

Our human body has numerous functions health essay

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CHAPTER 1

Our human body has numerous functions to lead a happy life. The basic function includes respiration, digestion, elimination etc without which life cannot be successful. Of the various routes of elimination bowel elimination is one. There are various problems which affects the eliminatory functions like diarrhea, constipation, inflammatory bowel diseases, cancer etc. Cancer is unregulated growth of immature cells. These cells divide and grow in uncontrollable manner which invades the nearby and distal organs through direct invasion, lymphatic channel or blood stream. About 12.7 million people were diagnosed with cancer globally and caused death of 7.6 million people in 2008. It accounted for 13% of all death per year. The most common cancer includes carcinoma of lungs (1.4 million deaths), stomach cancer (740,000 deaths), liver cancer (700,000 deaths), colorectal cancer (610,000 deaths), and breast cancer (460,000 deaths) (World Health Organization, November 2009). On an average 1 out of 9 males and 1 out of 8 in females gets Cancer in his/her life time (0-74yrs). Cancer is the second leading cause of mortality in US, accounting 1 in every 4 deaths. The expected death due to cancer in America by 2012 is about 577,190 thus 1,500 deaths per day and the five year survival rate for cancers diagnosed between 2001 and 2007 is 67% which rose from 49% during 1975-1977 (American cancer society- Cancer facts and figures 2012). Colorectal cancer is a type of cancer (CRC) which results in uncontrolled cell growth in colon or rectum. It originates from the mucosal lining of colon or rectum if not treated it can grow into muscle layers then bowel wall and metastasize into other organ like liver, bone, lung and brain. Globally Colo rectal cancer (CRC) ranks

third commonly occurring cancers. In the year 2008 about 1.23 million new CRC patients were diagnosed in the world and it accounts mortality rate of approximately 608,000 patients during 2008 throughout the world. Since 1992 its incidence was raising about 1.7% per year (GLOBOCAN 2008). In developed countries its incidence is more, (i. e.) about 60%. The countries which reported highest colo rectal cancer incidence are Australia/New Zealand and Western Europe, while lowest incidence is reported in Africa (except Southern Africa) and South-Central Asia, and are intermediate in Latin America. Incidence rates are substantially higher in men than in women. It is the fourth most common cause of death from cancer, accounts about 8% among all cancer related deaths. While comparing the mortality rate due to Colo rectal cancer in both genders, mortality rate is lower in women than men (Age Specific Ratio is 1.4: 1) (GLOBOCAN, 2008). According to United States statistics, SEER (Surveillance Epidemiology and End Results) data 2012, the estimated median age at death due to colo rectal cancer for 2005-2009 was 74 years, while median age at diagnosis was 69 years. About 0.1% of patients were diagnosed below 20 years; 1.1% between 20 to 34; 4.0% between 35 to 44; 13.4% between 45 to 54; 20.4% between 55 to 64; 24.0% between 65 to 74; 25.0% between 75 to 84; and 12.0% above 85 years of age. The age-adjusted incidence rate was 46.3 per 100,000 men and women per year. These rates were based on cases diagnosed during the year 2005-2009 from 18 SEER geographic areas. The estimated new colo rectal cancer patients in United States by 2012 is 103,170 (colon); 40,290 (rectal) and the estimated death due to this disease is 51,690 (National Cancer Institute, 2011). Note: From now on, the words Colo rectal cancer will

be replaced by CRC. Centre for disease control (CDC) have taken an initiative to reduce the colo rectal cancer incidence and mortality in United States and started Colorectal Cancer Control Program (CRCCP) in 2007. Its main aim is to reduce colorectal cancer incidence and mortality rates among adults aged 50 years or older. To achieve this aim the strategies adapted includes, providing funds, screening programmes, conducting research and awareness programme to 25 states and tribes in United States. In Asia many countries like China, Japan, South Korea, and Singapore, also have experienced an increase of about two to four times in the incidence of colorectal cancer during the past few decades. The reason behind this is interaction between factors like Changes in dietary habits, lifestyle and genetic characteristics of the Asian populations. But unfortunately most Asian populations are not aware of the growing problem of colorectal cancer. Thus more urgent work is needed to throw light upon the magnitude of the problem in Asia (Sung JJ et al., Asia Pacific Working Group on Colorectal Cancer, 2005). According to Indian Council of Medical Research (2009) report, the number of cancer cases is growing annually, among men its rate will increase from 4. 47 lakhs during 2008 to 5. 34 lakhs by 2020. Among sites of cancer, in almost all sites cancer is increasing, with an exception of esophageal cancer, which will fall from 23, 573 cases during 2008 to 20, 642 cases in 2020. In India Colorectal Cancer is the sixth most prevalent cancer, with about 41, 535 patients in 2011. If the disease is diagnosed earlier it is easy to treat, but if it is diagnosed in advanced stage treatment is largely unsuccessful. (Eastern Society for Medical Oncology, ESMO 2012). In Mumbai colorectal cancer ranks ninth among males and its truncated rate is 6. 1. Most common sites of

cancer in different religious groups by gender, shows among Christian males rectal cancer stands rank 4, cases affected includes 15 and their crude rate was 6. 1. (Mumbai cancer registry, National Cancer Registry Project, Report on the Leading Cancer Sites in 2006).

Table 1. 1 (a): Colon and rectal cancer - Cumulative Rate (%) and Life Time Risk (LTR) of Greater Mumbai, 2006

ICD-10

SITE

MALE

FEMALE

CUM %

LTR

CUM%

LTR

c-18Colon0. 391255. 60. 269372c-19Rectum0. 408244. 90. 233430In Delhi,

truncated incidence rates (TCR) of colon cancer was 5. 5 per 100, 000

populations for males, among females this rate is 4. 6 per 100, 000

populations. Number of CRC death by five year age group and percentages

for males and Females during 2002 was: colon13 (2. 0%), rectum14 (2. 1%),

colon 8(1. 7%), and rectum 5(1. 1%) (Delhi cancer registry's-cancer

incidence and mortality: Report on leading sites of cancer by world truncated

incidence rates 2002 & 2003). The status of in southern parts of India is,

cancers of colon and rectum ranked fifth among men and sixth among

women during 2006-2008. The annual number of cases was higher in men in

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the ratio of 742 women to 1000 men. It constituted 6% and 4% of all cancers in men and women respectively. Recto sigmoid and rectum together constituted 53% while colon accounted for 47% (MMTR-2010). The peak incidence occurred in the age group of 65-69 years among men and 70-74 years among women. A significantly increasing trend in the incidence of cancer of the colon was forthcoming during 1982-2008 with an average annual change in ASR of 5.4% among men and 4% among women. The corresponding figures for rectal cancers were 3.6% and 3.2% respectively. (Madras Metropolitan Tumor Registry (MMTR) 2010 (National cancer registry program, Indian council of medical research, Cancer Institute (W. I. A)-Chennai, India). The five year survival and follow up in Cancer Institute, Adyar, during the year 2002-2003 for rectum cancer was that 81.9% came for follow up and 46% survival rate was seen. India's rapid urbanization is characteristic of a country changing status from a "developing" to a "developed" country. Due to this move many changes have taken place in life style practices like increase in sedentary activity, in dietary practices increased use of junk foods and spicy foods, alcoholism, obesity, increased pollution in the environment etc these changes are putting our country to increased colo rectal cancer among populations.

1.2 NEED FOR THE STUDY

Colo rectal cancer is one of the most common types of gastro intestinal cancer. Colon cancer originates in the epithelial lining of the colon or rectum and can occur anywhere in the large intestine. As age increases the risk of getting colorectal cancer increases, with more than 90% of cases occurring in persons aged 50 years or older Other risk factors of this disease includes

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inflammatory bowel disease, past history or family history of colorectal cancer or colorectal adenoma, and certain hereditary syndromes. Certain lifestyle factors also contribute to colorectal cancer risk like decreased regular physical activity, reduced fruit and vegetable intake, diet with low fiber content and high-fat content, obesity, alcohol consumption, and tobacco use. Reduction of mortality from colorectal cancer largely depends on early diagnosis and removal of precancerous colorectal polyps, detecting of CRC in early stage and treating the cancer in initial stages. Colorectal cancer can be prevented by removing precancerous polyps or growth in most of the cases. Four tests are recommended for colorectal cancer screening. Fecal occult blood test, sigmoidoscopy, colonoscopy, barium enema and digital rectal examination. (Division of cancer prevention and control, Center for Disease Control and prevention). The signs and symptoms of CRC includes, change in bowel habits, blood or mucus in stools, abdominal or rectal pain, weight loss, anemia, obstruction etc. Dr. V. M Katoch, Director General ICMR reported that " cancer becoming a huge burden in India which needs emergency attention. CRC is following the pattern of western countries: Cancer of the colon (11, 236 cases in 2008 to 13, 420 in 2020) and rectum (11, 738 cases in 2008 to 14, 019 new cases in 2020)" (Times of India, 2009). These data projection showed that burden will worsen over a couple of years. Thus to reduce the future incidence of CRC, it is vital to adopt a healthy life style and to avoid those unhealthy lifestyle practices. To understand the above mentioned healthy and unhealthy lifestyle practices, it is necessary to explore the risk factors of CRC. Certain cancers are preventable which includes breast, cervical, colorectal, skin, lung, prostate

and testicular cancer are called preventable cancers because by eliminating the risk factors (e. g. smoking, red meat etc) and by adapting those protective factors (e. g. exercise, high fiber diet etc). We can prevent CRC. Zhao, Z., et al (2012) conducted a case control study on alcohol drinking and obesity in relation to CRC during the year 1999-2003 in Canada. Cases (702) and controls (717) were selected. Self administered questionnaire assessing health and life style variables was given result showed among obese individuals (BMI > 30), intake of alcohol was associated with CRC risk, the corresponding odds ratio was 2. 2, (95% CI: 1. 2 -4) with respect to those who does not took alcoholic. The study results concluded that those who are obese and took 3 or more types of alcoholic drinks have 3. 4 fold higher risk of developing CRC with respect to those who do not took alcohol. Indian dietary habits are rapidly been changing into Western diet. Diet rich in vegetables, greens etc are now vanishing and passion towards processed foods like KFC, burger etc are booming. Wang, J., et al (2012) conducted a family based case control study on intake of red meat and CRC risk in California, the results revealed that there is an association between heavy intake of red meat which was cooked using high temperature in the causation of CRC its respective odds ratio was 1. 53; (95%CI= 1. 19= 1. 97; P= 0. 0008), the result also showed an association between red meat heavily browned intake and rectal cancer, the corresponding odds ratio was 0. 65 (95% CI= 0. 48-0. 86; P= 0. 003). The results supported that role of heterocyclic amines present in red meat was highly associated with CRC. During the year 2011, 400 cases of CRC were diagnosed in Rajiv Gandhi Hospital; among this 50 percent were in advanced stage. Hence to diagnose

the clients earlier awareness among the people should be improved which helps the people to seek the medical care earlier and can be treated completely. Hence "early detection" calls for finding out the risk factors of CRC. As per the proverb, "prevention is better than cure" the prevention strategies are crucial in colorectal cancer eradication. This approach offers a great public health concern and also an inexpensive long term method of cancer control. National Cancer Control Programme (started in 1975-1976 in India) has laid down 3 major objectives: Primary prevention of cancers by health education Secondary prevention by screening Tertiary prevention These objectives are applicable for reducing colorectal cancer burden also. All these lines of prevention can be done only after finding out the risk factors involved in causing colorectal cancer. Hence identifying those risk factors involved is the base line for all. Primary prevention of CRC aims at bringing awareness to the community about all the risk factors identified to cause CRC through individual and/or mass education programmes. In secondary prevention colorectal screening activities (colonoscopy, feacal occult blood test, etc) will be carried, routinely for all individuals who cross 50 years of age and before that for those who are at high risk for acquiring the disease, again these high risk groups can be identified only if the risk factors of CRC are known. It calls for performing this study. In addition to the above prevention strategies primordial prevention can also be initiated once we identify those risk factors which are involved in causation of CRC. By educating the public to adopt healthy behavior right from their childhood period (e. g. Preventing junk foods, exercise etc). Hence we need to detect the disease earlier. If we need to detect it earlier, we have to identify the risk

factors that lead to the disease. Identification of risk factors of CRC helps in health promotion by health education to the public which then result in environmental modification (e. g. pollution control, dietary interventions (e. g. intake of high fiber diet), lifestyle and behavioral change (e. g. avoidance of smoking) etc. Thus the countries huge future CRC incidence will be reduced easily by identifying risk factors with low cost. The investigator during her clinical posting have taken care of many patients with CRC in both inpatient and outpatient department. Most of them were not aware of the risk factors which have made them to acquire the disease, Hence the investigator felt that if the risk factors of CRC were identified and if the public were educated on those modifiable factors, huge CRC burden of present and future generations will be reduced. This created an enthusiasm within the investigator to identify the risk factors of CRC.

1. 3 STATEMENT OF THE PROBLEM

A case control study to identify the risk factors for colorectal cancer in selected settings, Chennai.

1. 4 OBJECTIVE

To find the association of the case and control groups with various factors such as clinical variability, genetic, environmental, dietary and life style factors and to identify the significant risk factors of colo rectal cancer among the groups.

1. 5 OPERATIONAL DEFINITIONS

CASE:

Case refers to patients who are medically diagnosed with colo rectal cancer
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CONTROL:

Control refers to patients with any disease other than cancer.

IDENTIFICATION OF RISK FACTORS FOR CRC:

It refers to assessment of susceptible factors which may increase the chance of developing colorectal cancer among adults. The factors includes, Clinical variability(It includes factors such as diabetes mellitus, pregnancy, breast feeding, past medical history of colo rectal polyps, chrons disease, ulcerative colitis, any other cancer and history of constipation). Genetic factors (It comprises of family history of colo rectal polyps, ulcerative colitis, chrons disease, CRC and any other cancers). Life style factors (It consists of factors like smoking, alcoholism, physical activity and obesity. Environmental factors (It includes factors like exposure to asbestos and other industrial pollutants, night shift and environmental pollution.)Dietary factors (It comprises of dietary factors like intake of cereals and cereal products, pulses and legumes, green leafy vegetables, other vegetables, roots and tubers, fruits, fish, milk and milk products, meat, type of meat and preserved foods).

1. 6 RESEARCH HYPOTHESIS

H1: There is significant risk factors for colo rectal cancer among case and control group

1. 7 DELIMITATION

The study is delimited to a period of 4 weeks

1.8 CONCEPTUAL FRAMEWORK

Conceptual models are made up of concepts, which are words describing mental images of phenomena and propositions which are essential for nurses to integrate data into logical thinking and decision making in practice. The investigator adopted the conceptual frame work based on Betty Neumans system model, which was used to identify the risk factors for CRC. The intent of the Neumans model depicted as an open system in which, person and their environment are in dynamic interaction. Basic core structure is composed of five interacting variables: genetic, environment, dietary and life style factors. These variables and are common to all human beings. The model shows the individual as an open system in the basic core structure which is surrounded by concentric rings.

BASIC CORE STUCTURE

The basic core structure of this model explains those variables like physiological, socio cultural, developmental and spirituality, which are unique to the individual but with a range of response and helps the individual to attain stability in spite of the stressors which were continuously being experienced. In case group the basic core structure of this model represent the men and women diagnosed with CRC, aged 25-80 years, varying with their physiological, psychological, socio-cultural, developmental and spiritual factors. In control group the basic core structure of this model represent the men and women diagnosed with any disease other than cancer, aged 25-80 years, varying with their physiological, psychological, socio-cultural, developmental and spiritual factors.

STRESSORS

The forces that produce tensions, alterations or potential problems causing instability within the clients system are called Stressors. The case group and control group may or maynot exposed to risk factors of CRC like diabetes Mellitus, past medical illness like- colo rectal polyps, chrons disease, ulcerative colitis, any other cancer, constipation, family history of - colo rectal polyps, ulcerative colitis, chrons disease, CRC, or other cancers, pollution, smoking, alcoholism, decreased physical activity, asbestos exposure, dye exposure, metal exposure, night shift, environmental pollution, dietary intake of - meat and meat products, preserved foods, grilled meat and fried foods.

LINE OF RESISTANCE

Line of resistance are the broken line, which acts only when the normal line of defense is affected by many stressor thus causes alteration in the normal health pattern. The line of resistance helps to facilitate coping and to overcome the stressors which affects the individual. The line of resistance of this model in case group denotes client with CRC exhibiting the signs and symptoms of colo rectal cancer like diarrhea or constipation, malena, thin caliber of stool, abdominal pain, anorexia, anemia, weight loss etc. The line of resistance of this model in control group involves absence of signs and symptoms of CRC.

NORMAL LINE OF DEFENSE

It acts in coherence with a state of wellness. It is the reaction exhibited by the client when they are exposed to any stressor. Within the health

continuum the normal line of defense is the essential determinants in base level. The normal line of defense in this model involves, for case group the patient and the family seeks health care support due to the presence of signs and symptoms of CRC, to a certain extent, patient tries to cope up with it. For control group, patient does not seek the health care support.

FLEXIBLE LINE OF DEFENCE

Flexible line of defense involves the body's coping mechanism which helps to adapt to the situations that causes disequilibrium, thus achieving a state of equilibrium in the clients system. In case group is, patient body is not able to adjust to the stressors and CRC progresses resulting in patient suffering with symptoms of CRC. In control group minimal exposure to stressors and the body's immune mechanism which tries to balance the stressors thus attains a sense of stability through this origin of CRC will be eliminated.

DEGREE OF REACTION

It is the end results of both stressors and coping mechanism adopted by the lines resistance. The result may be positive or negative and depends on degree of reaction which the client exhibits to adjust and adapt with the stressor. For case group the patient develops alteration in physiological, psychological, socio cultural, developmental and spiritual dimensions due to CRC. For control group, the patient does not exhibit alterations in the above mentioned dimensions due to absence of CRC.

PRIMARY PREVENTION

Primary prevention involves foreseeing the end result of a particular situation and thus preventing its ill effects as much as possible. It mainly

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aims at strengthening the capacity of a person thus helping to achieve and maintain an optimum level of functioning while interacting with the environment. Primary prevention in this model includes identification of risk factors of colo rectal cancer among case and control group. The identified risk factors includes, duration of diabetes mellitus, past medical history of colo rectal polyps, past medical history of cancer, past history of constipation, genetic history of colo rectal polyps, genetic history of colo rectal cancer, genetic history of cancer, smoking status, forms of smoking, duration of smoking, frequency of smoking , type of alcoholic drinker, obesity, dye exposure , duration of employment in dye industry, intake of grilled meat, intake of fried meat and intake of preserved food. The protective factors which were identified includes, breast feeding, exercise, intake of pulses, intake of green leafy vegetables, intake of fruits, intake of fish, intake of dairy products, intake of chicken and intake of cooked meat.

SECONDARY PREVENTION

Secondary prevention mainly focuses on alleviation of ill effects which have resulted in alteration in health. Secondary prevention in this model includes regular screening programmes like colonoscopy, feacal occult blood etc.

TERTIARY PREVENTION

Tertiary prevention aims on rehabilitation, thus facilitating strengthening of a person's core structure after being exposed to ill effects produced by stressors. Its central aim is to prevent future occurrence of the disease. It involves rehabilitation of patient and family members on coping mechanism with disease ex. Educating Colostomy care, dietary education etc.

RECONSTITUTION

Reconstitution involves the interventions which helps the system for bringing modification of all modifiable risk factors thus returning back to a state of healthy state. It is therefore evident that this conceptual frame work which is based on Betty Neuman's System model is appropriate to this study.

1.9 OUTLINE OF THE REPORT

CHAPTER I : Dealt with the back ground of the study, need for the study, statement of the problem, objectives, operational definitions, hypotheses, delimitations and conceptual frame work. CHAPTER II : Focuses on review of literature related to the present study. CHAPTER III: Enumerates the methodology of the study. CHAPTER IV: Presents the data analysis and data interpretation. CHAPTER V : Deals with the discussion of the studyCHAPTER VI: Gives the summary, conclusion, implications, recommendations and limitations of the study. The study report ends with selected Bibliography and Appendices.