

Chemotherapy-Induced Oral Mucositis, Symptom Experience, Nutritional Status, and Depression in Patients with Acute Leukemia

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INTRODUCTION

Acute leukemia is a type of malignant hematologic cancer that is typically treated in four stages of chemotherapy, with an average hospital stay of four to six weeks. Intensive chemotherapy is the preferred treatment to achieve remission and extend survival. Patients with acute leukemia receive aggressive inpatient induction chemotherapy for one week and then remain hospitalized for symptom management, such as oral mucositis, nutritional status, and depression.

OBJECTIVE

The purpose of this study was to examine the changes on chemotherapy induced oral mucositis, symptom experiences, nutritional status, and depression in adults with acute leukemia during initial hospitalization.

METHODS

This is a prospective and descriptive survey study that includes measures of the WHO Oral Mucositis Grading Scale, MD Anderson Symptom Inventory (MDASI)-AML/MDS, Patient Generated Subjective Global Assessment (PG-SGA®), and Center for Epidemiologic Studies Depression Scale Revised (CESD-R10). The subjects were recruited from September 25, 2019, to June 25, 2020, and 123 adults undergoing chemotherapy at Saint Mary's Hospital in Korea completed assessments during their hospitalizations. The SPSS statistical program was used to perform descriptive statistics, paired t-tests, ANOVA, Wilcoxon signed-rank tests, post hoc tests, and regression.

RESULTS

On the 10th day after completing chemotherapy, the most prevalent eating-related issue reported by the subjects was 'I have difficulties with eating,' with 105 subjects (85.4%) experiencing this problem. This was followed by 'I have pain in areas other than my mouth,' reported by 104 subjects (84.6%), 'I have no appetite and lack the desire to eat,' reported by 94 subjects (76.4%), and 'I have mouth pain,' reported by 80 subjects (65%). Among the 14 questions asked, more than half of the subjects answered these four questions.

According to the PG-SGA, there was a statistically significant increase from 7.40 (± 5.38) before the start of chemotherapy to 18.59 (± 7.35) on day 10 after the end of chemotherapy ($t = -16.50$, $p < 0.001$). The prevalence of severe malnutrition, as indicated by a PG-SGA score of 9 or higher, which requires active nutritional intervention, was very high at 110 (89.4%) by day 10 after the completion of chemotherapy.

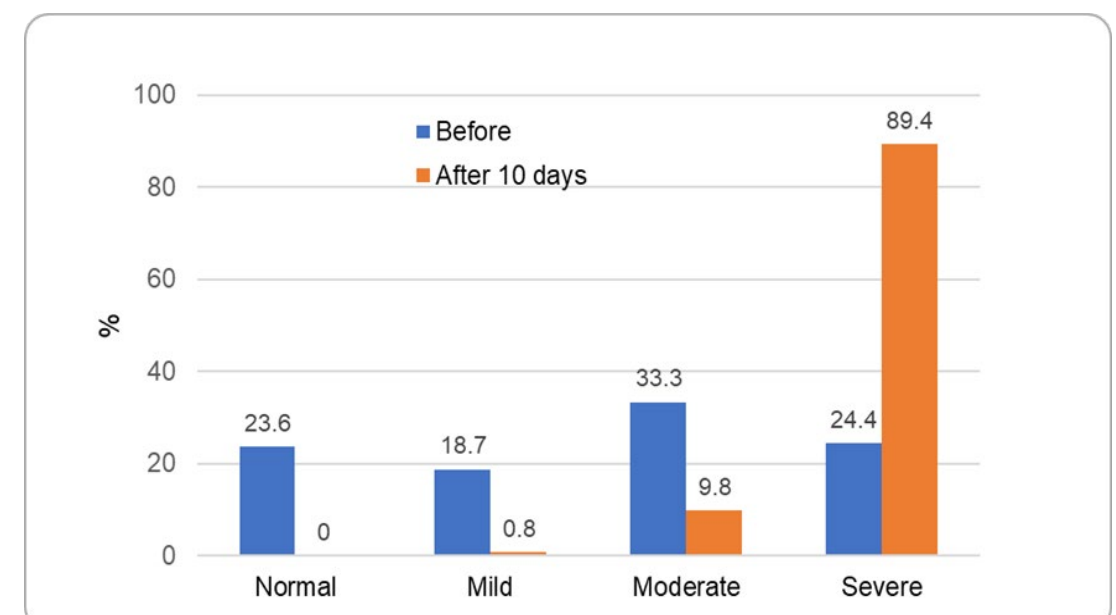


Figure. The PG-SGA status between before and after 10 days of chemotherapy

In hierarchical regression analysis, gender, age and stage of treatment included in the first model. In Model 2, after adjusting for gender, age, and stage of treatment, reinduction stage was still significant association with depression. Symptom severity revealed the strongest determinant of depression ($\beta = 1.15$, $p < .001$). Muscle weakness ($\beta = .21$, $p = .015$) was also an independent predictor and followed skin problem ($\beta = .20$, $p = .002$). The overall explanatory power of Model 2 was 64% of the variance in the depression scores.

Table. Factors affecting depression after chemotherapy (N=123)

Variables	Beta	SD	t	P
Gender	.04	.37	.10	.91
Age	-.58	.39	-1.49	.13
Induction (vs. Consolidation)	.46	.41	1.13	.26
Re-induction (vs. Consolidation)	1.27	.54	2.32	.02
Symptom severity	1.15	.20	5.56	<.001
Discomfort	.06	.11	.56	.58
Diarrhea	-.02	.05	-.37	.70
Muscle weakness	.21	.89	2.46	.01
Skin problem	.20	.06	3.20	<.01
PG-SGA	-.04	.04	-.93	.35
$F_{(11, 122)} = 20.71$, $p < .001$; $R^2 = .820^b$, Adjusted $R^2 = .640$				

CONCLUSIONS

This study evaluated the frequency of OM and other oral complications in individuals receiving outpatient chemotherapy. We found that half of all patients undergoing outpatient chemotherapy had OM. A multidisciplinary approach is necessary to promote both nutritional and emotional support for patients with acute leukemia. Effective nursing interventions should be developed through active review and research. We propose conducting a follow-up study to design an educational program that can be implemented during the initial hospitalization after a diagnosis of acute leukemia.

References

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