

The Relationship between Demographic Data of Cancer Patients receiving Chemotherapy and the Effect of applying Cryotherapy on Healing from Oral Mucositis

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ABSTRACT

A common adverse side effect of cancer treatment by chemotherapy is oral mucositis (OM). Healthcare practitioners face difficult challenges when it comes to the treatment and prevention of OM in adult chemotherapy patients. This study aims to find out the relationship between Demographic Data of Cancer Patients receiving Chemotherapy and the effect of applying Cryotherapy on Healing from Oral Mucositis. A quantitative (descriptive study) design used in the current study, a non-probability sample of 40 patients participated from cancer patients undergoing chemotherapy having oral mucositis at Al- Nasiriyah teaching hospital and AL-Haboby teaching hospital in Al-Nasiriyah City, Iraq. The findings of the study indicated that There were no significant correlations between the result of the application study for the study sample with all demographic variables at a p.value level (0.05), except the age of the study sample after the application of cryotherapy.

Keywords: cryotherapy, chemotherapy, cancer, oral mucositis

INTRODUCTION

One of the biggest causes of death globally and the primary health issue still faced worldwide is cancer^[1,12]. The prevalence of cancer worldwide, where the death rate from cancer has risen recently^[2,16], causing at least 8 million fatalities annually, and where the death rate from cancer will climb from 45% in 2007 to 65% in 2030 mortality^[3]. Aside from the inevitable short- and long-term adverse effects, cancer treatment is becoming more and more sophisticated and effective^[4,5,17].

One of the most frequent side effects experienced by cancer patients receiving chemotherapy, radiation, or a combination of the two is (OM) oral mucositis^[6,13,14]. Oral Mucositis (inflammatory condition, ulceration, and/or infection of the oral cavity) is a recurrent side effect of people taking certain anticancer drugs, especially 5-fluorouracil^[7,15].

Cryotherapy, on the other hand, uses localized tissue cooling for both prophylactic and therapy in

order to reduce the incidence of chemotherapy-induced stomatitis. According to reports, Blood flow to the mouth mucosa is decreased by cryotherapy by inducing local vasoconstriction. As a result, it decreases the amount of blood-carrying chemotherapy drugs that enter the mouth, lowering the direct toxicity. Cryotherapy has also been shown to minimize the risk of oral mucositis by 50% following intravenous chemotherapy^[8].

MATERIALS AND METHODS

A quantitative (descriptive study) design Study was conducted, to achieve the stated objective of the study. The study was conducted at Al- Nasiriyah teaching hospital and AL-Haboby teaching hospital in Al-Nasiriyah City, Iraq. Non-probability sample was used. The study subject consists of (40) receiving oral cryotherapy. A questionnaire was designed to measure the variable consisting of part (1) the socio-demographic characteristics of patients and part (2) the World Health Organization Scale of Mucositis.

RESULTS

Table 1

Descriptive Statistic of Sample Demographical Characteristics N=40 Patients:

Variables	Classification	Study Group	
		F	%
Age/years	18-28 years	19	47.5

	29-38 years	10	25.0
	39-48 years	1	2.5
	49 years and above	10	25.0
	Total	40	100.0
	$\bar{x} \pm S.D.$	2.05 \pm 1.239	
Gender	Male	17	42.5
	Female	23	57.5
	Total	40	100.0
Occupation	Employed	5	12.5
	Student	6	15.0
	Free working	11	27.5
	Retired	0	0.0
	Housewife	14	35.0
	Earners	4	10.0

Freq. = Frequencies, % = Percentages, $\bar{x} \pm S.D$ = Arithmetic Mean and Std. Dev. (S.D.)

Table (4-1) illustrated that the demographical data of study sample that were cooperative in this study, the majority of study sample age were within age group 18-28 years accounted for (47.5%). Relatively to the gender of study sample

were female accounted for (62.5%) of all study sample. In relation to the occupation the majority of study sample occupation were housewife and accounted (35.0%) for study sample.

Table 2

Distribution for World Health Organization Scale of Mucositis

Study Group	Pre-application		After (7) day		After (14) day		After (21) day	
	Freq	%	Freq	%	Freq	%	Freq	%
Grade 0: None.	0	0.00	25	62.5	33	82.5	38	95.0
Grade 1: Soreness and erythema.	7	17.5	15	37.5	7	17.5	2	5.0
Grade 2: Erythema, ulcers. Patient can swallow solid diet.	14	35.0	0	0.00	0	0.00	0	0.00
Grade 3: Ulcers, extensive erythema. Patient cannot swallow solid diet.	3	7.5	0	0.00	0	0.00	0	0.00
Grade 4: Mucositis to the extent that alimentation is not possible.	16	40.0	0	0.00	0	0.00	0	0.00
Total	40	100.0	40	100.0	40	100.0	40	100.0

Freq=Frequency, %= percentage

Table (2) presents the statistical distribution for the world health organization scale of mucositis between groups' samples. The study sample, which the highest percentage at pre-test were presented at Grade 4: Mucositis to the extent that alimentation is not possible accounted for 16 (40.0%), While after (7) day

of application, most of the study sample were at Grade 0: None accounted for 25 (62.5%). So after (14) days of application showed at Grade 0: None accounted for 33 (82.5%), and after (21) days also within Grade 0: None accounted for 38 (95.0%).

Correlations between the Demographic Variables and the Outcome of Application Cryotherapy by World Health Organization Scale of Mucositis

Study Group	Age	Gender	Occupation
World Health Organization Scale of Mucositis (Pre)	0.427	0.299	0.267
World Health Organization Scale of Mucositis (7)	0.222*	0.065	0.059
World Health Organization Scale of Mucositis (14)	0.459**	0.003	0.084
World Health Organization Scale of Mucositis (21)	0.498**	0.035	0.077

*Correlation is significant at the 0.05 level, **Correlation is significant at the level 0.01 (2-tailed).

Table 3 illustrates the statistical correlations of sample groups between the demographic variables and the outcome of the application study of oral cryotherapy within the World Health Organization Scale of Mucositis at P .value ≤ 0.05 . There were no significant correlations between the result of the application study for the study sample with all demographic variables at a p .value level (0.05), except the age of the study sample after application of cryotherapy after 7 days at a p .value level (0.222*) also world health organization scale of mucositis and after 14 days (0.459**) and after 21 days (0.498**) at * Correlation is significant at the 0.05 level, ** Correlation is significant at the level 0.01 (2-tailed). When analyzing by Person Correlation.

DISCUSSION

Table (1) in the study reveals the age of 40 participants who completed the study, revealing that the majority of the study sample had the age (18 – 28) years accounted (45.5%). Researcher Silaban^[9] stated that most participants were 40 years or above. More than half of the participant's study sample were female, according to the study's findings. The study conducted in Germany by Leppla^[10] found that 2/3 of the study sample was female.

Consistent with the WHO Mucositis scale in the study group before the application of cryotherapy OM was grade 0 (00.0), grade 1 (17.5%), grade 2 (35.0%), grade 3 (7.5%), and grade 4 (40.0%). After the application of cryotherapy, OM was (62.5%) grade 0 and (37.5%) grade 1 after 7 days & changed to (82.5%) grade 0 and (17.5%) grade 1 at 14 days & changed to

(95.0%) grade 0 and (5.0%) grade 1. Researcher Soliman^[11] discovers that the test group had no fourth-grade mucositis according to WHO Mucositis grades. On days 7, 14, and 21st days, this analysis showed a statistically significant difference between the frequency and magnitude of OM between the study sample at $p < 0.001$.

Table(3) There were no significant correlations between the result of the application study for the study sample with all demographic variables at a p .value level (0.05), except the age of the study sample after the application of cryotherapy. The reason for this can be due to physiological changes caused by age, such as changes in the surface of capillaries and their permeability, as well as the rate of exchange. Researcher Soliman^[11] discovers that the study's findings demonstrated that there were no statistically significant changes in the sociodemographic data, including age, sex, marital status, level of education, length of illness, and occupation, with the result after the application of cryotherapy.

CONCLUSIONS

The study concludes there were no significant correlations between the result of the application of cryotherapy for the study sample with all demographic variables.

RECOMMENDATIONS

The researchers recommend that cryotherapy should be applied to the study sample for all patients who are subjected to chemotherapy, especially in the first days

LIST OF REFERENCES

1. Al-Jubouri, M.B., Isam, S.R., Hussein, S.M., & Machuca Contreras, F. Recitation of Quran and music to reduce chemotherapy-induced anxiety among adult patients with cancer: A clinical trial. Wiley. 2021. 8,1606–1614.
2. Tamer, S.I., & Abed, R.I. The effectiveness of the self-care program for women with breast cancer to improve self-efficacy at the Oncology Teaching Hospital in Baghdad. Iraqi National Journal of Nursing Specialties. 2019. 1(33)
3. Fadhil, I.A., & Hassan, H.B. Evaluation of Nurses' Practices toward Safe Intravenous Chemotherapy Infusion in Baghdad City Hospitals. Iraqi National Journal of Nursing Specialties. 2018. 31(2), 43–56.
4. Elshamy, N., Amer, W., Mostafa, M. Efficacy of selenium in the prevention of radiotherapy induced oral mucositis : a randomized clinical trial. Alexandria Dental Journal. 2021. 46 (3), 15–20. DOI: 10.21608/adjalexu.2020.34254.1078
5. Majeed, H.M. & Atiyah, H.H. Assessment of Employees' Knowledge Concerning Contributing Factors and Early Detection for Prostate Cancer in Baghdad University Colleges in Bab-Almudam. Indian Journal of Forensic Medicine & Toxicology. 2021. 15(1).
6. Hadi, B.A. Effects of Low level laser therapy (LLLT) on experimentally induced oral mucositis clinical & immunohistochemistry study [Masters thesis, University of Baghdad]. Google Scholar. 2017. <https://codental.uobaghdad.edu.iq/wp-content/uploads/sites/14/2021/02/effects-of-low-level-laser.pdf>
7. Al-Taie, A., Al-Shohani, A., Albasry, Z., & Altaee, A. Current topical trends and novel therapeutic approaches and delivery systems for oral mucositis management. Journal of Pharmacy And Bioallied Sciences. 2020. 12(2), 94–101. doi: 10.4103/jpbs.JPBS_198_19
8. Riley, P., Glenny, A., Worthington, H., Littlewood, A., Clarkson, J., & McCabe, M. Interventions for preventing oral mucositis in patients with cancer receiving treatment: oral cryotherapy. Cochrane Database of Systematic Reviews. 2015. (12), DOI: 10.1002/14651858.CD011552.pub2
9. Silaban, N.Y., Nasution, S.S., & Siregar, C.T. (2020). The Influence of Oral Cryotherapy on Prevention from Mucositis in Cancer Patients under Chemotherapy in RSUP H. Adam Malik, Medan. Indian Journal of Public Health Research & Development. 2020. 11(6)
10. Leppla, L., Geest, S., Fierz, K., Deschler-Baier, B., & Koller, A. An oral care selfmanagement support protocol (OrCaSS) to reduce oral mucositis in hospitalized patients with acute myeloid leukemia and allogeneic hematopoietic stem cell transplantation: a randomized controlled pilot study. Support Care Cancer. 2016. 24, 773–782.
11. Soliman, H. The effect of cryotherapy on chemotherapy induced oral mucositis in Egyptian cancer patients. Journal of Nursing Education and Practice. 2019. 9(11) DOI: 10.5430/jnep.v9n11p63
12. Bzeizez, R. K., & AL-Fayyadh, S. The lived experience of women impacted by cervical cancer. International Journal of Health Sciences. 2022. 6(S6), 5178–5192. <https://doi.org/10.53730/ijhs.v6nS6.11705>
13. Abid, J.M., & Mohammed, W.K. Effectiveness of an Instructional Program on Patients' Knowledge about Home Safety While Receiving Anti -Cancer Medications at Al-Karama Teaching Hospital in Al-Kut City. Iraqi National Journal of Nursing Specialties. 2021. 34(2).
14. Kadhim, A.J. & Khudur, K.M. Evaluation of Nurses' Intervention toward Oral Hygiene in Critical Care Unit Patient at Baghdad City. Drugs and Cell Therapies in Haematology. 2021. 10(3).
15. Naeem, A., Hassan, H.S., & Al-Auqbi, T.F. Effectiveness of Healthy Nutritional Educational Program on Clinical Outcomes for Non-Hodgkin Lymphoma Patients at Baghdad Teaching Hospital. International Journal of Science and Research. 2016.
16. Khudur, K.M. Physical Problems of Radiation Therapy for Patients with Prostate Cancer in Al Amal National Hospital for Cancer Management. Asian Academic Research Journal of Multidisciplinary. 2016. 3(9), 165–172.
17. Mohammed, A.K. & Hatab, K.M. Quality of Life of Children age from (8-less than 13) years with Acute Lymphocytic Leukemia Undergoing Chemotherapy. Iraqi National Journal of Nursing Specialties. 2022. 35(1).