Introduction

Gastro-esophageal reflux disease (GERD) is a more serious form of gastro-esophageal reflux (GER) which is common. GER occurs when the lower esophageal sphincter (LES) opens spontaneously, for varying periods of time, or does not close properly and stomach contents rise up into esophagus. GER is also called acid reflux or acid regurgitation because digestive juices – called acids – rise up with the food. The esophagus is a tube that carries food from the mouth to the stomach. The LES is a ring of muscle at the bottom of the esophagus that acts like a valve between the esophagus and stomach. **(Journal Practical Nursing., 2008).**

Diagnosis of GERD is often based on symptoms. It is characterized by chronic intermittent heartburn as a burning sensation in the chest and throat as well as acid regurgitation presenting as a sensation of acid in the throat or mouth. GERD may also present with atypical symptoms of esophageal and extra-esophageal origin such as chronic cough, sleep disturbance, chest pain, asthma, and hoarseness **(Gerson, Mitra and Bleker, 2012).**

The symptoms and presentation of GERD are numerous. These include heartburn, regurgitation, water, brash and dysphagia. However, there may also be varied symptoms such as coughing, hoarseness, and wheezing and

epigastric pain. It may also be an important course of non cardiac chest pain **(Nettina., 2010).**

Complications of GERD may include esophageal hemorrhage, perforation, stricture, barrett's esophagus, non specific laryngitis, aspiration pneumonia, pulmonary fibrosis and chronic asthma. The presence of GERD may affect the patient quality of life, decrease functional activity, and increase the economic burden. With an emphasis on morphological diagnosis, endoscopy has become a major tool to assess the final consequences of GERD, which is especially useful for population based screening**. (Rubenstein, Scheiman and Sadeghi ., 2011).**

Upper endoscopy is the primary technique for evaluating mucosal integrity, esophageal stricture formation, and Barrett's esophagus with a sensitivity of 50% and specificity of 95%. Endoscopic evidence of esophagitis occurs in less than 50% of people who have experienced heartburn greater than twice a week over a six month time period **(Hopkins, 2010).**

Also, conceder the standard procedure for diagnosis, determination of the degree of tissue damage, and documentation of GERD. Between half and three-quarters of all person with GERD will display abnormalities in their

esophageal mucosa **(Hemmink, Bredenoord and Weusten, 2008).**

Ambulatory pH monitoring, is based upon the amount of time the intra-esophageal pH is less than 4, with normal defined as less than 4% over a 24-hour period. Patients are expected to perform their usual activities with dietary and lifestyle restrictions minimized in order to improve the diagnostic yield **(Becher and Den, 2011).**

Esophageal manometry is a very valuable method of recording and evaluating the muscular function of the esophagus. The test is simple and quick to perform. With this information, the physician can usually develop effective treatment for most patients with esophageal muscle disorders **(Smeltzer, Hinkle, Bare, Cheever., 2010).**

Nursing management of patients with Gastro-esophageal reflux disease (GERD) is important. A comprehensive understanding of the operations of the all diagnostic test of GERD and areas requiring special attention would be important to reduce the complications arising from tests and disease. The nurse plays a vital role in care of patients with Gastro-esophageal reflux disease (GERD) from diagnosis of disease to back home **(Friedlander, E.A, 2010).**

Gastro-esophageal reflux disease (GERD) requires extreme care before, during and after procedure of diagnostic test of diseases and needs to understand more about the nursing care to patient ongoing endoscopy, pH monitoring and esophageal manometry and its complications. The nurses should be knowledgeable and skillful regarding endoscopy care and safety, should demonstrate competence with their responsibility that can allow them to participate in all aspect of endoscopy practice including patient assessment, education, and pre-procedure care and post-procedure care to avoiding harm for all problems can occur to both patient and nurse ***(Lawrence & Taylor, 2009).***

The primary goals of nurse practitioner in the management of GERD are to alleviate symptoms and consequently improve health related quality of life. Nursing role in management, patients, pre procedure will be asked to either gargle using local anesthetic or will have an anesthetic spray into their mouth onto the back throat to numb the gag reflux. The nurse also has a significant role in equipment preparation. During the procedure the nurse will observe the patient and assist the doctor during the procedures performing as needed ***(*Doengen, Morhouse & Murr, 2008).**

Doengen et al., 2008 also emphasized that**,** the nurse must observe patient after the procedures are done such as

endoscopy, PH monitoring, and esophageal manometry, in a separate recovery area for an hour, until the sedative or pain medication has worn off, and teach patient about that eating and drinking should be avoided until the local anesthetic has worn off in the throat and the gag reflex has returned, which may take from two to four hours.

Significance of Study

More than 60 million adult Americans suffer from heartburn at least once a month and over 25 million experience heartburn daily. The National Ambulatory Medical Care Survey (NAMCS) founded that 38.53 million annual adult outpatient visits were related to GERD. For patients presenting with GERD symptoms, 40-60% or more have reflux esophagitis. Up to 10% of these patients will have erosive esophagitis on upper endoscopy. Up to 15 million Americans experience heartburn and other discomforting symptoms daily. Studies have reported that across the general population 36% to 44% of adults experience heartburn at least once a month, and 67% of those over 65 have symptoms of GERD (though not necessarily heartburn) at least monthly **(Vemulapalli, 2008).**

GERD is the major cause for esophageal adenocarcinoma (68-90%). Adenocarcinoma is more common (30-60x) in patients with GERD and increases with

increased frequency, severity and duration of reflux symptoms. Initial screening is appropriate especially in Caucasian males over age 50 and in patients with reflux symptoms for more than 10 years. If Barrett's esophagus and/or esophagitis is not found on initial endoscopy, repeat surveillance is not indicated unless the patient has a major change in symptoms **(Salyer, 2009)**

Regarding, the incidence of cases at the endoscopy unit in Ain Shams Specialized University Hospital, in the year 2012was 1600 patients. This reveals the great number of patients undergoing endoscopy unit.

Aim of the Study

This study aimed to assess nurses' preformance regarding care of patients with gastro- esophageal reflux through the following:

1. Assessing physical and psychosocial needs of patients with gastro-esophageal reflux.
2. Assessing nursing level of knowledge regarding care of patients with gastro-esophageal reflux.
3. Assessing nursing practice regarding care of patients with gastro-esophageal reflux.

Research questions:

1. What are the bio-psychological needs of patients with gastro-esophageal reflux?
2. What is the nurse's level of knowledge regarding care of patients with gastro esophageal reflux?
3. What is the nurse's practice regarding care of patients with gastro-esophageal reflux?

Review of Literature

Anatomy and Physiology of the esophagus, It is important for the nurse to review the normal anatomy and physiology of the esophagus to understand what can go wrong in the structure and its function and how these problems can be managed **(Sheppard andWright., 2006).**

The esophagus is a muscular tube connecting the throat (pharynx) with the stomach. The esophagus is about 8 inches long, and is lined by moist pink tissue called mucosa. The esophagus runs behind the windpipe (trachea) and heart, and in front of the spine. Just before entering the stomach, the esophagus passes through the diaphragm ***(*Savarino, Tutuian, Dulbecco, Pohl, Marabotto, Parodi, Sammito, Gemignani and Zentilin., 2010*).***

The esophagus, is the tube that carries food and liquid from the throat to the stomach. Although it seems like a simple organ, the esophagus is not a rigid tube. The wall of the esophagus contains muscle that rhythmically contracts whenever a person swallows. This contraction occurs as a sweeping wave (peristalsis) carrying food down the esophagus. It literally strips the food or liquid from the throat to the stomach. ***(*Gerson, Kahrilas andFass., 2011).**

The esophagus, sometimes called the gullet, is approximately 24 cm long, and is a muscular canal which is collapsible. It runs from the base of the pharynx, behind the trachea, through the opening between the thoracic cavity and abdominal cavity, terminating at the lower esophageal sphincter of the stomach (***Fass., 2009***).

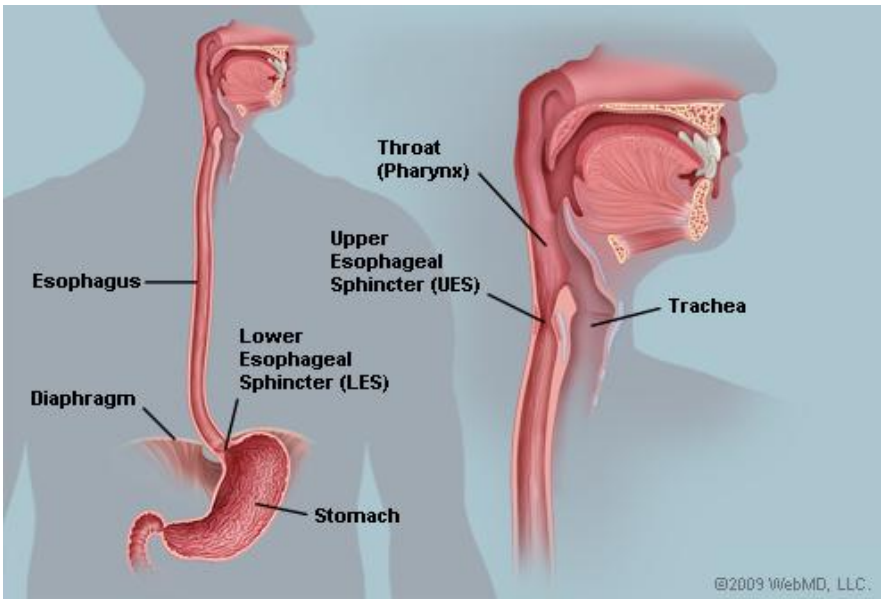

Figure (1): Anatomy of the Esophagus

Source:htt://www.up.ac/academic/medicine/anatomy/current/ecp/ecpst05.html. 2009

The structures of esophagus divided to the upper esophageal sphincter (UES) and the lower esophageal sphincter (LES). ***The upper esophageal sphincter (UES),*** is a bundle of muscles at the top of the esophagus. The muscles of the UES are under conscious control, used when

breathing, eating, belching, and vomiting. They keep food and secretions from going down the windpipe.***The lower esophageal sphincter (LES)*** is a bundle of muscles at the low end of the esophagus, where it meets the stomach. When the LES is closed, it prevents acid and stomach contents from traveling backwards from the stomach. The LES muscles are not under voluntary control **(Savarino et al., 2010).**

Definition of Gastro esophageal efflux disease, Gastro-esophageal reflux disease is defined as symptoms or mucosal damage (oesophagitis) resulting from exposure of distal esophagus to reflux of gastric contents. These symptoms should occur regularly, at least 1day per week, for the diagnosis to be made. Relaxation of the lower esophageal sphincter is the major determinant of reflux. While hiatus hernia are commonly found in reflux disease, they are not the cause of GERD. **(Boeckxstaens and Smout., 2010).**

Path-physiology of GERD, Most patients with GERD have normal baseline LES (lower esophageal sphincter) tone. The most common mechanism for acid reflux is transient relaxation of the lower esophageal sphincter (> 90% of reflux episodes in normal subjects and 75% of episodes in patients with symptomatic (GERD). Other mechanisms include breaching the LES because of increased intra-abdominal

pressure (strain induced reflux) and a baseline low LES pressure. **(Kahrilas, Shaheen and Vaezi, 2010).**

Classification of gastro esophageal reflux:

A- The modified Savary-Miller classification *of GERD* (Vakil, van Zanten & Kahrilas., 2010).

Grade I: Single or isolated erosive lesion, oval or linear, but affecting only 1 longitudinal fold.

Grade II: Multiple erosive lesions, non circumferential, affecting more than 1 longitudinal fold, with or without confluence.

Grade III: Circumferential erosive lesions.

Grade IV: Chronic lesions including ulcer (s), stricture (s), and/or short esophagus, alone or associated with lesions of grades I to III.

Grade V: Columnar epithelium in continuity with the Z line, noncircular, star-shaped, or circumferential, alone or associated with lesions grades I to IV.

B: The modified Los Angeles classification of GERD (Vakil et al., 2010).

Grade A: One (or more) mucosal break no longer than 5 mm that does not extend between the tops of 2 mucosal folds.

Grade B: One (or more) mucosal break more than 5 mm that does not extend between the tops of 2 mucosal folds.

Grade C: One (or more) mucosal break that is continuous between the tops of 2 or more mucosal folds but that involves less than 75% of the circumference.

Grade D: One (or more) mucosal break that involves at least 75% of the esophageal circumference.

Causes of GERD, Primary causes of GRED are transient inappropriate relaxation or an abnormally low resting pressure of the lower esophageal sphincter (LES).These episodically expose the esophageal body to gastric acid and enzymes. Gastroesophageal reflux occurs when the pressure barrier of the lower esophageal sphincter fails due to alow basal pressure (less than or equal to 6 mm Hg.) **(Witteman, Strijker and de Vries., 2012).**

Predisposing factors:

1) Sliding hiatus hernia:

The presence of hiatus hernia with loss of the segment supported by the diaphragm and loss of normal acute esophagogastric angel was thought to lead to gastroesophageal reflux **(Eastwood & Avunduk, 2011**).on possibility is that a combination of low pressure of lower esophageal sphincter (LES)and hiatus hernia is required for

the occurrence of erosive esophagitis. A low LES pressure may allow movement of acid from the herniated pouch into the esophagus across hypotensive LSE. Alternative, in the presence of a hernia, the diaphragmatic hiatus is incompetent and allows the stomach content to move freely the stomach pouch below the diaphragm into the hernia sac and then into esophagus. Along those lines, a study found that the severity of esophagitis appears to correlate directly with the size of hiatus hernia and indirectly with magnitude of the LES pressure **(Holloway et al., 2009)**

2-Gastric Abnormalities in GERD:

A-Delay gastric emptying (Gastroparesis)

Delayed gastric emptying will cause distention of fundus thus promoting the occurrence of transient lower esophageal sphincter relaxations (TLESRs) in the postprandial periods. However in showed that gastric emptying is often normal or even sometimes rapid in GERD patient. Other investigators confirmed the latter finding and it seems that gastroparesis don not play a major role in the pathogenesis of primary GERD. Delayed gastric emptying may be manifested clinical (e.g.vomiting of retained food particles)radiologically (i.e, barium stasis), or radio-scintigraphically (e.g, delayed emptying of a radiolobelled meal). The latter constitute the most accurate test for

verification of slow gastric evacuation of solid food ***(Brown et al., 2008).***

B-Gastric surgery:

Although difficult to quantitate, the reflux of both acid and especially alkaline material may be common sequel of many gastric surgeries. GERD is a complication of the treatment for achalasia, it occurs in 10% of Heller myotomies and in 2% of pneumatic dilatation **(*Day & Richter et al., 2013*).** In total gastrectomy for gastric cancer, the esophageal sphincter is usually removed which subsequently leads to reflux esophagitis **(*Hirao et al., 2007).***

C-Duodenogastric reflux:

A certain degree of duodenogastric reflux is physiological and occurs in normal individuals as short intermittent gushes lasting 2-5 seconds on the average. Pathological duodenogastric reflux is believed to be due to isolated uncoordinated contractions of the second part of the duodenum or retroperistalsis of the first part **(Day et al., 2013).**

3-Injection sclerotherapy of esophageal varices:

The effect of endoscopic scleratherapy on esophageal motility in the Wastern literature is controversial. Moat author

claim that sclerotherapy promotes GER which is already promoted by esophageal varices, and may even contribute to post- slerotherapy stricture **(Grande., 2008).**

4- Respiratory disorders:

Estimated the prevalence of GERD in asthmatic as 40% which definitely much higher than the prevalence of GERD in general population (10-20 %). The marked pressure changes in the thorax and abdomen during acute asthma could cause reflux occur, particularly as antiasthmatic drugs the ophylline and beta adrenergic agonists may lower gastroesophageal sphincter tone (**Ekstrom and Tibbling, 2010).**

5- Obesity and pregnancy:

Obesity predisposes to GERD by increasing the intra-abdominal pressure especially after middle age. Pregnancy plays a role similar to obesity in the last trimester, however GERD is very common also during the first trimester due to the relaxing effect of progesterone on the smooth muscles of the lower esophageal sphincter (LES) and the stomach. The same also applies to the intake of contraceptive pill **(Abdel Hamid, 2007).**

6- Noxious drugs:

Noxious drugs are two categories, drugs which decrease the LES pressure (muscle relaxants) and drugs which increase the sensitivity of the esophagus (esophageal