut out. Galen (121–200 AD) was the first to advocate the use of the surgical instrument known as the snare, a practice that was to become common until Aetius (490 AD) recommended partial removal of the tonsil, writing "Those who extirpate the entire tonsil remove, at the same time, structures that are perfectly healthy, and, in this way, give rise to serious Hæmorrhage". In the 7th century Paulus Aegineta (625–690) described a detailed procedure for tonsillectomy, including dealing with the inevitable post-operative bleeding. 1,200 years pass before the procedure is described again with such precision and detail.

The Middle Ages saw tonsillectomy fall into disfavor; Ambroise Pare (1509) wrote it to be "a bad operation" and suggested a procedure that involved gradual strangulation with a ligature. This method was not popular with the patients due to the immense pain it caused and the infection that usually followed. Scottish physician Peter Lowe in 1600 summarized the three methods in use at the time, including the snare, the ligature, and the excision. At the time, the function of the tonsils was thought to be absorption of secretions from the nose; it was assumed that removal of large amounts of tonsillar tissue would interfere with the ability to remove these secretions, causing them to accumulate in the larynx, resulting in hoarseness. For this reason, physicians like Dionis (1672) and Lorenz Heister censured the procedure.

In 1828, physician Philip Syng Physick modified an existing instrument originally designed by Benjamin Bell for removing the uvula; the instrument, known as the tonsil guillotine (and later as a tonsillotome), became the standard instrument for tonsil removal for over 80 years. By 1897, it became more common to perform complete rather than partial removal of the tonsil after American physician Ballenger noted that partial removal failed to completely alleviate symptoms in a majority of cases. His results using a technique involving removal of the tonsil with a scalpel and forceps were much better than partial removal; tonsillectomy using the guillotine eventually fell out of favor in America. (Alavi F. S, et al, 2013).

**Medical uses:**

Tonsillectomy may be indicated when the patient experiences recurrent infections of acute tonsillitis. As the size of tonsils reaches its maximum at 3 years of
age and then regresses gradually, tonsillectomy is usually delayed unless the frequency of infection necessitates it absolutely. The number prompting tonsillectomy varies with the severity of the episodes. One case, even severe, is generally not enough for most surgeons to decide tonsillectomy is necessary. Paradise in 1983 defined recurrent tonsillitis warranting surgery by the attack frequency standard as Seven or more in a year, five or more per year for two years, or three or more per year for three years. These are the absolute indications for tonsillectomy.

According to the 2012 guidelines of the American Academy of Otolaryngology & Head and Neck Surgery (AAO-HNS), tonsillectomy is indicated as follows:

Clinicians may recommend tonsillectomy for recurrent throat infection with a frequency of at least 7 episodes in the past year or at least 5 episodes per year for 2 years or at least 3 episodes per year for 3 years with documentation in the medical record for each episode of sore throat and one or more of the following: temperature >38.3 °C, cervical adenopathy, tonsillar exudates, or positive test for Group A Beta-hemolytic strep.

Tonsillectomy is also sometimes performed on those who suffer chronically from tonsilloliths. Most recently, American Academy of Otolaryngology-Head and Neck Surgery Foundation has published clinical practice guidelines. The panel made a strong recommendation for:

1. Watchful waiting for recurrent throat infection if there have been fewer than 7 episodes in the past year or fewer than 5 episodes per year in the past 2 years or fewer than 3 episodes per year in the past 3 years;
2. Assessing the child with recurrent throat infection who does not meet criteria in statement 2 for modifying factors that may nonetheless favor tonsillectomy, which may include but are not limited to multiple antibiotic allergy/intolerance, periodic fever, aphthous stomatitis, pharyngitis and adenitis, or history of peritonsillar abscess;
3. Asking caregivers of children with sleep-disordered breathing and tonsil hypertrophy about comorbid conditions that might improve after tonsillectomy, including growth retardation, poor school performance, enuresis, and behavioral problems;
4. Counseling caregivers about tonsillectomy as a means to improve health in children with abnormal polysomnography who also have tonsil hypertrophy and sleep-disordered breathing;
5. Counseling caregivers that sleep-disordered breathing may persist or recur after tonsillectomy and may require further management;
6. Advocating for pain management after tonsillectomy and educating caregivers about the importance of managing and reassessing pain; and
7. Clinicians who perform tonsillectomy should determine their rate of primary and secondary post-tonsillectomy hemorrhage at least annually. (Ahmadi N. 2013)

**Tonsillectomy can also treat other medical problems, including:**

- breathing problems related to swollen tonsils
- frequent and loud snoring
- periods in which you stop breathing during sleep, or sleep apnea
- bleeding of the tonsils
- cancer of the tonsils

**Effectiveness**

The scientific evidence indicates that tonsillectomy is on average only modestly effective at reducing the frequency and severity of sore throats, and does not get rid of sore throats altogether. Benefits also appear to only last for a year after surgery.

This raises questions about which children benefit enough to justify undertaking the operation. In children who meet strict criteria indicating that they are severely affected by sore throats, the evidence indicates that there is only a short term benefit. The strict criteria are that children should have experienced 7 documented sore throats in the previous year, or 5 each year in the two previous years, or 3 each year in the three previous years and that those documented sore throats should in addition either have documented evidence of enlarged lymph glands, raised temperature, positive throat swabs (demonstrating Streptococcal infection) or pus seen on the tonsils. Children with undocumented sore throats or sore throats that are not as
severe do not appear to suffer from as many sore throats in subsequent years and therefore tonsillectomy is not worthwhile.

In children meeting the strict criteria for surgery, short term benefit means that without tonsillectomy a child who meets these strict criteria will probably have 6 sore throats in the next two years while one who has surgery will probably have 3 sore throats. After two years there is little difference in the frequency of sore throats.

Note that the term "sore throat" is preferred to "throat infection" or "tonsillitis" because without undertaking throat swabs doctors cannot reliably distinguish between sore throats caused by infection and those due to other causes. The same patient may be described as suffering from tonsillitis or sore throat (pharyngitis) by different doctors, therefore the use of one term rather than the other is as dependent on the doctor as well as the patient, making it an unreliable reason for undertaking surgery. Given that children must have many documented sore throats for tonsillectomy to be worthwhile there is surprisingly little published evidence about how many children who have their tonsils removed actually meet these criteria. One small study in the UK demonstrated that most children who had their tonsils removed did not meet these criteria, meaning that most children operated on did not really benefit from the procedure. (Alavi F. S, et al, 2013).

**Frequency:**

More than 530,000 procedures are performed annually in children younger than 15 years in the United States. The current tonsillectomy "rate" is 0.53 per thousand children and 1.46 per thousand children for combined tonsillectomy and adenoidectomy. (Alavi F. S, et al, 2013).

**Surgical procedure**

For the past 50 years at least, tonsillectomy has been performed by dissecting the tonsil from its surrounding fascia, a so-called 'total', or extra-capsular tonsillectomy. Problems including pain and bleeding led to a recent resurgence in interest in sub-total tonsillectomy or 'tonsillotomy' which was popular 60–100 years ago, in an effort to reduce these complications. The generally accepted procedure for
'total' tonsillectomy uses a scalpel and blunt dissection or electrocautery, although harmonic scalpels or lasers have also been used. Bleeding is stopped with electrocautery, ligation by sutures, and the topical use of thrombin, a protein that induces blood clotting.

The main question of importance becomes whether or not the benefits of subtotal tonsillectomy in obstructive sleep apnea are enduring. It appears that this may be the case although most observers agree that further time and study is required.

**Methods**

The scalpel is the preferred surgical instrument of many ear, nose, and throat specialists. However, there are other techniques and a brief review of each follows:

1. **Dissection and snare method:** Removal of the tonsils by use of a forceps and scissors with a wire loop called a 'snare' was formerly the most common method practiced by otolaryngologists, but has been largely replaced in favor of other techniques. The procedure requires the patient to undergo general anesthesia; the tonsils are completely removed and the remaining tissue surface is cauterized. The patient will leave with minimal post-operative bleeding.

2. **Electrocautery:** Electrocautery uses electrical energy to separate the tonsillar tissue and assists in reducing blood loss through cauterization. Research has shown that the heat of electrocautery (400 °C) may result in thermal injury to surrounding tissue. This may result in more discomfort during the postoperative period.

3. **Radiofrequency ablation:** Monopolar radiofrequency thermal ablation transfers radiofrequency energy to the tonsil tissue through probes inserted in the tonsil. The procedure can be performed in an office (outpatient) setting under light sedation or local anesthesia. After the treatment is performed, scarring occurs within the tonsil causing it to decrease in size over a period of several weeks. The treatment can be performed several times. The advantages of this technique are minimal discomfort, ease of operations, and immediate return to work or school. Tonsillar tissue remains after the procedure but is less prominent. This procedure is recommended for treating enlarged tonsils and not chronic or recurrent tonsillitis.
4. **Coblation tonsillectomy:** This surgical procedure is performed using plasma to remove the tonsils. Coblation technology combines radiofrequency energy and saline to create a plasma field. The plasma field is able to dissociate molecular bonds of target tissue while remaining relatively cool (40-70 °C), which results in minimal or no damage to surrounding healthy tissue. A Coblation tonsillectomy is carried out in an operating room setting, with the patient under general anesthesia. Tonsillectomies are generally performed for two main reasons: tonsillar hypertrophy (enlarged tonsils) and recurrent tonsillitis. It has been claimed that this technique results in less pain, faster healing, and less post operative care. However, review of 21 studies gives conflicting results about levels of pain, and its comparative safety has yet to be confirmed. This technique has been criticized for a higher than expected rate of bleeding presumably due to the low temperature which may be insufficient to seal the divided blood vessels but several papers offer conflicting (some positive, some negative) results. More recent studies of coblation tonsillectomy indicate reduced pain and ostalgia; less intraoperative or postoperative complications; lesser incidence of delayed hemorrhage, more significantly in pediatric populations, less postoperative pain and early return to daily activities, fewer secondary infections of the tonsil bed and significantly lower rates of secondary hemorrhage. Unlike the electrosurgery procedure, Coblation Tonsillectomy generates significantly lower temperatures on contacted tissue. Long term studies seem to show that surgeons experienced with the technique have very few complications.

5. **Harmonic scalpel:** This medical device uses ultrasonic energy to vibrate its blade at 55kHz. Invisible to the naked eye, the vibration transfers energy to the tissue, providing simultaneous cutting and coagulation. The temperature of the surrounding tissue reaches 80 °C. Proponents of this procedure assert that the end result is precise cutting with minimal thermal damage.

6. **Thermal Welding:** A new technology which uses pure thermal energy to seal and divide the tissue. The absence of thermal spread means that the temperature of surrounding tissue is only 2-3 °C higher than normal body temperature. Clinical papers show patients with minimal post-operative pain (no requirement for narcotic pain-killers), zero edema (swelling) plus almost
no incidence of bleeding. Hospitals in the US are advertising this procedure as "Painless Tonsillectomy". Also known as Tissue Welding.

7. **Carbon dioxide laser**: When a laser is used to perform tonsillectomy, this is called laser-assisted serial tonsillectomy (LAST). This is different from procedures where a laser is used to reduce or resurface the tonsils (e.g. laser cryptolysis). Providing the absence of certain contraindications such as sensitive gag reflex, LAST can be performed under local anesthetic as an outpatient procedure. A carbon dioxide laser is commonly used, and is swept over each tonsil 8–10 times. The smoke is aspirated out of the mouth to prevent smoke inhalation. Often, more than one procedure is required, each lasting about 20 minutes. The pain following LAST may be greater than other tonsillectomy methods. Due to the frequent requirement for multiple sessions, this treatment may work out more expensive than a single session tonsillectomy. A degree of patient compliance is required, making it unsuitable for young children and anxious persons, who risk harm if they move during the procedure.

8. **Microdebrider**: The microdebrider is a powered rotary shaving device with continuous suction often used during sinus surgery. It is made up of a cannula or tube, connected to a hand piece, which in turn is connected to a motor with foot control and a suction device. The endoscopic microdebrider is used in performing a partial tonsillectomy, by partially shaving the tonsils. This procedure entails eliminating the obstructive portion of the tonsil while preserving the tonsillar capsule. A natural biologic dressing is left in place over the pharyngeal muscles, preventing injury, inflammation, and infection. The procedure results in less post-operative pain, a more rapid recovery, and perhaps fewer delayed complications. However, the partial tonsillectomy is suggested for enlarged tonsils – not those that incur repeated infections. (Alavi F. S, et al, 2013).

**Before surgery:**

In most situations the surgery is performed as an outpatient at either a hospital or a surgery center. In both facilities, quality care is provided without the expense and inconvenience of an overnight stay. An anesthesiologist will monitor the patient throughout the procedure. Usually, the anesthesiologist (or surgery staff) will call the
night before surgery to review the medical history. If they are unable to reach the patient the night before surgery, they will talk with the patient the morning of the surgery. If the doctor has ordered preoperative laboratory studies, the patient should arrange to have these done several days in advance. The patient should arrange for someone to take them to the surgical facility, back home, and to spend the first night after surgery with the patient. (Baugh R. F, 2011).

The patient should not take aspirin, or any product containing aspirin, within 10 days of the date of the surgery. Nonsteroidal antiinflammatory medications (such as ibuprofen, Advil, and others) should not be taken within 7 days of the date of surgery. Many over-the-counter products contain aspirin or ibuprofen-related drugs so it is important to check all medications carefully. If there is any question please call the office or consult a pharmacist. Acetaminophen (Tylenol) is an acceptable pain reliever. Usually the doctor will give the patient several prescriptions at the preoperative visit. It is best to have these filled prior to the date of surgery so they are available when you return home.

If it is a child who is having the surgery, it is advised that you be honest and up front with them as explain their upcoming surgery. Encourage the child to think of this as something the doctor will do to make them healthier. Let them know that they will be safe and that will be close by. A calming and reassuring attitude will greatly ease the child's anxiety. Let them know that if they have pain it will only be for a short time period, and that they can take medicines which will greatly reduce it. They may want to consider a visit to the surgical facility or hospital several days in advance to that the child can become familiar with the setting. Contact the surgical facility or hospital to arrange for a tour.

The patient must not eat or drink anything 6 hours prior to the time of surgery. This includes even water, candy, or chewing gum. Anything in the stomach increases the chances of an anesthetic complication.

If the patient is ill or has a fever the day before surgery, call the surgeon's office. If the patient wakes up sick the day of surgery, still proceed to the surgical facility as planned. The doctor will decide if it's safe to proceed with surgery. However, if your child has chickenpox, do not bring your child to the office or to the surgical facility. (Ahmadi N. 2013)
During surgery:

In the operating room, the anesthesiologist will usually use a mixture of gas and an intravenous medication for the general anesthetic. In most situations, an IV will have been started either in the preoperative holding room or after the patient has been given a mask anesthetic. During the procedure, the patient will be continuously monitored by a pulse oximeter (measuring oxygen saturation) and a continuous heart rate monitor. The surgical team is well trained and prepared for any emergency. In addition to the surgeon and anesthesiologist, there will be a nurse and a surgical technician in the room. (Alavi F. S, et al, 2013).

After the anesthetic takes effect, the doctor will remove the tonsils and/or adenoids through the mouth. There will be no external incisions. The base of the tonsils and/or adenoids will be burned (cauterized) with an electrical cauterizing unit. The whole procedure usually takes less than 60 minutes. The doctor will come to the waiting room to talk with any family or friends once the patient is safely transferred to the recovery room. (Baugh R. F, 2011).

Post-operative care

A sore throat will persist approximately two weeks following surgery while pain following the procedure is significant and may necessitate a hospital stay. Recovery can take from 7 to 10 days and proper hydration is very important during this time, since dehydration can increase throat pain, leading to a vicious circle of poor fluid intake.

At some point, most commonly 7–11 days after the surgery (but occasionally as long as two weeks (14 days) after), bleeding can occur when scabs begin sloughing off from the surgical sites. The overall risk of bleeding is approximately 1–2%. It is higher in adults, especially males over age 70 and three quarters of bleeding incidents occur on the same day as the surgery. Approximately 3% of adult patients develop significant bleeding at this time which may sometimes require surgical intervention.

Post-operative pain relief is subject to change. Traditionally, pain relief has been provided by relatively mild narcotic analgesics such as Acetaminophen with codeine, for milder pain, and stronger narcotic analgesics for more severe pain.
Recently (January 2011), the FDA reduced the recommended total 24-hour dose because of concern about liver toxicity from the Acetominophen component. An alternative is the use of non-steroidal anti-inflammatory agents, themselves giving rise to concerns that their effect on platelets might increase the risk of post-operative bleeding. In turn, this has renewed interest in techniques other than traditional 'extra-capsular excision' in the hope that post-operative pain might be reduced. (Randel, A, 2011).

Tonsillectomy appears to be more painful in adults than children, although there will be individual variations in response.

**Expect After Surgery:**

Tonsillectomy is an outpatient procedure performed under general anesthesia and typically lasting between 30 minutes and 45 minutes. It is most commonly performed in children. Most children go home about four hours after surgery and require a week to 10 days to recover from it. Almost all children will have throat pain, ranging from mild to severe, after surgery. Some may experience pain in the ears, jaw, and neck. The child's doctor will prescribe or recommend medication to ease the pain.

During the recovery period, it's important for the child to get enough rest. It's also important to make sure your child gets plenty of fluids; however, they should avoid giving your child milk products for the first 24 hours after surgery. Although throat pain may make the child reluctant to eat, the sooner your child eats, the sooner he or she will recover. For several days after surgery, your child may experience a low-grade fever and small specks of blood from the nose or saliva.

**General instructions and follow-up care:**

An appointment for a checkup should be made 10 to 14 days after the procedure. The most important thing one can do after a tonsillectomy to prevent bleeding and dehydration is to drink plenty of fluids. At times it may be very difficult to swallow. If the patient drinks, they will have less pain overall. Try to drink thin dilute, non-acidic drinks or frozen popsicles. Soft foods such as gelatin, ice cream, custards, puddings, and mashed foods are helpful to maintain adequate nutrition. Hot, spicy, coarse, and scratchy foods such as fresh fruits, toast, crackers, and potato chips
should be avoided because they may scratch the throat and cause bleeding. If dehydration occurs and attempts at home cannot correct the problem, then admission to the hospital for intravenous fluids will be necessary.

Pain is common after a tonsillectomy. It is often hard to predict who will recover quickly or who will have prolonged pain. Immediately after surgery, many patients report only minimal pain. The next day the pain may increase and remain significant for several days. At one week following surgery, patient's will often appear to relapse when their pain becomes significant again. They usually report pain in the ears, especially when they swallow. The scabs are often falling off at this time. If bleeding is going to occur, this is the most common time. This pain is usually the last time pain will be experienced. Overall, most patients will have recovered fully by two weeks after surgery. However, the patient will occasionally have throat tenderness with hot or spicy foods for up to 6 weeks postoperatively.

Complications

A single dose of the corticosteroid drug dexamethasone may be given during surgery to prevent post-operative vomiting. A systematic review found that a dose of dexamethasone during surgery can prevent vomiting in one out of every five children who receives the drug. The review also found that these children return to a normal diet more quickly and have less post-operative pain. (Randel, A, 2011).

A recent study states that tonsillectomies in young children (0 to 7 years) are correlated with weight gain in the years following surgery. However, no causal effect has been established. The morbidity rate associated with tonsillectomy is 2% to 4% due to post-operative bleeding; the mortality rate is 1 in 15,000, due to bleeding, airway obstruction, or anesthesia complications. (Randel, A, 2011).

Risks during a tonsillectomy

A tonsillectomy is a very common, routine procedure. However, like with other surgeries, there are some risks with this procedure. These can include:

- swelling
- infection
- bleeding
reaction to anesthetics

**Impact on immune system**

It remains controversial whether tonsillectomy may negatively affect the immune system. However, multiple studies have confirmed correlation between a previous history of tonsillectomy and a wide range of diseases, such as:

- Hodgkin's disease
- Non-hodgkin's lymphoma
- Laryngeal cancer
- Esophageal cancer
- Thyroid cancer
- Breast cancer
- Prostate cancer
- Base of tongue cancer
- Leukemia
- Asthma
- Hay fever
- Irritable bowel syndrome
- Crohn's disease
- Appendicitis
- Heart attack
- Sarcoidosis
- Rheumatoid arthritis
- Multiple sclerosis
- Deep neck infection
- Poliomyelitis
- Recurrent cellulitis
- Primary biliary cholangitis
- Chronic rhinosinusitis
- Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections. (Baugh R. F, 2011).
Moreover, other studies have found that tonsillectomy may lead to:

- a decrease in levels of serum immunoglobulin
- a decrease in levels of secretory Immunoglobulin A
- an increased risk of autoimmune disease
- an increase in mortality between the age of 18 and 44
- an increased risk of chronic disease
- an increase in overall cancer risk

**Nursing care plan pre and post tonsillectomy**

**Tonsillectomy:** Tonsillectomy is surgery to remove the tonsils. These glands are at the back of the throat. Often, tonsillectomy is done at the same time as adenoidectomy, surgery to remove the adenoid glands.

**Etiology of Tonsillectomy:** The cause of tonsillitis is viral and bacterial, mostly caused by a virus which is also a predisposing factor of bacterial infection.

**Virus Types:**

- Adenovirus
- Virus echo
- The influenza virus

**Bacteria Types:**

- Streptococcus
- Mycroccoccus
- Corine bacterium dphterial

The degree of tonsillar enlargement:

a. Grade I (Normal): Tonsils are behind tonsil pillars (soft structure, cut by the soft palatine).

b. Grade II: Tonsils are among the pillars and uvula.

c. Grade III: Touching tonsils uvula.

d. Grade IV: One or two tonsil extends ketengah uvofering. (Ahmadi N. 2013)
Nursing Assessment of Tonsillectomy

- Assess difficulty swallowing, easy to choke.
- Assess sore throat acute / chronic.
- Assess the history of sore throats and influenza.
- Assess allergy history.
- Assess the bleeding by mouth.
- Assess the presence of asthma, cystic fibrosis.

Nursing Diagnoses for Tonsillectomy

1. Risk for infection related to the factors of surgery

2. Acute Pain related to surgical operations

3. Fluid Volume Deficit related to decreased fluid intake secondary to pain on swallowing

4. Imbalanced Nutrition Less Than Body Requirements related to reduced input secondary to pain on swallowing

5. Risks to the ineffectiveness of therapeutic management related to inadequate knowledge about the complications, pain, positioning and management activities.

Interventions Nursing Care Plan Tonsillectomy

Risk for infection related to the factors of surgery

Objectives:

- There is no infection.

- There were no complications.

Intervention:

- Monitor temperature every 4 hours, the state of injury when performing maintenance.

- Give an antibiotic is prescribed, give at least 2 liters of fluid every day while implementing antibiotic therapy.
- Give antipyretics are prescribed if there is fever.

**Pain related to surgical operations**

**Objectives:**

- The client states lost pain / controlled.
- The client indicates to relax, rest / sleep and increased activity appropriately.

**Intervention:**

- Monitor vital signs
- Provide comfort measures, eg changes in position, music, relaxation.
- If prescribed analgesics, analgesics are routinely set during the first 24 hours, not waiting for patients to ask for it.

**Nursing Care Plan for Tonsillitis and Post Operative Tonsillectomy:**

**Definition**

Tonsillitis is a common presence of inflammation and swelling of the tonsillar tissue with leucocytes collection, dead epithelial cells and pathogenic bacteria in the crypts (Adam Boeis). Tonsillectomy is an invasive procedure that is performed to take with or without adenoid tonsil (Adam Boeis). (Fida A. R, 2013).

**Etiology**

- Group A β - hemolytic streptococcus.
- Pneumococcus.
- Staphylococci.
- Haemophilus influezae.

**Pathophysiology**

- Inflammation in the tonsils caused by a virus.
- Result in the formation of exudate.
- Tonsillar cellulitis occurs and the surrounding area.
- Peritonsillar abscess formation.
Symptoms

- Sore throat and dysphagia.
- Patients do not want to eat or drink.
- Malaise.
- Fever.
- Breath odor.
- Otitis media is one of the originators factor. (Fida A. R, 2013).

Management

- Bed rest.
- Provision of adequate fluids and light diet.
- Administration of medications (analgesics and antibiotics).
- If there is no progress, then the alternative actions that can be done is surgery.

Indications of Surgery:

1. Absolute indication

   - The onset of cor pulmonale due to chronic airway obstruction.
   - Hypertrophy of tonsils or adenoids with apnea syndrome during sleep.
   - Excessive hypertrophy resulting in dysphagia and weight loss as accompanying.
   - Excision biopsy in suspected as malignancy (lymphoma).
   - Peritonsillar abscess or abscess that extends over and on the surrounding tissue. (Fida A. R, 2013).

2. Relative indications

   - The whole other indications for tonsillectomy action is considered as a relative indication.

3. Another indication that most can be received are:

   - Recurrent tonsillitis attacks.
• Hyperplasia and obstruction that persist for 6 months.
• Does not respond to management and therapy.

Contraindications

• Fever of unknown cause.
• Asthma.
• Systemic infection or chronic.
• Sinusitis.

Preparation of operations that may be undertaken:

• Laboratory tests (hemoglobin, leukocytes, bleeding time).
• Give an explanation to the client treatment and care after surgery.
• Fasting 6-8 hours before surgery.
• Give antibiotics as prophylaxis.
• Give premedication ½ hours before surgery.

Nursing Assessment

• Medical history factors associated with the occurrence of tonsillitis supporting bio-psycho-socio-spiritual as well.
• Blood circulation. Palpitations, headache during position changes, decreased blood pressure, bradycardia, body felt cold, pale extremities.
• Elimination. Changes in the pattern of elimination (urinary incontinence / bowel incontinence), abdominal distension, bowel sounds disappearance.
• Activity / rest. There is a decrease in activity due to body weakness, loss of sensation or paresis / plegia, tiredness, difficult in the rest because of muscle cramps or spasms and pain. The reduced level of consciousness, decreased muscle strength, general body weakness.
• Nutrition and fluids. Anorexia, nausea, vomiting due to increased ICP (intracranial pressure), impaired swallowing, and loss of sensation on the tongue.
- Innervation. Dizziness / syncope, headache, decreased visual field wider / blurred vision, decreased sensation of touch, especially on the face and extremities. Comatose mental status, weakness in the extremities, muscle paralise face, aphasia, dilated pupils, decreased hearing.
- Breathing. Shortened breath, inability to breathe, apnea, apnea onset period in breathing patterns.
- Security. Fluctuations of the temperature in the room.
- Psychology. Denial, disbelief, anguish, fear, anxiety.

**Nursing Diagnosis for Tonsillitis and Post Operative Tonsillectomy**

1. Ineffective Breathing Pattern
2. Impaired Physical Mobility
3. Ineffective Tissue perfusion (cerebral)
4. Acute Pain
5. Impaired Verbal Communication
6. Self-concept disturbance
7. Alteration in bowel / Urinary Elimination
Previous studies:

Worldwide:

A study done by Van Hulle Vincent, Catherine, RN (2015). To describe nurses’ knowledge and attitudes about relieving children’s pain, perceived tonsillectomy and pain management, and analgesics administered by nurses in relation to levels of children’s pain. Study Design and Methods: Data were collected from 67 nurses and 132 children in their care. Outcomes were measured with The Nurses’ Knowledge Survey Regarding Pain, the Nurses’ Perceived Barriers to Optimal Pain Management for Children Survey, calculations of the ordered analgesia administered by the nurse, and the Oucher scale for intensity of children’s pain. Results: Most nurses demonstrated knowledge about relieving children’s pain but lacked knowledge about the incidence of respiratory depression and thought that children over-report their pain. Inadequate or insufficient physician medication orders for pain were identified by 99% of nurses as the greatest barrier to optimal pain management. The children’s mean pain level was 1.63 (scale of 0 to 5). Of the 117 children who reported pain, 74% received analgesia. Nurses administered means of 37.9% of available morphine and 22.8% of available total analgesia. Clinical Implications: Nurses in practice need to become more aware of the adequacy of their analgesic administration, the value of children’s self-report of pain, and the limitations of relying on children’s behavioral manifestations to judge pain intensity. This study also demonstrates the importance of examining attitudes about children’s pain relief and learning more about respiratory depression in children receiving opioids. (Van Hulle Vincent, Catherine, RN 2015)

In developed countries: A study done by Fateme S., et al (2015). Stated that tonsillectomy is the most common surgery in the field of ENT. Pain is the most common post tonsillectomy complaint. Considering the importance of nursing cares in relieving post-surgery pain in general and post-tonsillectomy pain in particular, this study is conducted with the aim of presenting nursing process in post tonsillectomy pain diagnosis for decreasing loss of appropriate opportunities in nursing cares and achieving appropriate results in taking care of the patients. This study is a targeted systematic review focusing on “effective nursing measures in relieving children’s post tonsillectomy pain”. The main stages of searching strategy included searching in
electronic sources of Latin databases; Pub Med, Science Direct, and EMBASE and Persian databases; SID, Iran medex, ISC to find published articles from 2009 to 2014. In the end, final synthesis was done on eight articles in English. Findings: Effective nursing measurements for relieving post tonsillectomy pain include: decreasing children’s anxiety through children and their families’ psychological preparation by nurses and other caregivers, using cold compress to reduce neck and jaw pain, presenting distraction techniques, offering fluids and cold foods immediately in the period after surgery, creating a comfortable environment for the children, avoiding too much of talking and adequate sleep. Conclusion: It is recommended to the nursing managers and nurses to perform cares achieved from this systematic review to achieve appropriate results in relieving post tonsillectomy pain. (Fateme S., et al 2015).

**In developing countries:** A study done by Ahmadi N. (2013) stated that: The health care system has moved towards home care, early discharge, and day procedures. Nurses in the home are, therefore, far more likely to be managing the children's postoperative pain than health professionals. The purpose of this study was to describe Nurses' experiences in identifying and managing their children's acute pain associated with surgery. Because little is known about family's perceptions and management of a child's pain in the home, a qualitative design and grounded theory method were used. A purposive, convenience sample of 7 nurses whose children were 4–8 years old and who had a day-surgery adenoid-tonsillectomy were interviewed in depth (2–3 interviews per mother). Four themes were found in the data: (1) nurses’ descriptions of the children's overall pattern of postoperative pain indicated that pain was minimal or absent before surgery, increased following surgery, and decreased with medicine and healing; (2) nurses' assessment and evaluation of the children's pain used pain cues similar to those used by nurses and physicians; (3) all the nurses worried about drug addiction; and 4) nurses learned to manage their children's pain through ‘trial and error’. This study provides beginning data for understanding family management of children's pain. (Ahmadi N. 2013)

**In Sudan:** The researcher found that there was no published studies done on this topic.
3. Materials and Methods

3.1 Study Design

A descriptive hospital based study.

3.2 Study area:

The study was carried out in Pediatric Teaching Hospital at Wad Madani Town is the capital of the Al Gezira state in east-central Sudan. Wad Madani lies on the west bank of the Blue Nile, nearly 85 miles (136 km) southeast of Khartoum. It is linked by rail to Khartoum and is the center of a cotton-growing region. The city is also the center of local trade in wheat, peanuts, barley, and livestock. It is also headquarters of the Irrigation Service. In 2008, its population was 345,290. It is the home of the Gezira University and Wad Medani Ahlia College, a private universities.

Pediatric Teaching Hospital receives the patients from the whole state and neighboring states (Algadarif and Sinnar). The hospital consisted of 16 wards in this hospital one out of them are for the respiratory distress syndrome patients. The respiratory department consists of 40 beds, 2 masks, 2 nebulizer, 5 rooms (Statistical Department of Pediatric Teaching Hospital 2017).
Table (3.1) Distribution of Manpower in Pediatric Teaching Hospital 2017:

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultants</td>
<td>12</td>
</tr>
<tr>
<td>Registrars</td>
<td>20</td>
</tr>
<tr>
<td>Medical officers</td>
<td>21</td>
</tr>
<tr>
<td>House officers</td>
<td>25</td>
</tr>
<tr>
<td>Nurses</td>
<td>137</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>3</td>
</tr>
<tr>
<td>Assistant pharmacist</td>
<td>8</td>
</tr>
<tr>
<td>Nutritionists</td>
<td>5</td>
</tr>
<tr>
<td>Assistant nutritionists</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>240</strong></td>
</tr>
</tbody>
</table>

Source: Statistical Department of Pediatric Teaching Hospital. 2017
Table (3.2): Distribution of manpower in Pediatric Teaching Hospital 2017:

<table>
<thead>
<tr>
<th>Position</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultants</td>
<td>4</td>
</tr>
<tr>
<td>Registrars</td>
<td>15</td>
</tr>
<tr>
<td>Medical officers</td>
<td>23</td>
</tr>
<tr>
<td>Technical anesthesia</td>
<td>13</td>
</tr>
<tr>
<td>Midwives and Qualified Nurses (private)</td>
<td>32</td>
</tr>
<tr>
<td>Bsc. Nurses</td>
<td>15</td>
</tr>
<tr>
<td>Diploma</td>
<td>51</td>
</tr>
<tr>
<td>Technical Nurses</td>
<td>40</td>
</tr>
<tr>
<td>Pharmacists and Assistant Pharmacists</td>
<td>8</td>
</tr>
<tr>
<td>Nutritionists and Psychologists and socialistic</td>
<td>7</td>
</tr>
<tr>
<td>Statistics</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>215</td>
</tr>
</tbody>
</table>

Source: Statistical Department of Pediatric Teaching Hospital 2017 (2017)
3.3 Study Population:

Nurses working at Pediatric Teaching Hospitals, during the period of the study were included in the study from June to September 2017.

3.3.1 Inclusion criteria:

- All available registered nurses who work at the selected hospitals was included in the study.
- Nurses with experiences one year and more

3.3.2 Exclusion criteria:

Under training nurses were not involved in this study and nurses less than one year experience and those who exposed to training.

3.4 Sample Size and Sampling Techniques:

- All (59) available nurses who work in the setting hospitals was included in the study during the period from June to September 2017
- Questionnaire was distributed for each available nurse to fill within 20-30 minutes under the researcher guidance.

3.5 Data Collection tools:

One tool was used:

A structured questionnaire was designed by the researcher including data about socio-demographic characteristics, data about the nurses’ knowledge regarding nursing care of pre/post tonsillectomy during the period of the study from June to September 2017.

3.6 Ethical consideration:

- Official letters for the head manager and matron of Pediatric Teaching Hospital at Wad Medani for approval to collect the data.
- Explanation for the nurses about the study questionnaire.
3.7 Data analysis:

The data collected was incorporate and entered in the computer, described and analyzed by using statistical package for social sciences (SPSS).

Nurses' knowledge regarding Nursing care of tonsillectomy evaluated according to the following:

- < 50% weak.
- 51 to 74% good.
- > 75% excellent.
4. Results and Discussion

4.1 Results

Table (4.1): Distribution of the study sample according to their age group:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 to 29 years</td>
<td>29</td>
<td>49.2%</td>
</tr>
<tr>
<td>30 to 35 years</td>
<td>15</td>
<td>25.4%</td>
</tr>
<tr>
<td>36 to 39 years</td>
<td>11</td>
<td>18.6%</td>
</tr>
<tr>
<td>40 years and more</td>
<td>4</td>
<td>6.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59</td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Table (4.1): showed that (49.2%) of the study sample their age group ranged between 24 to 29 years, (25.4%) of them their age group ranged between 30 to 35 years, (18.6%) of the study sample their age group ranged between 36 to 39 years. While only (6.8%) of the study sample at age 40 years and more.
Figure (4.1) Distribution of the study sample according to their gender

Regarding gender this table revealed that (74.6%) of the study sample were female while only (25.4) of them were male.
Table (4.2): Distribution of the study sample according to their education level and years of experience

<table>
<thead>
<tr>
<th>Education level</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Bachelor</td>
<td>52</td>
<td>88.1%</td>
</tr>
<tr>
<td>Post graduate</td>
<td>7</td>
<td>11.9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 years</td>
<td>27</td>
<td>45.8%</td>
</tr>
<tr>
<td>6 to 10 years</td>
<td>25</td>
<td>42.4%</td>
</tr>
<tr>
<td>11 to 15 years</td>
<td>7</td>
<td>11.9%</td>
</tr>
<tr>
<td>16 years and more</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table (4.2): shows that (88.1%) of the study sample their level of educational were bachelor, and only (11.9%) of them had master degree. (45.8%) of the study sample their years of experience ranged between 1 to 5 years while (42.4%) of them their years of experience ranged between 6 to 10 years while only (11.9%) of them had experience more than 11 to 15 years and more.
Table (4.3): Distribution of the study sample according to their source of knowledge regarding nursing care about pre/post tonsillectomy and training program

<table>
<thead>
<tr>
<th>Source of knowledge</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colleagues</td>
<td>15</td>
<td>25.4%</td>
</tr>
<tr>
<td>Books and references</td>
<td>7</td>
<td>11.9%</td>
</tr>
<tr>
<td>Training programs</td>
<td>12</td>
<td>20.3%</td>
</tr>
<tr>
<td>Mass-media</td>
<td>3</td>
<td>5.1%</td>
</tr>
<tr>
<td>University</td>
<td>22</td>
<td>37.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>training program</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>20.3%</td>
</tr>
<tr>
<td>No</td>
<td>47</td>
<td>79.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>59</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table (4.3) showed that 25.4% of the study sample their source of knowledge regarding nursing care about pre/post tonsillectomy from colleagues, (11.9%) were books and references, (20.3%) from training program, (5.1%) were mass-media and (37.3%) from university. Regarding training programs also the results revealed that (20.3%) of the study sample had received training program regarding nursing care about pre/post tonsillectomy while (79.7%) of them didn't.
Nurses' knowledge regarding nursing care about pre/post tonsillectomy:

Table (4.4): Distribution of the study sample according to their responses regarding Definition and Functions of Tonsil:

<table>
<thead>
<tr>
<th>Nurses’ knowledge</th>
<th>Correct answers</th>
<th>Incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Definition of Tonsil</td>
<td>37</td>
<td>62.7</td>
<td>22</td>
</tr>
<tr>
<td>Functions</td>
<td>39</td>
<td>66.1</td>
<td>20</td>
</tr>
</tbody>
</table>

Table (4.4): revealed that (62.7% and 30.5%) of the study sample responded with correct answers regarding definition of Tonsil and Functions respectively.
Table (4.5): Distribution of the study sample according to their responses regarding Clinical significance and Causes of Tonsillitis:

<table>
<thead>
<tr>
<th>Nurses’ knowledge</th>
<th>Correct answers</th>
<th>incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Clinical significance</td>
<td>36</td>
<td>61.0</td>
<td>23</td>
</tr>
<tr>
<td>Causes of Tonsillitis</td>
<td>34</td>
<td>57.6</td>
<td>25</td>
</tr>
</tbody>
</table>

Table (4.5): showed that (61.0% and 57.6%) of the study sample responded with correct answers regarding Clinical significance and causes of tonsillitis respectively.
Table (4.6): Distribution of the study sample according to their responses regarding Symptoms of tonsillitis and symptoms in children:

Table (4.6): revealed that (52.5% and 49.2%) of the study sample responded with correct answers regarding Symptoms of tonsillitis and symptoms in children respectively.

<table>
<thead>
<tr>
<th>Nurses’ knowledge</th>
<th>Correct answers</th>
<th>incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Symptoms of tonsillitis</td>
<td>31</td>
<td>52.5</td>
<td>28</td>
</tr>
<tr>
<td>symptoms in children</td>
<td>29</td>
<td>49.2</td>
<td>30</td>
</tr>
</tbody>
</table>
Table (4.7): Distribution of the study sample according to their responses regarding Treatments for Tonsillitis and tonsillitis is caused by a virus:

<table>
<thead>
<tr>
<th>Nurses’ knowledge</th>
<th>Correct answers</th>
<th>Incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Treatments for Tonsillitis</td>
<td>25</td>
<td>42.4</td>
<td>31</td>
</tr>
<tr>
<td>tonsillitis is caused by a virus</td>
<td>20</td>
<td>33.9</td>
<td>39</td>
</tr>
</tbody>
</table>

Table (4.7): illustrated that (42.4% and 33.9%) of the study sample responded with correct complete answers regarding treatments for tonsillitis and tonsillitis is caused by a virus respectively.
Table (4.8): Distribution of the study sample according to their responses regarding Tonsillectomy and Medical uses:

<table>
<thead>
<tr>
<th>Nurses’ knowledge</th>
<th>Correct answers</th>
<th>Incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Tonsillectomy</td>
<td>19</td>
<td>32.2</td>
<td>40</td>
</tr>
<tr>
<td>Medical uses</td>
<td>19</td>
<td>32.2</td>
<td>40</td>
</tr>
</tbody>
</table>

Table (4.8): illustrated that (32.2% and 32.2%) of the study sample responded with correct answers regarding tonsillectomy and medical uses respectively.
Table (4.9): Distribution of the study sample according to their responses regarding Tonsillectomy is also sometimes performed on those who suffer chronically from tonsilloliths and Tonsillectomy can also treat other medical problems:

<table>
<thead>
<tr>
<th>Nurses’ knowledge</th>
<th>Correct answers</th>
<th>incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Tonsillectomy is also sometimes performed on those who suffer chronically from tonsilloliths</td>
<td>21</td>
<td>35.6</td>
<td>38</td>
</tr>
<tr>
<td>Tonsillectomy can also treat other medical problems</td>
<td>20</td>
<td>33.9</td>
<td>39</td>
</tr>
</tbody>
</table>

Table (4.9): showed that (35.6% and 33.9%) of the study sample responded with correct answers regarding Tonsillectomy is also sometimes performed on those who suffer chronically from tonsilloliths and Tonsillectomy can also treat other medical problems respectively.
Table (4.10): Distribution of the study sample according to their responses regarding Effectiveness of Tonsillectomy and Surgical procedure:

<table>
<thead>
<tr>
<th>Nursing care</th>
<th>Correct answers</th>
<th>Incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Effectiveness of Tonsillectomy</td>
<td>25</td>
<td>42.4</td>
<td>39</td>
</tr>
<tr>
<td>Surgical procedure</td>
<td>26</td>
<td>44.1</td>
<td>33</td>
</tr>
</tbody>
</table>

Table (4.10): revealed that (42.4% and 44.1%) of the study sample responded with correct answers regarding effectiveness of tonsillectomy and Surgical procedure respectively.
Table (4.11): Distribution of the study sample according to their responses regarding Methods and Before surgery:

<table>
<thead>
<tr>
<th>Nursing care</th>
<th>Correct answers</th>
<th>Incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Methods</td>
<td>28</td>
<td>47.5</td>
<td>31</td>
</tr>
<tr>
<td>Before surgery</td>
<td>29</td>
<td>49.2</td>
<td>30</td>
</tr>
</tbody>
</table>

Table (4.11): revealed that (47.5% and 49.2%) of the study sample responded with correct answers regarding methods and before surgery respectively.
Table (4.12): Distribution of the study sample according to their responses regarding During surgery and Post-operative care:

<table>
<thead>
<tr>
<th>Nursing care</th>
<th>Correct answers</th>
<th>Incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>During surgery</td>
<td>26</td>
<td>44.1</td>
<td>33</td>
</tr>
<tr>
<td>Post-operative care</td>
<td>25</td>
<td>42.4</td>
<td>39</td>
</tr>
</tbody>
</table>

Table (4.12): revealed that (44.1% and 42.4%) of the study sample responded with correct answers regarding during surgery and Post-operative care respectively.
Table (4.13): Distribution of the study sample according to their responses regarding General instructions and follow-up care and Complications:

<table>
<thead>
<tr>
<th>Nursing care</th>
<th>Correct answers</th>
<th>Incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>General instructions</td>
<td>20</td>
<td>50.8</td>
<td>28</td>
</tr>
<tr>
<td>and follow-up care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complications</td>
<td>21</td>
<td>35.6</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table (4.13): illustrated that (50.8% and 35.6%) of the study sample responded with correct answers regarding general instructions and follow-up care and complications respectively.
Table (4.14): Distribution of the study sample according to their responses regarding Risks during a tonsillectomy, Impact on immune system and Nursing Diagnoses for Tonsillectomy:

<table>
<thead>
<tr>
<th>Nursing care</th>
<th>Correct answers</th>
<th>Incorrect answers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Risks during a tonsillectomy</td>
<td>25</td>
<td>42.4</td>
<td>39</td>
</tr>
<tr>
<td>Impact on immune system</td>
<td>26</td>
<td>44.1</td>
<td>33</td>
</tr>
<tr>
<td>Nursing Diagnoses for Tonsillectomy</td>
<td>26</td>
<td>44.1</td>
<td>33</td>
</tr>
</tbody>
</table>

Table (4.14): revealed that (42.4%, 44.1% and 44.1%) of the study sample responded with correct answers regarding risks during a tonsillectomy, impact on immune system and nursing diagnoses for tonsillectomy respectively.
4.2 Discussion:

Socio-demographic data:

The results showed that (49.2%) of the study sample their age group ranged between 24 to 29 years, (25.4%) of them their age group ranged between 30 to 35 years, (18.6%) of the study sample their age group ranged between 36 to 39 years. While only (6.8%) of the study sample at age 40 years and more. Regarding gender this table revealed that (74.6%) of the study sample were female while only (25.4) of them were male. (88.1%) of the study sample their level of educational were bachelor, and only (11.9%) of them had master degree. (45.8%) of the study sample their years of experience ranged between 1 to 5 years while (42.4%) of them their years of experience ranged between 6 to 10 years while only (11.9%) of them had experience more than 11 to 15 years and more.

25.4% of the study sample their source of knowledge regarding nursing care about pre/post tonsillectomy from colleagues, (11.9%) were books and references, (20.3%) from training program, (5.1%) were mass-media and (37.3%) from university. Regarding training programs also the results revealed that (20.3%) of the study sample had received training program regarding nursing care about pre/post tonsillectomy while (79.7%) of them didn't.

Nurses knowledge regarding nursing care about pre/post tonsillectomy:

The study found that (62.7% and 66.1%) of the study sample responded with correct answers regarding definition of Tonsil and Functions respectively. While (37.3% and 33.9%) of them responded with incorrect answers respectively.

(61.0% and 57.6%) of the study sample responded with correct answers regarding Clinical significance and causes of tonsillitis respectively. While (39.0 and 42.4%) of them responded with incorrect answers respectively.

Also the results showed that (52.5% and 49.2%) of the study sample responded with correct answers regarding Symptoms of tonsillitis and symptoms in children respectively. While (47.5%, 50.8%) of them responded with incorrect answers respectively.
(42.4% and 33.9%) of the study sample responded with correct answers regarding treatments for tonsillitis and tonsillitis is caused by a virus respectively. While (67.8% and 67.8%) of them responded with incorrect answers respectively.

In the other hand this showed that (32.2% and 32.2%) of the study sample responded with correct complete answers regarding tonsillectomy and medical uses respectively. While (47.5% and 42.4%) of them responded with correct incomplete answers respectively. These results were differ to study done by Alavi F. S, et al, 2013). They stated that (92.8% and 90.2%) of the responded of his study subject were knowable about the tonsillectomy and medical uses of tonsillectomy respectively. (Alavi F. S, et al, 2013).

(35.6% and 33.9%) of the study sample responded with correct answers regarding Tonsillectomy is also sometimes performed on those who suffer chronically from tonsilloliths and Tonsillectomy can also treat other medical problems respectively. While (64.4% and 66.1%) of them responded with incorrect answers respectively.

The results revealed that (42.4% and 44.1%) of the study sample responded with correct answers regarding effectiveness of tonsillectomy and Surgical procedure respectively. While (57.6% and 55.9%) of them responded with incorrect answers respectively. These results were differ to study done by Alavi F. S, et al, 2013). They found that all of the responded of his study subject known about the effectiveness of tonsillectomy while (89.8%) of them gave correct answers regarding surgical procedure. (Alavi F. S, et al, 2013).

(47.5% and 49.2%) of the study sample responded with correct answers regarding methods and before surgery respectively. While (52.5% and 50.8%) of them responded with incorrect answers respectively.

In the other hand this result showed that (44.1% and 42.4%) of the study sample responded with correct answers regarding during surgery and Post-operative care respectively. While (55.9% and 57.6%) of them responded with incorrect answers respectively. (50.8% and 35.6%) of the study sample responded with correct answers regarding general instructions and follow-up care and complications respectively. While (49.2% and 64.4%) of them responded with incorrect answers respectively.
respectively. These results were differ to study done by Van Hulle Vincent, et al (2015). They stated that 99% of nurses are more knowledgeable regarding general instructions about tonsillectomy and pain management after surgery compared with nurses students. (Van Hulle Vincent, et al (2015)

Finally this showed revealed that (42.4%, 44.1% and 44.1%) of the study sample responded with correct answers regarding risks during a tonsillectomy, impact on immune system and nursing diagnoses for tonsillectomy respectively. While (57.6%, 55.9% and 55.9%) of them responded with incorrect answers respectively. These results were differ to study done by Randel, A, 2011). Who stated that (98.2%) of respondent nurses gave complete answers regarding risks factors during and post tonsillectomy. (Randel, A, 2011).
5. Conclusion and Recommendations

5.1 Conclusion

*Based on the results of this study; the researcher concluded that:* Nurses’ knowledge regarding nursing care of pediatrics with pre and post tonsillectomy was weak.
5.2: Recommendations:

*Based on the conclusion of this study; the researcher suggests that:*

- Nurses should be encouraged to attend specific meetings, programs, workshops and seminars in concern of pre and post tonsillectomy to be acquainted with the most recent, advances and skills in the field.
- To establishment training courses for the nursing staff to increase their knowledge and develop their expertise.
- Conducting periodic monitoring of nurses knowledge and practice to evaluate the level of nurse's knowledge working in this field.
References


Nurses' Knowledge regarding Nursing Care of Tonsillectomy Patients at Wad Medani Pediatric and Wad Medani Teaching Hospitals, Gezira State, Sudan (2017)

A. Socio-demographic Data

1. Age group:
   a. 24 – 29 years ( )
   b. 30 – 35 years ( )
   c. 36 – 39 years ( )
   d. 40 years and more ( )

2. Gender:
   a. Male ( )
   b. Female ( )

3. Education level:
   a. Diploma ( )
   b. Bachelor ( )
   c. Post graduate ( )

4. Years of experience:
   a. 1 – 5 years ( )
   b. 6 to 10 years ( )
   c. 11 to 15 years ( )
   d. 16 years and above ( )

5. Source of Nurses' knowledge about nurses' knowledge regarding Nursing Care about Pre/Post Tonsillectomy:
   a. Colleagues ( )
   b. Books and references ( )
c. Training programs  (    )  d. Mass-media  (    )  
e. University  (    )  

6. Did you receive training programs regarding nurses' knowledge Nursing Care about Pre/Post Tonsillectomy?  
   a. Yes  (    )  b. No  (    )  

7. If yes when?  

B. Nurses' Knowledge about nurses' knowledge regarding Nursing Care about Pre/Post Tonsillectomy:  

2.1 Definition of Tonsil:  
   a. Tonsils are collections of lymphoid tissue facing into the aerodigestive tract.  
      (    )  
   b. The set of lymphatic tissue known as Waldeyer's tonsillar ring includes the adenoid tonsil  
      (    )  
   c. Two tubal tonsils, two palatine tonsils,  
      (    )  
   d. The lingual tonsil. When used unqualified  
      (    )  
   e. The palatine tonsils and the nasopharyngeal tonsil are lymphoepithelial tissues located near the oropharynx and nasopharynx (parts of the throat)  
      (    )  

2.2 Function:
a. These immunocompetent tissues are the immune system's first line of defense against ingested or inhaled foreign pathogens

b. Tonsils have on their surface specialized antigen capture cells called M cells that allow for the uptake of antigens produced by pathogens.

c. These M cells then alert the underlying B cells and T cells in the tonsil that a pathogen is present and an immune response is stimulated.

d. B cells are activated and proliferate in areas called germinal centres in the tonsil.

e. The germinal centres are places where B memory cells are created and secretory antibody (IgA) is produced.

2.3 Clinical significance:

a. Tonsils can become enlarged (adenotonsillar hyperplasia)

b. Tonsils inflamed (tonsillitis)

c. Tonsils may require surgical removal (tonsillectomy).

d. Tonsils are indicated if they obstruct the airway or interfere with swallowing

e. Tonsils are or in patients with frequent recurrent tonsillitis.

2.4 Causes of Tonsillitis

a. Adenoviruses

b. Influenza virus
C. Epstein-Barr virus
   
D. Parainfluenza viruses
   
E. Enteroviruses
   
2.5 Symptoms of tonsillitis:
   a. Throat pain or tenderness and Redness of the tonsils
   
B. A white or yellow coating on the tonsils
   
C. Painful blisters or ulcers on the throat and Headache
   
D. Loss of appetite
   
E. Ear pain and Difficulty swallowing or breathing through the mouth
   
2.6 In children, symptoms may also include:
   
A. Nausea
   
B. Vomiting
   
C. Abdominal pain
   
2.7 Treatments for Tonsillitis
   
A. Treatment for tonsillitis will depend in part on the cause.
   
   b. A lab test can detect a bacterial infection.
c. A viral infection will not show on the test, but may be assumed if the test for bacteria is negative.

2.8 If the tonsillitis is caused by a virus, antibiotics won't work and your body will fight off the infection on its own. In the meantime, there are things you can do to feel better, regardless of the cause. They include:

a. Get enough rest and Drink warm or very cold fluids to ease throat pain

b. Eat smooth foods, such as flavored gelatins, ice cream, or applesauce

c. Use a cool-mist vaporizer or humidifier in your room

d. Gargle with warm salt water

e. Suck on lozenges containing benzocaine or other anesthetics

2.9 Tonsillectomy:

a. Tonsillectomy is a surgical procedure in which each tonsil is removed from a recess in the side of the pharynx called the tonsillar fossa.

b. The procedure is performed in response to repeated occurrence of acute tonsillitis, sleep surgery for obstructive sleep apnea,

c. Nasal airway obstruction, diphtheria carrier state, snoring, or peritonsillar abscess.

d. For children, the adenoids (also known as a pharyngeal tonsil or nasopharyngeal tonsil) are usually removed
e. A procedure called adenoidectomy (or tonsilloadenoidectomy or adenotonsillectomy when combined). Adenoidectomy is uncommon in adults in whom the adenoids are usually vestigial.

2.10 Medical uses:

a. Tonsillectomy may be indicated when the patient experiences recurrent infections of acute tonsillitis.

b. As the size of tonsils reaches its maximum at 3 years of age and then regresses gradually,

(  )

c. Tonsillectomy is usually delayed unless the frequency of infection necessitates it absolutely. (  )

d. The number prompting tonsillectomy varies with the severity of the episodes.

(  )

e. One case, even severe, is generally not enough for most surgeons to decide tonsillectomy is necessary. (  )

2.11 Tonsillectomy is also sometimes performed on those who suffer chronically from tonsilloliths. Most recently, American Academy of Otolaryngology-Head and Neck Surgery Foundation has published clinical practice guidelines. The panel made a strong recommendation for:

a. Watchful waiting for recurrent throat infection if there have been fewer than 7 episodes in the past year or fewer than 5 episodes per year in the past 2 years or fewer than 3 episodes per year in the past 3 years;

(  )

b. Assessing the child with recurrent throat infection who does not meet criteria in statement 2 for modifying factors that may nonetheless favor tonsillectomy, which may include but are not limited to multiple antibiotic allergy/intolerance, periodic fever, aphthous stomatitis, pharyngitis and adenitis, or history of peritonsillar abscess;

(  )

c. Asking caregivers of children with sleep-disordered breathing and tonsil hypertrophy about comorbid conditions that might improve after tonsillectomy, including growth
retardation, poor school performance, enuresis, and behavioral problems;

D. Counseling caregivers about tonsillectomy as a means to improve health in children with abnormal polysomnography who also have tonsil hypertrophy and sleep-disordered breathing;

E. Counseling caregivers that sleep-disordered breathing may persist or recur after tonsillectomy and may require further management;

2.12 Tonsillectomy can also treat other medical problems, including:

A. Breathing problems related to swollen tonsils

B. Frequent and loud snoring

C. Periods in which you stop breathing during sleep, or sleep apnea

D. Bleeding of the tonsils

E. Cancer of the tonsils

2.13 Effectiveness of Tonsillectomy

A. The scientific evidence indicates that tonsillectomy is on average only modestly effective at reducing the frequency and severity of sore throats, and does not get rid of sore throats altogether.

B. Benefits also appear to only last for a year after surgery.

C. In children meeting the strict criteria for surgery, short term benefit means that without tonsillectomy a child who meets these strict criteria will probably have 6 sore throats in the next two years while one who has surgery will probably have 3 sore throats.

D. After two years there is little difference in the frequency of sore throats.
2.14 Surgical procedure

A. For the past 50 years at least, tonsillectomy has been performed by dissecting the tonsil from its surrounding fascia, a so-called 'total', or extra-capsular tonsillectomy.

B. Problems including pain and bleeding led to a recent resurgence in interest in sub-total tonsillectomy or 'tonsillotomy' which was popular 60–100 years ago, in an effort to reduce these complications.

C. The generally accepted procedure for 'total' tonsillectomy uses a scalpel and blunt dissection or electrocautery, although harmonic scalpels or lasers have also been used.

D. Bleeding is stopped with electrocautery, ligation by sutures, and the topical use of thrombin, a protein that induces blood clotting.

E. The main question of importance becomes whether or not the benefits of subtotal tonsillectomy in obstructive sleep apnea are enduring. It appears that this may be the case although most observers agree that further time and study is required.

2.15 Methods

The scalpel is the preferred surgical instrument of many ear, nose, and throat specialists. However, there are other techniques and a brief review of each follows:

A. Dissection and snare method:

B. Electrocautery:

C. Radiofrequency ablation:

D. Coblation tonsillectomy:

e. Harmonic scalpel:
2.16 Before surgery:

a. In most situations the surgery is performed as outpatient at either a hospital or a surgery center (    )

b. In both facilities, quality care is provided without expense and inconvenience of an overnight stay. (    )

c. An anesthesiologist will monitor the patient throughout the procedure. (    )

d. Usually, the anesthesiologist (or surgery staff) will call the night before surgery to review the medical history. If they are unable to reach the patient the night before surgery, (    )

2.17 During surgery:

a. In the operating room, the anesthesiologist will usually use a mixture of gas and an intravenous medication for the general anesthetic. In most situations, an IV will have been started either in the preoperative holding room or after the patient has been given a mask anesthetic. (    )

b. During the procedure, the patient will be continuously monitored by a pulse oximeter (measuring oxygen saturation) and a continuous heart rate monitor. (    )

c. The surgical team is well trained and prepared for any emergency. In addition to the surgeon and anesthesiologist, there will be a nurse and a surgical technician in the room. (    )

d. After the anesthetic takes effect, the doctor will remove the tonsils and/or adenoids through the mouth. There will be no external incisions. (    )

e. The base of the tonsils and/or adenoids will be burned (cauterized) with an electrical cauterizing unit. The whole procedure usually takes less than 60 minutes. (    )

2.18 Post-operative care
a. A sore throat will persist approximately two weeks following surgery while pain following the procedure is significant and may necessitate a hospital stay.

b. Recovery can take from 7 to 10 days and proper hydration is very important during this time, since dehydration can increase throat pain, leading to a vicious circle of poor fluid intake.

c. At some point, most commonly 7–11 days after the surgery (but occasionally as long as two weeks (14 days) after), bleeding can occur when scabs begin sloughing off from the surgical sites.

D. The overall risk of bleeding is approximately 1–2%. It is higher in adults, especially males over age 70 and three quarters of bleeding incidents occur on the same day as the surgery.

E. Post-operative pain relief is subject to change.

2.20 General instructions and follow-up care:

A. An appointment for a checkup should be made 10 to 14 days after the procedure.

B. The most important thing one can do after a tonsillectomy to prevent bleeding and dehydration is to drink plenty of fluids. At times it may be very difficult to swallow.

C. If the patient drinks, they will have less pain overall. Try to drink thin dilute, non-acidic drinks or frozen popsicles.

D. Soft foods such as gelatin, ice cream, custards, puddings, and mashed foods are helpful to maintain adequate nutrition.

E. Pain is common after a tonsillectomy. It is often hard to predict who will recover quickly or who will have prolonged pain. Immediately after surgery, many patients report only minimal pain.
A. A single dose of the corticosteroid drug dexamethasone may be given during surgery to prevent post-operative vomiting.

( )

b. A systematic review found that a dose of dexamethasone during surgery can prevent vomiting in one out of every five children who receives the drug.

( )

c. The review also found that these children return to a normal diet more quickly and have less post-operative pain.

( )

d. A recent study states that tonsillectomies in young children (0 to 7 years) are correlated with weight gain in the years following surgery.

( )

2.22 Risks during a tonsillectomy

A tonsillectomy is a very common, routine procedure. However, like with other surgeries, there are some risks with this procedure. These can include:

a. swelling

( )

b. infection

( )

c. bleeding

( )

d. reaction to anesthetics

( )

2.23 Impact on immune system: It remains controversial whether tonsillectomy may negatively affect the immune system. However, multiple studies have confirmed correlation between a previous history of tonsillectomy and a wide range of diseases, such as:

a. Hodgkin's disease

( )
b. Non-hodgkin's lymphoma
   
   c. Laryngeal cancer
   
   d. Esophageal cancer
   
   e. Thyroid cancer
   
   **Nursing care plan pre and post tonsillectomy**

2.24 Nursing Diagnoses for Tonsillectomy

1. Risk for infection related to the factors of surgery
   
2. Acute Pain related to surgical operations
   
3. Fluid Volume Deficit related to decreased fluid intake secondary to pain on swallowing
   
4. Imbalanced Nutrition Less Than Body Requirements related to reduced input secondary to pain on swallowing
   
5. Risks to the ineffectiveness of therapeutic management related to inadequate knowledge about the complications, pain, positioning and management activities.