Original Article

Evaluate the Changes in Blood Chemistry and Types of Addiction during the Treatment of Patients of Head and Neck Cancer at Nuclear Institute of Medicine Radiotherapy, Jamshoro

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ABSTRACT

Objective: To evaluate the Changes in Blood Chemistry and Types of Addiction during the Treatment of Patients of Head and Neck Cancer at Nuclear Institute of Medicine Radiotherapy, Jamshoro.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at the Institute of Biochemistry, University of Sindh, Jamshoro in coordination with NIMRA and Ghulam Muhammad Mahar Medical Sukkur from June 2014 to December 2016.

Materials and Methods: Total 102 patients were selected with Head and Neck Cancer of grad III & IV. Specially designed questionnaire was used to collect the data, included age, sex, risk factors, sign symptoms, personal history, family history and histological diagnosis. Blood samples were collected and all parameters of Complete Blood Count (CBC) and Liver Function Test were performed.

Results: Majority of patients were between 41 to 50 years of age. 66.7% (n=68) patients 68 were male and 33.3% (n=34) were females founded, 65% (n=66) patients founded labor categories as occupation. Cheek was the most common site that affected as 44(43.1%) and second affected site was Tongue with 22 (21.6%) in all. Pain was most usually observed in 89 (87%) patients in Head and Neck region. Complete Blood Count (CBC) parameters were also disturbed during treatment as Lymphocytes, Monocytes, Basophils and Platelet Volume were ($p<0.05$) statistically significant. There was no significant variation ($p>0.05$) in Liver Function Test (LFT).

Conclusion: Due to lack of education and trend of tobacco used like Mainpuri and Naswaretc which slowly affect the health and most common cause. Efficiency of treatment and chance of persistence must be equally managed with latent practical and excellence of life time results. Patient's general situation and his or her capacity to bear forceful therapy must be considered by the cure team.

Key Words: Head and Neck Cancer, Chewing tobacco, Biochemical analysis

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INTRODUCTION

Head and neck cancers are an inclusive class of cancers that arise in the head and neck region. Cancer can happen in any tissue or organ in the head and neck. It is best generally found now days. Head and neck cancer area affected Para nasal depression, mouth cavity, larynx, nasal cavity and pharynx[1].

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Alcohol and tobacco usage (chewing and snuff tobacco) are recorded vital hazardous causes in head and neck cancers, especially cancers of the pharynx and mouth cavity[2,3].

Chewing tobacco a form of smokeless tobacco product devoured by keeping a lot of the tobacco between the cheek and upper lip, teeth and gum and then for discharge savor and nicotine it was physically squashed with the teeth. Then annoying juices are expectorated[4]. It is mostly addicted by people. Oral cancer, dental disease, esophagus cancer, pancreas cancer, antagonistic reproductive effects plus abortion, premature birth and low birth weight are highly adverse effects correlated with smokeless tobacco[5]. Chewing tobacco contains black bull it can be smoke but mostly people chew it and Snuff. The tobacco which breathe in or "snuffed" into the nasal cavity called Snuff tobacco. Buttery snuff, a mixture of fluid tobacco promoted as a dental hygiene. Naswaris Afghan tobacco is alike to sinking tobacco, Gutka, a combination of tobacco, areca nut, Tobacco secretion, a type of chewing gum

enclosing tobacco, and numerous essences retailed in South Asia[6]. Another kind of chewing tobacco is dissolved tobacco which fully liquefies in the mouth. Tobacco prepared in North Africa, East Africa, and the Arabian Peninsula is Toombak and shammah[7].

Globally more than 300 million people are using smokeless tobacco. Smokeless tobacco products differ expansively worldwide in both formula and health risks, with more or less clearly toxic[8]. It was observed that the major reason of Oral Leukoplakia (OL) and Oral sub mucous fibrosis (OSF) is the chewing of Betel quid. As earlier publicized in Pakistan, Taiwan, India, and Continental China that threats increased with the period and regularity of the habit[9]. Oral cancer risk was highly notable with betel quid eating with tobacco than betel quid eating without tobacco, and the proof for OL was also same. High risk of these cancers raises more in people who equally practice alcohol and tobacco than the people who take any one habit[10, 11].

Infection with carcinogenic kinds of human papillomavirus (HPV-16) is a dangerouscause for head and neck cancers, mostly pharyngeal cancers that include the base of tongue and tonsillar[12, 13]. The use of pan is toughly connected with a greater and danger risk of mouth cancer in the refugees of South Asia so they must be attentive[14].

Eating Paraguay tea (mate) like brewis related with a high cause of cancers of the larynx, throat, mouth cavity and esophagus. It routinely used by South Americans[15]. Some saline and well-maintained food's ingesting throughout babyhood is a danger factor for palatine tonsils cancer[16, 17]. The frail hazardous factor for the cancers of mouth cavity may be lost of teeth and less oral hygiene. High amount of alcoholic mouth washer is a probable risk for cancers of the mouth cavity but not recognized[18].

The danger factor for nasopharyngeal cancer is wood dust exposure related to work and profession[19]. A high risk of laryngeal cancer may have to the people of some jobs like metal, construction, painting, textile, earthenware and nutrition industries[20]. The dangerous cause of nasal cavity and Para nasal sinuses cancer is the Manufacturing contact to nickel powder or wood and formaldehyde. Radiation to the head and neck, for noncancerous conditions or cancer, is a risk factor for cancer of the salivary glands[20, 21]. Salivary glands cancer and nasopharyngeal cancer are also caused by the contamination of the Epstein-Barr virus. In Asia the high risk of nasopharyngeal cancer occur in Chinese[22]. The painful throat and swelling may be the marks of head and neck cancers that do not set right trouble in swallowing and a variation in the voice. The red or white spots in the mouth are the symptoms that may disturb particular parts of the head and neck; Dentures patient feels unwell or become painful due to the swelling of the jaw; cause rare flow of blood or highly pain in the mouth. The swelling around the jawbone and in the chin, coolness or paralysis of the muscles and pain in the face, but the neck and the chin doesn't affect[22, 23]. In the United States about 3 percent of all cancers apology for head and neck cancers. It diagnosed extra frequently having more in elders than younger ones. In 2012 further than 52,000 women and men in this country would be identified with head and neck cancers observed by the researchers[24]. Doctors assesses an individual's health history, instruction diagnostic tests and carry out a bodily investigation to find out the reasons of the problem in head and neck region. Blood, other substances from the body and urine samples are observed by the laboratory investigators. To ratify the diagnosis of cancer it is necessary to examine the tissue samples under the microscope[24, 25]. For the treatment plan individual's age, the stage of tumor, exact location of the cancer and the complete health are observed. Treatment of Head and Neck cancer includes Radiation therapy, Surgery, Targeted therapy, Chemotherapy, or a mixture of these treatments. Teeth may be dented or need to be removed before Radiation therapy can be done. Earaches, disturb nutrition and reduce appetite are due to loss of the sense of taste during treatment this problem happen. Swelling, sagging and changes in the texture of the skin in chin also are noticed by patients. After treatment patient may not be capable to open his mouth due to jaw inflexibility[26]. People who drink alcohol and practice tobacco are at the higher risk of second prime cancer at the original site of cancer[26, 27]. In this part of research work demographic characters, type of addictions, site and stage of cancer, Complete Blood Count (CBC), Liver Function Test were performed who seeking treatment at Nuclear Institute of Medicine and Radiotherapy(NIMRA), Jamshoro, Sindh, Pakistan.

MATERIALS AND METHODS

Study is conducted at Institute of Biochemistry, University, Jamshroro and Nuclear Institute of Medicine and Radio Therapy (NIMRA) Jamshoro, Sindh, Pakistan. For entry of the required data of patients, specially designed questionnaire was used. Data include age, sex, risk factors, sign symptoms, personal history, family history and histological diagnosis. Blood samples were also collected and Complete Blood Count (CBC) and Liver Function Test (LFT) was determined in patients with Head and Neck cancer of grad II and grad III during treatment at NIMRA hospital Jamshoro, Sindh, Pakistan.

RESULTS

The highest 36.3% (n=37) infected age group was 41-50 years was 37 (), showed in table no.1. In all patients 66.7 % (n=68) were male and 34 (33.3%) females were found. In all patients 80 (78.4%) were married. 14 (13.7%) were educated were bound in this disease. Figure 1. Most of the patients belonged to Hyderabad

and adjoining areas. Figure 2 Head and neck cancer disease was 66(65%) found in working people highly involved 40 (39%) out of 102 were from labor category, second common category was 20(20%) farmers, less commonly found 3(3%) were from education and industrial area. Figure: 3 in cancer 92 (90%) patients were taking Mainpuri, Gutkha, Pan, Cigarette, Naas, Naswar and Alcohol. Table: 1. In all patients I found the effected sites were Cheek, Tongue, Larynx, Hypopharynx, Plate of neck, Lip, Gum, RMT and Tonsil. Cheek was the most common site that was highly affected as 44(43.1%) out of 102 total no: of patients. Second affected site was Tongue with 22 (21.6%) in all. While 12 (11.8%) cases were found with Larynx cancer. 9(8.8%) patients were suffered in Hypopharynx cancer. The cancer in Plate of neck was communal in 4 (3.9%) patients. As the carcinoma of Lip, Gum and RMT were 3(2.9%) same in all cases. Tonsil was less pretentious as 2 (1.96%) out of total 102 patients. There were some side effects of treatment as Pain which was most usually observed in 89 (87%) out of 102. Dysphagia was seen in 66 (65%) patients. Ulceration occurred in 49 (48%) cases. Swelling was arisen in 43 (42%) patients. In 38 (37%) patients I found the Fungating growth. The side effect Hoarseness of voice was detected in 34 (33%) cancer patients. 31 (30%) patients out of total was feeling Vomiting as a side effect of treatment. While Hemoptysis was influencing less no: of patients 23 (23%) out of total 102. Table: 3. In Complete Blood Count (CBC) there were some changes after treatment in Lymphocytes it was statistically significant as its P-value was (0.026), while P-value with Monocytes was (0.046). Basophils were also statistically significant with P-value (0.05) and the P-value for (MPV) Mean Platelet Volume was (0.043) which was also significant than others. As shown in (Tables and graphs).

DISCUSSION

Tobacco products like Cigarette, Gutkha, Betel nut (supari), Naswar, Betel quid (pan), Mainpuri and Naas are most common addictions in the population of Hyderabad and adjoining areas. Male were more spoiled in this bad practice. Most of people are habitual of chewing and smoking tobacco and are gripped in this dangerous routine at an early age, due to scarcity, illiteracy and lack of knowledge about poisonous reactions and hazard effects of these Tobacco products. In Hyderabad and adjoining areas Mainpuri and Gutkha are the utmost injurious and carcinogenic then other forms[28]. Mainpuri and Gutkha in the form of unhealthy packed and unpacked forms liberally exist in Hyderabad shops. People of Hyderabad and adjoining areas chew and eat these toxic mixed tobacco products daily whole the day even during sleep they keep that blend in mouth overnight. Most people chew this smokeless tobacco during work like labor, industrial and farmer[28]. This chewing habit is the main cause of head and neck cancer because of carcinogens which badly impact the oral cavity and mucosa with early signs and symptoms of white and red spots or miscellaneous red and white wound (Erythroleukolakia). In advance stage lesion grows and becomes painful mass and growth. Then it affects the whole oral cavity critically[29].The high percentage of head and neck cancer was observed in middle age group from 41-60, as more or less similar findings reported byHarish & Junaid, 2016. The gender highly involved in carcinoma found was male[30].

Uneducated were more affected with carcinoma then educated due to lack of knowledge as stated in early studies. In this study family history was founded in patients as reported by Haung et al, 2015. Maximum site of cancer patients was Cheek and Tongue, while Larynx, Hypopharynx, Plate, lip, Tonsil, RMT and Gum was also gripped in carcinoma with less quantity[30, 31].

There is statistically significant variation in Basophils, Lymphocytes, Monocytes and MPV where as other parameters of WBC, RBC, Hemoglobin, Hematocrit, MCV, MCH, Neutrophils, Eosinophils, Platelet count, RBC distribution width, Platelet distribution width and ESR are statistically non-significant. The less and more related findings were also detected[32].

In few studies the significant variation in Liver Function Test was noted[33] while this research perceived statistically no significant variation in the parameters of Liver Function Test.

CONCLUSION

Male was founded in mainstream, 36% patients were from age 41-50 years but 9% patients were from age 20-30years. Oral cancer patients were in majority. Due to lack of education, trend of smoking and chewing people using Cigarettes, Mainpuri and Naswar etc. which slowly affect the health and cause of cancer. Solutions of disease are commonly difficult, and the efficiency of treatment and chance of persistence must be equally managed with latent practical and excellence of lifetime results.Patient's general situation and his or her capacity to bear forceful therapy must be considered by the cure team. We should arrange workshops/ seminars for the awareness of people about hazards of tobacco and head and neck Cancer.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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