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A COMPARATIVE STUDY TO ASSESS THE EFFECTIVENESS OF POVIDONE IODINE MOUTHWASH VERSUS CHLORHEXIDINE WASH ON RADIATION THERAPY OR CHEMOTHERAPY INDUCED ORAL MUCOSITIS AMONG CANCER PATIENTS IN GANDHI MEDICAL COLLEGE BHOPAL, MADHYA PRADESH

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ABSTRACT

Mucositis is also called as stomatitis is a common, debilitating complication of cancer chemotherapy and radiotherapy occurring in about 40% of patients. Mucositis may limit patient's ability to tolerate chemotherapy and radiotherapy.

In the year 2008 research conducted in England on mouth care for the patients receiving oral irradiations and found that oral irradiation causes acute Mucositis and pain, dry mouth, loss of taste, impaired nutrition, depression and isolation. These problems can be significantly improved by skilled; research- based nursing care reported that 70 % of 100 patients were found severe cases of oral Mucositis

In the year 2008 A retrospective cohort study was conducted on risk, outcomes and costs of radiation induced Oral Mucositis among patients with head and neck malignancies which consisted of 204 consecutive head- neck cancer patients who received radiation therapy with or without chemotherapy during 2008. Result showed that Oral Mucositis occurred in 91% of patients, in 66% it was severe (grade 3-4). Patients with Oral Mucositis were significantly more likely to have severe pain and weight loss.

In the year 2009 A study was conducted in the department of dental medicine, Winthrop university hospital New York, and it stated that the oral mucosa in common site for

collateral damages of cancer therapies, including radiation, cytotoxic medication and newer targeted therapies. Ulcerative Oral Mucositis is typically painful and affect oral functions including speech, oral intake of food and medication, thus impacting the quality of life. Denuded epithelium may also provide access of oral microbial flora to the deeper the tissues and circulation.

In the year 2011 A study was conducted in san Francisco general hospital, the USA to determine the pattern, severity and time course of radiation therapy induced Oral Mucositis pain, self care behaviors used to manage Mucositis pain and the effectiveness of these behaviors in relieving such pain. Forty nine patients with Mucositis we assessed using MacDibbs mouth assessment tool to determine the severity of radiation therapy induced Mucositis pain over their course of radiation therapy and at one month follow up visit. All patients developed pain due to radiation therapy induced Mucositis. A self care diary was used weekly by patients to record SCBs and their effectiveness. The most effective SCBs for RT induced Mucositis pain were mouth rinsing and using oral analgesics.

Each year American cancer society estimates the number of new cancer cases and deaths that will occur in the united stated in the current year and complies the most recent data on cancer incidence, mortality and survival. Incidence data were collected by the national cancer institute (surveillance epidemiology and end results [SEER] program), the centers for disease control and prevention (national program for cancer registries), and the north American association of central cancer registries. Mortality data were collected by the national centre for health statistics. A total of 1,658,370 new cancer cases and 589,430 cancer deaths are projected to occur in the United States in 2015. During the most recent 5 years for which there are data (2007-2011), delay adjusted cancer incidence rates (13 oldest SEER registries) declined by 1.8% per year in men and by 1.4% per year in women.

There are some standardized oral care protocol including brushing with a soft toothbrush, flossing and the use of non-medicated rinses. Patients and care givers should be educated regarding the importance of effective oral hygiene. Alcohol containing Chlorhexidine mouth rinse is considered as one of the most effective mouth washes. Multiple studies have examined the role of Chlorhexidine mouthwash in Oral Mucositis.

With my clinical experience in oncology ward, I came across patients undergoing chemotherapy or radiation and some both as treatment regimen. Though this helped in killing or destroying the cancer cells, it also caused a significant damage to oral mucosa layer with symptoms like pain, difficulty in swallowing, ulcer of oral cavity, bleeding and this further lead to infections, poor appetite and thus there is a great weight loss seen in these patients. Rinsing the mouth daily with Chlorhexidine solution is a preventive measure frequently recommended by nurses and doctors.

To extent to which these mouthwashes actually help to prevent Mucositis is unclear. Clinical practice guidelines for the prevention and treatment of cancer therapy induced Oral Mucositis have been produced, but only two studies we used as evidence to support the use of Chlorhexidine although there are more studies available in the international literature.

KEY- WORDS: loss of taste, impaired nutrition, radiation therapy, Oral Mucositis, 0weight loss, cancer, quality of life, pain, Chlorhexidine mouth.

INTRODUCTION

The concept of perfect positive health cannot become a reality because man will never be so perfectly adapted to his environment that his life will not involve struggles, failures and sufferings. Health in this context has been described as a potentiality the ability of an individual to modify him or itself continually in the face of conditions of life.

Decades before **Hippocrates** said that cancer as a disease has existed all alone with man. **Sustra** who is the father of surgery explained that cancer as a tumor which would ulcerate and would not cure and show its seeds in other parts of the body. Twenty five centuries ago cancer was called as Karakinos because the swollen blood vessels going and coming from tumor mass. Cancer is of the 2nd largest killer disease next to the heart disease. It is a major health problem that occurs in people of all ethnicities. 76% cases are diagnosed with cancer in those over the age of 55 years.

IN THE YEAR 2014 W.H.O. DEFINED: "A Cancer is the uncontrolled growth of cells, which can invade and spread to distant sites of body".

Cancer is a group of disease involving abnormal cell growth with the potential to invade or spread to other parts of the body. Cancer cells are able to invade other tissues and to other parts of the body through the blood and lymph systems.

There are over 20 million people living with cancer in the world today. The estimated number of cases each year is expected to increase from 2 million in 2002, 15 million in 2020.

IN THE YEAR 2007 WORLD HEALTH ORGANIZATION IN INDIA stated that around 7.8 lakhs new cases of cancer are diagnosed every year. Cancer has become the 6th most common cause of human illness. The global number of new cases was estimated at 405,318 about two thirds of them arising in developing countries. Highest rates are reported in south Asian countries such as India and Srilanka.

In India there are approximately 2.2 million cases on cancer and around 7, 00,000 new cases are being detected each year. Tongue and mouth cancers are most common in Indian sub continent.

The treatment of the cancer primary one includes surgery, chemotherapy, radiation therapy, hormonal therapy, targeted therapy and palliative care. The treatments of the cancer highly depend upon the type, location and grade of the cancer as well as patient's health and preferences. There are exceptions but cancers usually responds well to chemotherapy and radiation therapy. To treat cancer Chemotherapy and radiotherapy have become highly preferred treatments. The treatment intent may or may not be curative.

Chemotherapy is the treatment of cancer with one or more cytotoxic anti-neoplastic drugs. Chemotherapy is a form of treatment of cancer using specific chemical agents or drugs that are selectively destructive to malignant cells and tissues. (Most forms of chemotherapy destructive to malignant cells that grow quickly. In chemotherapy the direct effects of cytostatic drugs damage the mucous membranes. This ultimately results in Oral Mucositis.

Radiation therapy is a treatment used for cancer and less commonly for thyroid disease, blood disorders and non cancerous growth. Such Radiation therapy uses high-energy waves, particles such as x-rays, gamma rays, protons and electron beams to destroy or damage cancer cells. Radiation therapy also damages normal cells. Radiation induced Mucositis starts when there is a direct injury to basal epithelial cells and its underlying tissues. D.N.A. strands breaks and cells get injured or dead. Non-DNA injury starts through a variety of mechanism. Mucositis persists throughout radiation therapy. As radiation therapy continues Mucositis gets worsen which ultimately contributes towards poor nutrition leads to low quality of life. Even though radiation helps as a treatment, on the other hand it has complications that are making an issue.

IN THE YEAR 2006 DR. VALAVAN reported that more than 10,000 people in mysore are affected with cancer. Every year minimum of 10,500 people were undergoing treatment for cancer have developed treatment induced Oral Mucositis.

ORAL MUCOSITIS - Mucositis is the painful inflammation and ulceration of the mucous membranes, usually as a side effect of chemotherapy and radiation therapy which are the mostly used treatments of cancer.

Oral Mucositis occurs in about 40% of patients who undergo cytostatic chemotherapy for the treatment of malignancies. White discoloration of mucous membrane mostly precedes the redness, edema and lesions. These lesions can develop into large painful ulcers that can seriously hinder eating and drinking. Furthermore, the protective effect of saliva can be reduced due to decrease in the quality and quantity – increasing the chance of developing infection. Severe Mucositis results in significant reduction in the quality of life, potential nutritional deficit.

Oral Mucositis refers to erythematous and ulcerative lesions of the oral mucosa observed in patients with cancer being treated with chemotherapy and with radiation therapy to fields involving the oral cavity. Oral Mucositis is a significant problem in patients undergoing chemo and radio therapeutic management for solid tumors.

In one study it was reported that 303 of 599 patients (51%) receiving chemotherapy for solid tumors or lymphoma developed oral and GI Mucositis.

Patients treated with radiation therapy for head and neck cancer typically receive an approximately 200cGy daily dose of radiation, five days per week for 5-7 continuous days. Almost all such patients will develop some degree of Oral Mucositis. In recent studies, severe Oral Mucositis occur in 29-66% of all patients receiving radiation therapy for head and neck cancer.

The incidence of Oral Mucositis was especially high in –

- Patients with primary tumors in the oral cavity, oropharynx and nasopharynx.
- Those who also received concomitant chemotherapy.
- Those who received a total dose over 5000cGy.
- Those who were treated with altered fractionation radiation schedules.

Mucositis may also limit patient's ability to tolerate either chemotherapy or radiotherapy. Mucositis may become severe when the treatment is delayed thus it limit

the effectiveness of therapies. Patients with damaged mucosa and reduced immunity resulting from chemotherapy and radiotherapy are also prone to opportunistic infections in the mouth. The Mucositis may affect patient's gum and dental condition speech and self esteem are reduced, further comprising patient's response to treatment and palliative care.

METHODOLOGY

KERLINGER stated that research usually has a choice of research design, methods of measurement and type of analysis.

Methodology of research indicates the general pattern of organizing the procedure together with valid and reliable data for the problem under investigation. This chapter deals with methodology adopted to find out the level of effectiveness of Chlorhexidine mouth wash versus Povidone iodine mouth wash on chemotherapy and radiation therapy induced Oral Mucositis

O2: Assessment of level of Oral Mucositis after the intervention among experimental group I.

O3: Assessment of level of Oral Mucositis before the intervention among experimental group II.

X4: Administrations of Povidone iodine mouth wash at 8 am in the morning.

X5: Administrations of Povidone iodine mouth wash at 2 pm in the noon.

X6: Administrations of Povidone iodine mouth wash at 8 pm in the evening.

O4: Assessment of level of Oral Mucositis before the intervention among experimental group II.

E: Effectiveness of mouthwashes.

O1----------X1---X2---X3----------O2

O3----------X4---X5---X6----------O3

GROUP	PRE- TEST	INTERVENTION	POST- TEST
Experimental group I	O1	X1X2X3	O2
Experimental group II	O3	X4X5X6	O4

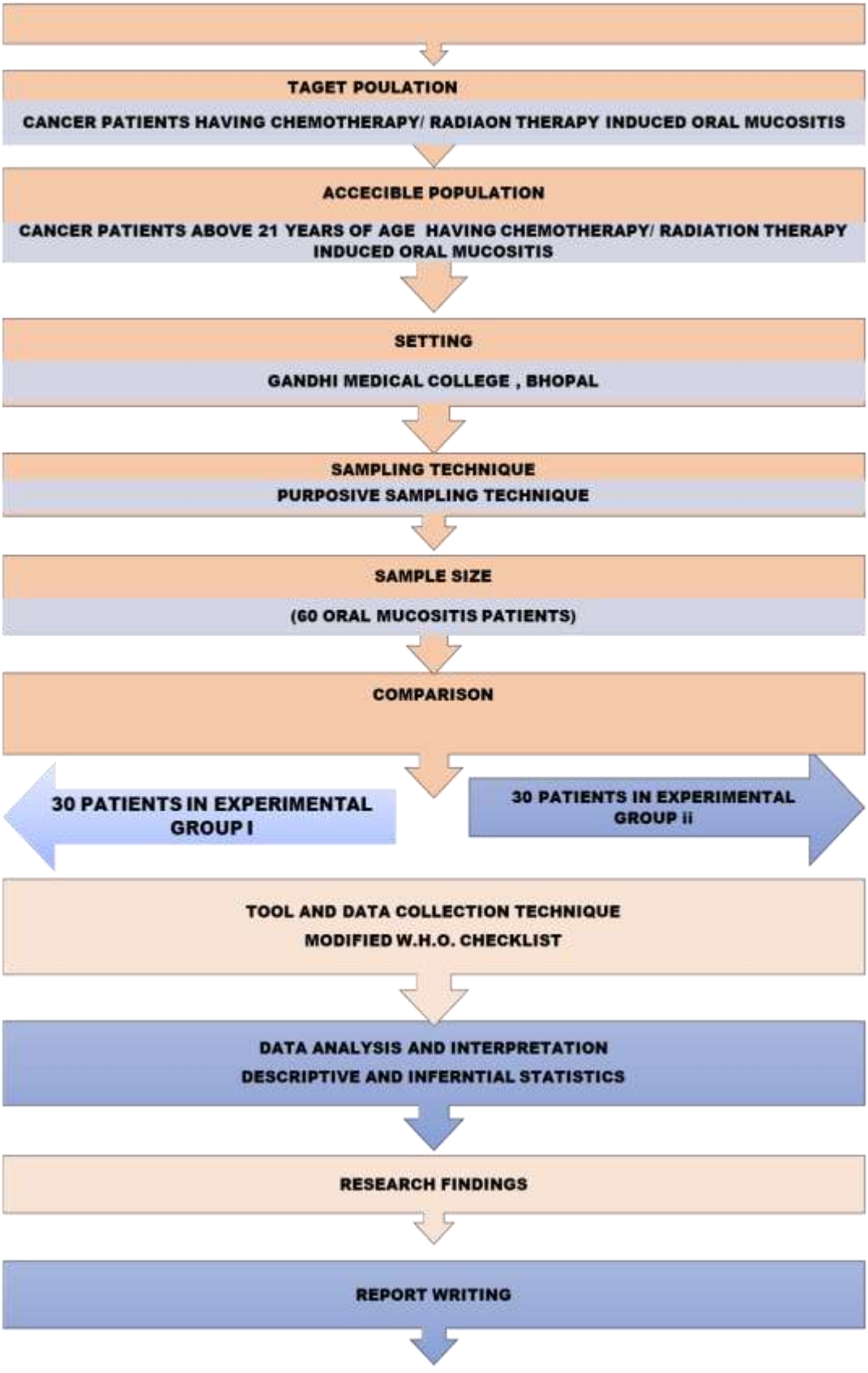

Figure 1.1 : Schematic Representation Of Research Design.

RESULT

This chapter deals with analysis and interpretation of data collected from 60 Oral Mucositis patients about chemotherapy or radiation therapy induced Oral Mucositis by non probability convenience sampling method from oncology ward, Gandhi medical college, Bhopal M.P.

- Paired t-test was used to determine the effectiveness of cholrhexidine mouth wash and Povidone iodine mouth wash among chemotherapy radiation therapy induced Oral Mucositis patients.
- Chi- square test was used to determine the relationship between the level of pre interventional level of Oral Mucositis and corresponding demographic data.

DISCUSSION

This section discusses finding of the study based on objective set for the study and discuss them in relation to similar studies conducted by researcher

THE FINDINGS ARE DISCUSSED UNDER THE FOLLOWING HEADINGS-

- Assess the level of Oral Mucositis among the patients who has undergone radiation or chemotherapy.
- Assess the effectiveness of Chlorhexidine mouth wash on radiation or chemotherapy induced Oral Mucositis among experimental group 1.
- Assess the effectiveness of Povidone iodine mouth wash on radiation or chemotherapy induced Oral Mucositis among experimental group 2**.**
- Compare the effectiveness of Chlorhexidine and Povidone iodine mouth wash on radiation or chemotherapy induced Oral Mucositis among experimental group 1 and experimental group 2.
- Find out the association between the levels of Oral Mucositis among experimental group 1 with their selected demographic variables.
- Find out the association between the levels of Oral Mucositis among experimental group 2 with their selected demographic variables.

CONCLUSION

It is important for the patients who undergo chemotherapy and radiation therapy should be prevented from Oral Mucositis as it is proved that to evaluate the effectiveness of Chlorhexidine mouthwash vs. Povidone iodine mouthwash on Oral Mucositis among cancer patients in oncology department of Gandhi

medical college, Bhopal (MP.) the findings of the study showed that Chlorhexidine mouth wash was more effective on Oral Mucositis than Povidone iodine mouth wash. Prevention of Oral Mucositis is important because Oral Mucositis limits treatment of cancer.

This study implies that usage of antiseptic mouthwash effective in reducing level of Oral Mucositis. The level of Oral Mucositis in experimental group I was lower than the experimental group II. On the basis of findings of experimental group I (got received Chlorhexidine mouthwash) and of findings of experimental group II (got received povidone iodine mouthwash) when compared it is proved that chlorhexidine mouthwash was more effective than povidone iodine mouthwash.

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