Original Article

Oral Leisons in Cancer Patients Receiving Chemotherapeutic Treatment in Fauji Foundation Hospital

Effects of Chemo Therapeutic Treatment in Oral Cancer

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ABSTRACT

Objective: To establish an association between effects of chemo therapeutic treatment in oral cavity in cancer patients reported in Fauji Foundation Hospital.

Study Design: Randomizes controlled trial study

Place and Duration of Study: This study was conducted at the Fauji Foundation Hospital among dental students and patients from May to July 2019.

Materials and Methods: Cross-sectional study was conducted in Fauji Foundation Hospital, Pakistan from 1st May to 24th July 2019. Sample size of 100 patients was examined for oral manifestations. They were undergoing various cycles of cancer chemotherapeutic treatment. Treatment included cycles of chemotherapy and radiation. The study included patients of various types of cancers including Squamous Cell Carcinoma, Carcinoma breast, non-Hodgkin's lymphoma, chronic myeloid leukemia etc. A scale with end points NO ORAL DISCOMFORT to WORST IMAGINABLE ORAL DISCOMFORT was used. History taking and non-invasive intra oral examination was carried out to check for any lesions, ulcers, pigmentation, xerostomia, taste alterations etc. Data was analyzed using SPSS version 21.

Results: This was an observational type of study that included patients suffering from various malignancies. Overall 100 patient's data were collected for this study. Lesions were seen in 76% of patients, of which 65% patients reported with ulcerative lesions, 21% with white lesions and 13% other category lesions. The most common symptomatic finding included taste alteration seen in 94% of patients and 74% with xerostomia

Conclusion: This study suggests that the patient's quality of life is related to chemotherapy cycles. Patients undergoing chemotherapy reported milder symptoms than patients undergoing radiotherapy. Xerostomia and taste alterations were among most significant findings. Data showed a correspondence between oral manifestations and cancer chemotherapeutic treatment.

Key Words: Oral manifestations, carcinoma, chemotherapy, taste alterations

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INTRODUCTION

Cancer can be defined as a group or collection of related diseases involving abnormal cell proliferation with the ability to invade or spread to other parts of the body[1, 2]. Cancer is having a diverse aetiology ranging from age extremes to pathogens. Cancers usually begin as uncontrolled cell growth lacking differentiation. They may form growths called tumors. Tumors can be benign or malignant[1]. The factors that decide whether a tumor is benign or malignant include rate of growth, extent of differentiation, local and distant metastasis etc[2].The most common type of cancer are those arising from epithelial cells.

Cancers arise from various types of tissues including bone, soft tissue and blood. Major head and neck tumors include tumors of the salivary glands, pleomorphic adenoma, Warthin's tumor, adenoid cystic carcinoma[3].Oral lesions are a common manifestation as a side effect in patients receiving cancer treatment either due to anticancer drugs or radiation. These oral lesions affect morbidity and in some cases may also effect mortality of severely immune-compromised patients. Some systemic fungal or bacterial infections caused by opportunistic bacteria in the normal flora due to immunosuppression[4] may even lead to formation of new cancers.

The recent advances[5, 6] in cancer treatment has not only affected previously recognized oral complications

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but are also becoming a source of producing new side effects.

Treatment options include chemotherapy, radiotherapy and surgical interventions. Choice of treatment depends on extent and severity of disease.

Chemo-radiation therapies are the mainstay of treatment for locally advanced head and neck cancers or as adjuvants for tumors with poor clinical features[7, 8]. All of these techniques have varied intensities and surface of radiation exposure hence oral complications also differ in each of the therapies[9]. The most noted complication is Xerostomia[10]. Chemotherapeutic drugs, which are also used as adjuvants to radiation and/or surgery have very high potential of causing oral mucositis[11, 12]. Mucositis does not affect mortality to that extent but may interfere with further chemotherapeutic treatment[13].Common drugs causing mucositis include are fluorouracil, methotrexate and doxorubicin. Other drugs also include azathioprine, cediranib[14] etc.

Chemotherapy induced oral lesions pose significant morbidity in patients. Mucositis[15], candidiasis, radiation caries, osteoradionecrosis, soft tissue necrosis, progressive periodontal attachment loss, trismus and xerostomia are some complications of chemotherapeutic treatment[16]. Quality of life is also affected by Increase the use of antibiotics, narcotics, length of hospitalization and Increase the overall cost of treatment.

Mortality of patients is also affected. Some chemotherapy induced oral lesions like Lichen planus and oral sub-mucous fibrosis are the most common oral mucosal diseases [17] that have a very high malignant transformation rate.

Post therapy follow ups should be arranged. A simple lesion would not appear as harmful to the patient due to lack of proper knowledge, but may convert to malignancy[7, 11]. To prevent such consequences oral health care should be provided to patients receiving chemotherapeutic treatment. A good and properly maintained oral hygiene and gingival condition during chemotherapy lead to a less chances and severity of oral complications.

To establish an association between effects of chemo therapeutic treatment in oral cavity in cancer patients reported in Fauji Foundation Hospital.

MATERIALS AND METHODS

This was a cross-sectional study carried out at Fauji Foundation Hospital 1st May to 24th July 2019. Non-invasive oral examination was carried out for 50 cancer patients receiving treatment at FFH Islamabad. Oral symptoms and visible oral lesions were evaluated and recorded. Oral manifestations were scored on a scale with end points i.e. No Oral Discomfort To Worst Imaginable Oral Discomfort[11].

The research team members visited inpatient wards of oncology department Fauji Foundation Hospital. Each patient was separately examined for oral lesions in the wards. Examination performed was non-invasive oral examination. Each patient was explained the procedure and reasons for performing such examination in terms easily understood by the patients. Patients were asked individually for informed consent[18] (after explaining procedure properly).

Separate set of sterile instruments were used for each patient keeping in view cross infection control measure[19]. Examination included mirrors, tongue retractors, torches, gauze, cotton swabs and gloves. After examination the results for individual patients were recorded. The results were compiled and final statistics and results were summarized using SPSS 21.

The study did not require photographs or any specific Bio-data e.g. names etc. of patients so confidentiality of patients was fully preserved.

The inclusive criteria of our study is female patients having age of 20 to 80 years, receiving chemotherapy, radiotherapy or both treatment options for any kind of cancer. The exclusive criteria of our study is patients with age greater than 80 years, having comorbidities that can alter results e.g. autoimmune diseases like Sjogren syndrome and those receiving any kind of treatment to supress oral symptoms of these lesions.

RESULTS

This was an observational type of study that included patients suffering from various malignancies. Overall 100 patient's data were collected for this study. Patients of Carcinoma breast, Carcinoma ovaries, lymphomas, squamous cell carcinomas etc. were included as mentioned in chart 1.

Most of these examined patients were undergoing chemotherapy and some were receiving radiotherapy illustrated in chart 2.

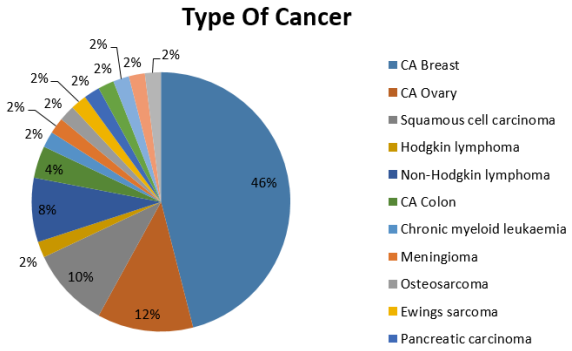
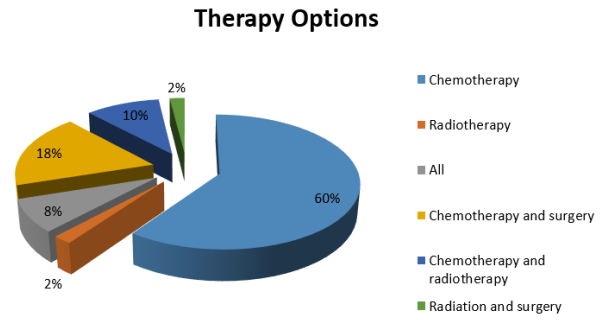


Chart No.1: Type of cancer

Lesions were seen in 76% of patients, of which 65% patients reported with ulcerative lesions, 21% had white lesions and 13% had other category lesions. In our study during chemotherapy the most common symptomatic finding included taste alteration and oral

ulcers are seen in 94% of patients and xerostomia seen in 74% of patients. Other symptomatic findings like ptylism, odynophagia, sore throat and osteoradionecrosis were among less common findings.
Based on these manifestations when the patients were asked about oral discomfort following statistics were obtained illustrated in chart 3.



Chat No.2: Therapy options

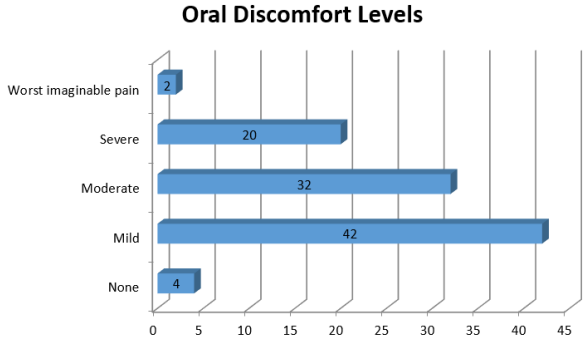


Chart No.3: Oral Discomfort Levels

DISCUSSION

This study was carried out basically to establish an association between oral lesions and cancer chemotherapeutic treatment. Firstly it should be well understood that not all patients who undergo cancer treatment are at equal risk [15, 20] of developing oral lesions. Nevertheless, as the study revealed, the fact that it is a common circumstance to observe oral lesions in patient receiving cancer chemotherapy cannot be ignored[21].Chemotherapeutic drugs, used as adjuvants to radiotherapy and/or surgery have a very high risk of causing oral mucositis .The oral complications[6] of chemotherapy are either due to Direct Stomatological Toxicity , that is direct action of the drug upon the oral mucosa, or an Indirect Stomatological Toxicity , that is indirect consequence of chemotherapeutic drug-induced bone marrow suppression or myelosuppression .
Chemotherapy can result in a temporary but rather clinically significant decrease in salivary flow that later improves as the bone marrow recovers. Such a decrease in salivary flow in turn results the appearance of mucositis. The symptoms of xerostomia or dry mouth include generalized dryness of mouth, burning sensation or discomfort (especially of the tongue), changes in the tongue surface, cracked lips, and problems in wearing removable dentures especially pertaining to oral ulcerations[6]. Xerostomia condition may lead to a metallic taste sensation that subsequently results in Dysgeusia and Glossodynia secondary to the effects of chemotherapy upon the tongue papillae and demineralization of the nerve fibers[17].It was observed that oral symptoms intensified during chemotherapy thus required professional dental care[22, 23]. The most common symptoms included xerostomia, ulcers and sore throat other than dysphagia and odynophagia.
After compiling statistics an association between stage of cancer, extent of treatment and oral lesions was seen in patients who underwent examination. The statistics of the study manifested an association between cancer treatment and appearance of oral symptoms. However, it has some limitations due to the diverse aetiology of these oral lesions the confounding effect of various variables cannot be overlooked. Hence the results of the study are affected by various factors.
This study was carried out as a cross sectional study in which the participants/patients were randomly selected as per convenience of time and place. Hence the sample was not a representative[24] of the whole population. Moreover, during the time of study no male patients reported to oncology OPD hence the sample did not represent data of male patients.
This study opinionated that it should be carried out on a larger scale on a more representative population. Once the results are confirmed, professional dental care [25] should be provided to cancer patients to improve morbidity. Post therapy follow ups should be arranged. Patients should be provided post therapy dental care, so if any potentially malignant lesion appears as a result of treatment it can be addressed promptly. A simple lesion may convert to malignancy[7, 11] so to prevent such consequences oral health care should be provided to patients receiving chemotherapeutic treatment. Meticulous oral hygiene and a good gingival condition during chemotherapy lead to a less likelihood and severity of mucositis.

CONCLUSION

Patients undergoing chemotherapy reported milder symptoms then patients undergoing radiotherapy. Chemotherapy results to a temporary but clinically significant decrease in salivary flow that improves as the bone marrow recovers. Xerostomia and altered taste sensations were among the most significant findings. Data showed a correspondence between oral manifestations and cancer chemotherapeutic treatment.

Author's Contribution:

Concept & Design of Study:	Farah Farhan
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Data Analysis:	Muhammad Wajahat

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Revisiting Critically:	Farah Farhan, Faiza Hassan
Final Approval of version:	Farah Farhan

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

REFERENCES

1. Kaplan W. Background Paper 6.5 Cancer and Cancer Therapeutics. World Health Organization (ed) Priority medicines for Europe and the world: update 2013:6.5-1.
2. El-Naggar AK. WHO classification of head and neck tumours: International Agency for Research on Cancer; 2017.
3. Roche J. The epithelial-to-mesenchymal transition in cancer. Multidisciplinary Digital Publishing Institute; 2018.
4. Epstein JB, Chow AW. Oral complications associated with immunosuppression and cancer therapies. Infectious Dis Clin North Am 1999;13(4):901-23.
5. Epstein JB, Thariat J, Bensadoun RJ, Barasch A, Murphy BA, Kolnick L, et al. Oral complications of cancer and cancer therapy: from cancer treatment to survivorship. CA: A Cancer J Clinicians 2012;62(6):400-22.
6. Gandhi K, Datta G, Ahuja S, Saxena T, Datta AG. Prevalence of oral complications occurring in a population of pediatric cancer patients receiving chemotherapy. Int J Clin Pediatr Dentist 2017;10(2):166.
7. Poulopoulos A, Papadopoulos P, Andreadis P. Chemotherapy: oral side effects and dental interventions. A review of the literature. Stomatological Dis Sci 2017:2573-0002.2017.
8. Chaveli-López B. Oral toxicity produced by chemotherapy: A systematic review. J Clin Exp Dentist 2014;6(1):e81.
9. Minhas S, Kashif M, Altaf W, Afzal N, Nagi AH. Concomitant-chemoradiotherapy-associated oral lesions in patients with oral squamous-cell carcinoma. Cancer Biol Med 2017;14(2):176.
10. Garg AK, Malo M. Manifestations and treatment of xerostomia and associated oral effects secondary to head and neck radiation therapy. J Am Dent Assoc 1997;128(8):1128-33.
11. Öhrn KE, Wahlin YB, Sjödén PO. Oral status during radiotherapy and chemotherapy: a descriptive study of patient experiences and the occurrence of oral complications. Supportive care in cancer 2001;9(4):247-57.
12. Cidon EU. Chemotherapy induced oral mucositis: prevention is possible. Chinese Clin Oncol 2017;7(1).
13. Naidu MUR, Ramana GV, Rani PU, Suman A, Roy P. Chemotherapy-induced and/or radiation therapy-induced oral mucositis-complicating the treatment of cancer. Neoplasia 2004;6(5):423-31.
14. Matulonis UA, Berlin S, Ivy P, Tyburski K, Krasner C, Zarwan C, et al. Cediranib, an oral inhibitor of vascular endothelial growth factor receptor kinases, is an active drug in recurrent epithelial ovarian, fallopian tube, and peritoneal cancer. J Clin Oncol 2009;27(33):5601.
15. Una-Cidon ME. Chemotherapy-induced oral mucositis: prevention is possible. Clin Med 2019;19(Suppl 2):5.
16. Samim F, Epstein JB, Zumsteg ZS, Ho AS, Barasch A. Oral and dental health in head and neck cancer survivors. Cancers Head Neck 2016; 1(1):14.
17. Villafuerte KRV, Martinez CdJH, Dantas FT, Carrara HHA, dos Reis FJC, Palioto DB. The impact of chemotherapeutic treatment on the oral microbiota of patients with cancer: a systematic review. Oral Surg Oral Med Oral Pathol Oral Radiol 2018;125(6):552-66.
18. Cassileth BR, Zupkis RV, Sutton-Smith K, March V. Information and participation preferences among cancer patients. Annals Internal Med 1980;92(6):832-6.
19. Boyce JM, Pittet D. Guideline for hand hygiene in health-care settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Infection Control & Hospital Epidemiol 2002;23(S12):S3-S40.
20. Velten DB, Zandonade E, de Barros Miotto MHM. Prevalence of oral manifestations in children and adolescents with cancer submitted to chemotherapy. BMC Oral Health 2017;17(1):49.
21. da Cruz Campos MI, Neiva Campos C, Monteiro Aarestrup F, Vieira Aarestrup BJ. Oral mucositis in cancer treatment: Natural history, prevention and treatment. Molecular Clin Oncol 2014;2(3):337-40.
22. Scully C, Epstein JB. Oral health care for the cancer patient. Eur J Cancer Part B: Oral Oncol 1996;32(5):281-92.
23. Kaae JK, Stenfeldt L, Eriksen JG. Xerostomia after radiotherapy for oral and oropharyngeal cancer: increasing salivary flow with tasteless sugar-free chewing gum. Frontiers Oncol 2016;6:111.
24. Etikan I, Musa SA, Alkassim RS. Comparison of convenience sampling and purposive sampling. Am J Theoretical Applied Statistics 2016;5(1):1-4.
25. Kumar N. Updated clinical guidelines on the oral management of oncology patients. Faculty Dental J 2019;10(2):62-5.