A CASE STUDY OF PATIENT SUFFERING FROM ULCER

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ABSTRACT

The term ulcer is used to describe any localized erosion of the mucosal lining of those portion of the alimentary tract that come in contact with gastric juice. The majority of ulcer is found in duodenum although they also occur in the esophagus, stomach or jejunum. The factors that influence mucosal ability withstands destructive action are the integrity of mucosal cell, ability of epithelial cell to regenerate themselves, mucosal barriers, and blood supply. Various topical irritants impair this tune including aspirin, alcohol, certain drugs caffeine or bile acids that may come in contact with mucosal. In this paper, we discuss a case study for patient suffering from ulcer.

KEYWORDS: Ulcer, Gastric, Mucosal, duodenum, Esophagus, Disease.

1. INTRODUCTION

Case study method can be used as a creative alternative to traditional approach to description, emphasizing the patient's perspective as central to the process. This manuscript will define case study method, and discuss various case study designs. Approaches and tactics from a variety of disciplines, and theoretical or philosophical perspectives are discussed with an emphasis on method and analysis. The bulk of the manuscript outlines the stages used in a case study of men with chronic ulcer disease, as well as presenting a case study protocol. Implications for its usefulness in nursing research practice and theory generation and discussed. Case Study methodology can be used as a creative alternative to traditional approaches to description, emphasizing the patient's perspective as being central to the process. Contemporary practitioners and researchers have come to appreciate the subjective richness of patients recounting their experience and the meaning implicit in them to help guide practice. This paper aims to provide a useful research methodology for researchers. There are multiple definitions and understanding of the case study. According to Bromley, it is a "Systematic inquiry into an event or a set of related events which aims to describe and explain the phenomenon of interest" (1990). The unit of analysis can vary from can individual to a corporation. While there is utility in applying this method retrospectively, it is most often used prospectively. Data come largely from documentation, archival records, interviews, direct observations, participant observation and physica artifacts (Yin, 1934). According to D.B. Bromley (personal communication, May 6, 2001) The terms "Case Study", "Case Review and "Case report" are used loosely in the scientific and professional applications. A "Case review' might emphasize a critical reappraisal of a case. A "Case report" might refer to a summary of a case or to the document reporting a case. Knowing the disciplinary context and meaning of these terms is important to convey to the reader. Case study of individual patients often involve in depth interviews with participants and key informants, review of the medical record, observation and excerpts from patient' personal writings and diaries. Case studies have a practical function in that they can do immediately applicable to the participants' diagnosis or treatment. When the unit of analysis is an individual, for example, an important concept to consider is life history. Bromley states "The case study emphasizes the proximal" causes of the behaviour and circumstances, where as life history emphasizes the remote origins, and the continuities and discontinuities in the organization of behaviour over a relatively long period of time" (1991). According to Stake (1995) the case study researchers may be somewhat of a biographer focuses on a phase or segment of the life of an individual. Various contemporary reports in psychology (Bromley, 1986), Sociology (Creswell, 1997, Yin, 1984, 1994) and Education (State, 1978, 1995) have studied the individual as the unit of analysis, and have used the case study method to develop rich and comprehensive understanding about people. In this study, the unit of analysis was men with long term chronic ulcer. The context for the case study, however, included other persons and sources of information outside of the case. Additionally boundaries such as when to begin and end the case study needed to be developed. Yin concluded that operationally defining the unit of analysis assist with replication and efforts at comparisons. Research means scientific and systematic search for patient information on specific topic according to Clifford woody, research compromises defining a redefining problems formulation hypothesis or suggest solution, collection, organizing and evaluation data, making deduction and reaching conclusion at carefully testing the conclusion to determine whether they fit the formulation hypothesis.

2. STUDY SETTINGS

The Study was conducted at Sadar Hospital, Muzaffarpur which is located at North Bihar in India. Muzaffarpur is located at 2607'NM 85024E and occupies 3,181 square Kilometer (1,228 sq mil). The city lies in a highly active seismic zone of India. In the disastrous earthquake on 15 January 1934, much of the town suffered severe damage and many lives were lost. It has an average elevation of 47 meters (154 feet). This saucer shaped, low-centered town lies on the great Indo-Gangetic plains of Bihar, over Himalayan silt and sand brought by the glacier-fed and rain-fed meandering rivers of the Himalayas. The soil of the town is highly fertile, well drained and sandy, white coloured and very soft. The landscape is green all year round. The town is surrounded by the flood plain dotted with ponds and oxbow lakes, with sparking sandy river banks and clean air and water. Numerous private fruit orchards and idyllic rivers are also nearby. The city has a water-table just 20 ft. below ground level. According to the 2011 census Muzaffarpur district has a population of 4,778,610, roughly equal to the nation of of Singapore or the US state of Alabama. This gives it a ranking of 24th in India (out of a total of 640). The district has a population density of 1,506 inhabitants per square kilometer (3,900/sq mi). Its population growth rate over the decade 2001-2011 was 27.54%. Muzaffarpur has a sex ratio of 898 females for every 100 males. Males constituted 52.68% (2,517,500) of the population and females 47.31% (2,261,110). Muzaffarpur had a literacy rate of 65.68%, close to the national average of 74%. Male literacy was 73.61% and females literacy was 56.82%. Seventeen percent of the population was under 6 Years of age. The Summer, between April and June, is extremely hot and humid (28/40^{0}C, 90% Max.) and winter is pleasantly cool, around 06/20^{0}C. The air pollution is lower than in other areas, so the air is comparatively clean. The best months to visit are October through March. It is best to avoid visits in the summer and the monsoon season (Mid June to September) due to prolonged power cuts, the heat, and flooding in the town. In census enumeration, data regarding child under 0-6 age were also collected for all districts including Muzaffarpur. There were total 817,709 children under age of 0-6 against 741,706 of 2001 census. Of total 817,709 male and female were 426,633 and 391,076 respectively. Child Sex Ratio as per census 2011 was 917 compared to 928 of census 2001. In 2011, Children under 0-6 formed 17.11 percent of Muzaffarpur District compared to 19.80 percent of 2001. There was net change of -2.69 percent in this compared to previous census of India. Muzaffarpur District population constituted 4.60 percent of total Bihar population. In 2001 census, this figure for Muzaffarpur District was at 4.60 percent of Bihar population.

3. NURSING ISSUES

Upper abdominal pain caused by irritation to the ulcer niche. The aim of care is to alleviate pain and gastric acid neutralization. These objectives have been achieved through: application to the attending physician of drugs that inhibit the production of hydrochloric acid and neutrailizing stomach acid, to prepare the patient for gastroscoy and download material for other diagnostic tests (on the order of a physician), the orde of a physician for antibiotic treatment because of the prescience of Helicobacte pylori observation of the patient toward the intensification of the pain, the definition of intensity duration and location of pain, administration of analgesics as prescribed, monitoring of medications, establish contact with the patient to obtain cooperation, explain the need to avoid patient medication, drugs that increase gastric acid secretion, ill explain the need to avoid stress and excessive exercise, and discharge of strong emotional tensions, facilitate contact with a psychotherapist. On this basis the pain subsided partially and improved patient well-being. The deficit of knowledge about the disease, its symptoms and complications. For the nursing activities in this area should be patient education in the field of ulcer by means of an assessment of the patient areas of knowledge about the disease, transmisiso nof patient knowledge of anatomy, physiology and the role of the ulcer in the digestive system, discuss the causes of the diseases, a discussion of existing symptoms, types of possible complications, provide educational matierals about the disease (medical literature, flyers, brochures, guides), supporting a patient in cases of doubt associated with the disease, allowing contact with the doctor. On this basis the patient transferred to an optimal level of knowledge about the nature of the disease. Discomfort associated with the occurrence of dyspeptic symptoms: epigastric fullness, belching, feelings of dryness in the mouth. For nursing activities should be: to reduce the unpleasant feeling and normalize peristalsis. Achieve the above objectives by: demonstrating and understanding of the problems of patients, to evaluate symptoms, clarification of how the patient is highly influenced by the nature and timing of food and drugs on the occurrence of symptoms from the digestive system, showing ill effects on the body due to poor selection of food, read a patient with the difference of diet, depending on the stage of disease, drawing attention to the precise chewing food, quiet eating food, using herbs to improve bowel motility, taking care of the hydration of the mucous membranes of the mouth (oral fluid), the maintenance of oral hygiene, encouraging the washing oral tisane (mint, chamomile), discuss with the patient capacity to cope in the event of dyspeptic symptoms with the difficulties resulting from the disease. These actions led to a reduction in nursing dyspeptic symptoms. Decreased level of mood caused by the diagnosis and treatment of patient suffereing from ulcer. The purpose for this activity is to help the patient in the acceptance of the disease and treatment through: an interview with the patient about the unacceptable situation of mental health patients convinced to cooperate in the process of diagnosis treatment - nursing care, psychological assistance, to create a friendly atmosphere and sense of security, encourage conversation and express their concerns, to discuss measures to facilitate the change in approach to the problem. By applying these measures have improved the mood, the patient began to express their fears, accept health situation. The reluctance to change their existing diet. The aim in this regard is the mobilization of the patient to change diet and convinced of the need to follow a diet. These objectives can be achieved by assessing the level of knowledge of the patient and family about dietary recommendations in ulcer, determine the scope of cooperation with the patient, providing information about the positive impact of diet, talk about past habits, discuss with he patient and his family's main recommendations diet. The main dietary recommendations during the treatment period are : light

diet- with reduced amounts of animals fats and vegetable fibers, regular, frequent eating of meals - about 5 times a day, avoiding high-fiber vegetables structural- such as cabbage, asparagus stalks, avoiding consumption of salt and spicy foods, avoid fried foods, avoid acting meteorismical products - for example, dry legumes, cooking food in water or steamed, and then bake in aluminum foil, sipping water, medicines, because there is a risk of interactions between antibiotics and substances contained such the juices (flavonoids) and dairy products (calcium), which may weaken the action of antibiotics and increase the risk of side effects, stoop drinking, provide educational matieral about the diet in suffering from ulcer, showing a patient that the diagnosis of ulcer requires from it a discipline in lifestyle and behavior health treatment, according to a discussion of diet and the occurrence of dyspeptic symptoms, dietary modifications indicates directions. On the basis of patient interview has a deficiency within the meaning of the importance of diet in suffering from ulcer. Action to raise awareness of the patient, causes that is fully statisfied with the changes in diet and the positive impact of diet. The conversation, sense of security and emotional support allow the patient to accept the health situation. The nurse is a person who because of their profession is committed to providing support. He is fully convinced of the health behaviors in shaping health and empowerment. He feels responsible for his health and life. It turns out to understand the importance of a healthy lifestyle. The purpose of nursing a patient with suffering from ulcer is to assist overcoming problems and promoting preventive measures, minimization of unpleasant experiences and feelings, and their neutralization by the use of appropriate treatments, education, psychological support and physical. Family care also ensures the transfer of clear and tailored to patients' knowledge of information that helped to overcome fears and doubts related to treatment.

4. RESULTS AND DISCUSSION

In this paper we discuss about research method consists of case analysis of individual human lives caught up in certain situations or on an analysis of educational developments in the specific educational, through the prism of individual biography with a focus on human development for the diagnosis or phenomena in order to take therapeutic measures. The collection of research material used for work the following research techniques; observation, interview, document analysis and documentation form our observation of the patient and his history of the disease. The Study was conducted in the Sadar Hospital, Muzaffarpur.

ASSOCIATION BETWEEN HELICOBACTER PYLORI INFECTION AND PEPTIC ULCERS.

Table 1:Helicobacter Pylori infection and peptic ulcers

Chi-Square Tests

	Value	df	Asymp. Sig. (2-Sided)	Exact Sig. (2-Sided)	Exact Sig. (1-sided)
Pearson Chi-square	12.130	1	.000		
Continuity	10.025	1	.002		
Likelihood Ratio				.001	.001
Fisher's Exact Test	11.827	1	.001		
Linear-by-Linear	40				
Association					
N of Valid cases"					

ASSOCIATION BETWEEN INTAKE OF NSAID DRUGS AND PEPTIC ULCER DISEASE

Table 2: Intake of nsaid drugs and peptic ulcer disease

Chi-Square Tests

	Value	df	Asymp. Sig. (2-Sided)	Exact Sig. (2-Sided)	Exact Sig. (1-sided)
Pearson Chi-square	.440	1	.507		
Continuity Correction	.110	1	.740		
Likelihood Ratio	.441	1	.507		
Fisher's Exact Test					
Linear-by-Linear				.741	.371
Association	.429	1	.513		
N of Valid cases"	40				

ASSOCIATION BETWEEN FAMILY HISTORY OF PEPTIC ULCERS AND PEPTIC ULCER DISEASE

Table 3:Family history of peptic ulcers and peptic ulcer diseases

	Value	df	Asymp. Sig. (2-Sided)	Exact Sig. (2-Sided)	Exact Sig. (1-sided)
Pearson Chi-square	.000	1	1.000		
Continuity	.000	1	1.000		
Correction	.000	1	1.000		
Likelihood Ratio				1.000	.624
Fisher's Exact Test	.000	1	1.000		
Linear-by-Linear	40		1.000		
Association					
N of Valid cases"					

A peptic ulcer is an excoriated area of stomach or intestinal mucosa caused principally by the digestive action of gastric juice or upper small intestinal secretions. Peptic ulcer is a conglomerate of heterogeneous disorders, which manifests itself as a lesion in the lining of the gastrointestinal mucosa bathed by acid and/or pepsin. Peptic ulcers frequently occur along the lesser curvature of the antral end of the stomach or, more rarely, in the lower end of the esophagus where stomach juices frequently reflux.

There are three common forms of peptic ulcers: Helicobacter pylori (HP) - associated, nonsteroidal anti-inflammatory drug (NSAID)-induced, and stress ulcers. Non Steroidal anti-inflammatory drugs (NSAID) ingestion is associated with erosions, type C gastritis, ulceration, interference with ulcer healing, complications and injury to the small and large intestine. The term "Stress related mucosal damage (SRMD) is preferred to stress ulcer or stress gastritis, because the mucosal lesions range from superficial gastritis and erosions to deep ulcers.

The usual cause of peptic ulceration is an imbalance between the rate of secretion of gastric juice and the degrees of protection afforded by (1) the gastro-duodenal mucosal barrier and (2) the neutralization of the gastric acid by duodenal juices. The defect in defensive protectors like bicarbonate, mucus is first step towards the ulcer formation than other causative factors like acid, pepsin.

After discovery of H.Pylori infection as a causal factor, the management of the patient with peptic ulcer is changed and it had major clinical impact. (Kuiper et al from webmed) However, none of the factor could clearly explain the pathogenic effectors of the diseases due to recurrence after cessation of the treatment. In conventional therapy many antiulcer drugs are the there, such as H 2 receptor antagonists, proton pump inhibitors and cytoprotecatants but all these drugs have side effects and limitations.

For H.Pylori infection, now a days, the most effective proven treatment comprises of a 2-weeks course called "triple therapy" involves taking who antibiotics to kill the bacteria and either an acid suppressant or gastric epithelial lining shield. Ulcer associated with the NSAIDs remains a major problem which has not been resolved through introduction of selective inhibitors of COX2. Many new approaches are there for treatment of peptic ulcer including herbal treatment, role of cytokines, role of copper complexes, nitric oxide and growth factors but very scant data are available on these.

Helicobacter Pylori:

H.Pylori have been found to be associated with gastric and duodenal ulcer and gastric cancer. The presence of the bacterium Helicobacter pylori has now been established as a major causative factor in the etiology of peptic ulcer disease. Although commonly found in the gastric antrum, it may also colonize other areas of the stomach as well as patches of gastric Helicobacter pylori is a spiral-shaped, pH sensitive, gram-negative, micro aerophilic bacterium that resides between the mucus layer and surface epithelial cells in the stomach or any location where gastric type epithelium is found. The exact method by which HP initially induces hypochlorhydria is unclear. One theory is the HP produces large amounts of urease, which hydrolyzes urea in the gastric juice and converts it to ammonia and carbon dioxide. The local buffering effect of ammonia creates a neutral microenvironment within the surrounding the bacterium, which protects it from the lethal effect of acid. HP also produces acid-inhibitory proteins, which allows it to adapt to the low-pH environment of the stomach. HP attaches to gastric-type epithelium by adherence pedestals, which prevent the organism from being shed metaplasia in the duodenum during cell turnover and mucus secretion. Colonization of the body of the stomach is associated with gastric ulcer. After exclusion of gastric ulcers causes by non-steroidal anti-inflammatory drug therapy and Zollinger-Ellison syndrome, the incidence of H. Pylori infection in patients with gastric ulcer approaches 100%. The strongest evidence of a causal relationship between H. pylori and peptic ulcer disease is the marked reduction in ulcer recurrence and complications following successful eradiction of the ortganism. It has been shown that the speed of ulcer healing obtained with acid-suppressing agents is accelerated if H. pylori eradiction is achieved concomitantly. H. pylori infected gastric mucosa showed infilitration of polymorphonuclear leucocytes, lymphocytes, and monocytes. H. Pylori-induced inflammation is implicated in the development of mucosal damage and these changes lead to apoptosis and proliferation of mucosal layer. Certain cytokines released in H. Pylori gastritis like TNF- and specific products of H.pylori like ammonia release gastrin from G cells. The infection diminishes mucosal expression of somatostatin. These changes in gastrin and somatostatin increase acid secretion and lead to duodenal ulcer. H. pylori infection causes chronic inflammation that results in the release of pro-inflammatory cytokines that may reduce acid secretion.

Histamine:

Histamine is a chemical messenger that mediates cellular responses, including allergic and inflammatory reactions gastric acid secretion and possibly neurotransmission in parts of the brain. Additionally, it is secreted by mast cells as a result of allergic reactions of trauma. Pharmacologically, histamine produces vasodilatation and increases in permeability of blood vessel walls that may contribute to gastric hemorrhage. In the experimental animal, increased mucosal histamine has been reported to elicit gastric secretion and mucosal lesion. Since, histamine may cause increase in gastric mucosal permeability to electrolytes and renders the stomach more susceptible to acid-induced damage. The role of histamine in the secretion of acid from acid producing parietal cells is widely reported. Where, histamine activates histamine-2 receptors on the acid producing parietal cells to stimulate acid production, the over production of acid inhibits through low antral pH gastrin release from G-Cells, thus preventing the stimulatory effect of gastrin on enterochromaffin-like (ECL) cells and further histamine release. This inhibitory control is mediated via the release of somatostatin from D-Cell situated in close proximity to the G-Cells.

Oxidative stress:

Oxidative stress is believed to initiate and aggravate many diseases including peptic ulcers and gastric carcinoma. One of the common denominators for the genesis of these diseases is the involvement of free radicals. Reactive oxygen species (ROS) ae generated through numerous normal metabolic processes and are needed for normal functioning of the organism. Various antioxidant enzymes like superoxide dismutase (SOD), catalos (CAT) and glutathione peroxides (GPX) control their accumulation. Any imbalance in the activity of these enzymes normally eads to faulty disposal of free radicals and its accumulation. These ROS are responsible for oxidation of tissues leading to lipid per oxidation of bases in cellular DNA making them mutagenic, cytotoxic and crosslinking agents, which in turn causes uncontrolled expression of certain genes causing increased multiplication of cells leading to cancer. Antioxidants seemed to have protective role in gastric ulcers. Stress causes both sympathetic (causes direct arteriolar varsoconstriction) and parasympathetic (induces an increased motility and muscular contraction) stimulation of stomach leading to local hypoxia and near or actual "ischemia". The ischemic condition caused an increase in the level of H2O2 (by the action of SOD), which, in conjugation with O2 generates OH via the methyl catalyzed Haber Weisss reaction Hydroxyl radicals thus generated, oxidizes important cellular constituents such as structural and functional proteins membrane lipids and depletes glutathione. Lipid per oxidation causes loss of membrane fluidity, impaired ion transport and membrane integrity and finally loss of cellular functions.

5. CONCLUSIONS

Finally we say that ulcer disease is one of the main prevalent still unresolved medical problems that face many patients. After discovery of H.Pylori infection as a causal factor, various researches are done in that field. There are many causal factors in which very few reports are available like bile acid, oxidative stress, and apoptosis. Bile acids have strong preventive effect against over growth of intraluminal bacteria but very few data are available on these.

REFERENCES

1. Bianchi Porro G, Cremer M, Krejs G, Ramadan G, Rask- Madsen J, Jsselbacher JK. Gastroenterologia I hepatologia. Czelej, Lublin. 2003.
2. Pazurek M, Matecka-Panas E. Postepowanie w chorobie wrzodowej zoladka I dwunastnicy, [w.] Lekarz rodzinny, nr 9, 2002.
3. Matecka-Panas E. Podrecznik gastroenterologii, Czelej, Lublin. 2004.
4. Maratka Z.Endoskopia przewodu pokarmowego. Diagnostyka Roznicowa. PZWL, Warszawa, 2005.
5. Zaczynski W, Praca badawcza nauczyciela., Warszawa. 1995, s. 158.
6. Malecka-Panas E.Podrecznik gastroenterologii, Czelej, Lublin. 2004.
7. Fendrick AM et. al UMHS Peptic Ulcer Guideline, May, 1999, University of Michigan Health System: 1-6
8. Laszewicz W. Wyniki badan nad zakazeniem Helicopacter pylori. Bialystok, Trans Human Wydawnictwo Uniwersyteckie, 2004.
9. Sikorski T.Marcinowska-Suchowierska E. Choroba wrzodowa: rozpoznawanie, leczenie izapobieganie, Postepy Nauk Medycznych. 5/2009, s. 369-375.
10. Cordell GA, Colvard MD. some thoughts on the future of ethnopharmacology. J.Ethnopharmacol, 2005; 100.5-1.
11. Diener JRC. Calorimetria indireta. Rev Ass Med Brasil, 1997; 43: 245-53.
12. Elitsur Y.Yahav J.Helicobacter Pylori Infection in Pediatrics 2005; 10:47-53.
13. Ferguson M, Cook A, Rimmasch H, Bender S, Voss A. Pressure ulcer management: the importance of nutrition, Medsurg Nurs, 2000; 9:163-75.
14. Institute of Medicine. DRIS- Dietary References Intakes; Applications in Dietary Planning. National Academy Press. Washington, D.C. 2003.
15. Lafortuna CL, Agosti F, Marinone PG, Marazzi N, Sartorio A. The relationship between body composition and muscle power output in men and women with obesity. J Endocrinol Invest. 2004; 27:854-61.
16. Marotta K, Floch MH. Diet and nutrition in ulcer diases. Med. Clin. North Am. 1993; 77:88-17.
17. Mitchell SL; Rockwood, K. The association between antiulcer medication and initiation of cobalamin replacement in older persons. J.Clin epidemiol, 201; 54:531-4.
18. O'Neil-Cutting MA, Crosby WH. The effect of antacids on the absorption of simultaneously ingested iron. JAMA. 1986; 255: 1468-70.
19. Prasad AS. Zinc: role in immunity, oxidative stress and chronic inflammation. Curr Opin Clin Nutr Metab Care. 2009; 12:646-652.
20. Ravasco P, Camilo ME, Gouveia-Oliveira A, Adam S, Brum G.A. critical approach to nutritional assessment in critically ill patients. Clinical Nutrition 2002: 21:73-7.
21. Sung J.J., Tsoi K.K., Ma T.K., Yung M.Y., Lau J.Y., Chiu P.W. Causes of mortality in patients with peptic ulcer bleeding; a prospective cohort study of 10,428 cases. Journal Gastroenterol. 2012; 105: 84-86