

Impact of Different Types of Oral Care on Oral Mucositis and Quality of Life for Head and Neck Cancer Patients during Radiotherapy

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Introduction

Oral cavity is the major location that exhibits the toxic effects of radiotherapy (RT) and chemotherapy for head and neck (H&N) cancer patients. Oral mucositis (OM) is one of the most common complications among these patients. Severe OM can lead to secondary complications (ie. loss of body weight) and delay the planned treatment protocols.

Literature shows that oral care or used honey as agent can reduce the incidence of OM. What will happen if we combine these two strategies as a protocol for oral care? Therefore, we conducted this clinical trial to find the impact of combination.

Objectives

This longitudinal study was to examine the impact of different types of oral care on grades of radiation-induced OM, body weight, and quality of life (QOL) for the H&N cancer patients during RT.

The learner will be able to:

1. Oral care is extremely important during RT.
2. Discuss the management of the oral mucositis during RT.

Patients and methods

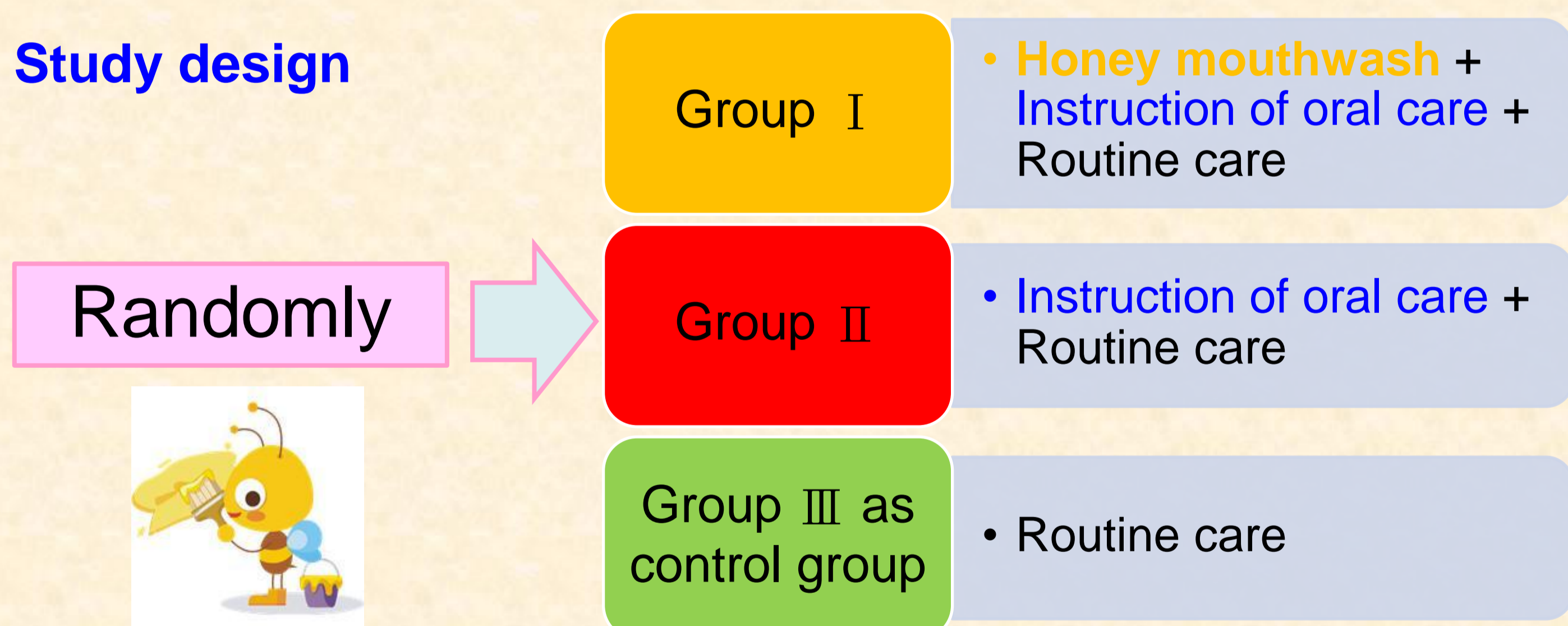
Sample

Patients were recruited from a medical center, Taiwan during May 2012 and August 2013. A total of 97 H&N cancer patients undergoing RT were contacted and 94 subjects completed the whole study protocol.

Recruit : Diagnosed with H&N cancer, plan to receive RT with least doses of 6000cGy as part of their treatment protocol, and older than 20 years.

Exclude : Diagnosed as DM with HbA1C >7% within 3 months, Karnofsky Performance Scale < 60, or suffering from grade 4 OM.

Study design



- **Honey mouthwash** : Swish 20 cc nature and undiluted honey in mouth for 2 minutes and then swallowed it prior to RT, at 15 minutes and 6 hours after RT respectively.
- **Instruction of oral care** : Gargles mouth wash and brush 2-4 time a day, and daily record it.
- **Routine care** : Hospital routine care, no ad hoc request to increase the mouth care.

Measurements	RT dose (Gy)		Pre-test (T0)		Post-test 1 (T1)		Post-test 2 (T2)
	0	10	20	30	40	50	60Gy↑
Patient demographic data	◆						
Chinese version of EORTC QLQ-C30 and EORTC QLQ-H&N35	◆				◆		◆
Oral mucosa	◆	◆	◆	◆	◆	◆	◆
Body weight	◆	◆	◆	◆	◆	◆	◆

Results

The results showed that these three groups were homogeneous in their demographic variables and disease-related variables prior to RT.

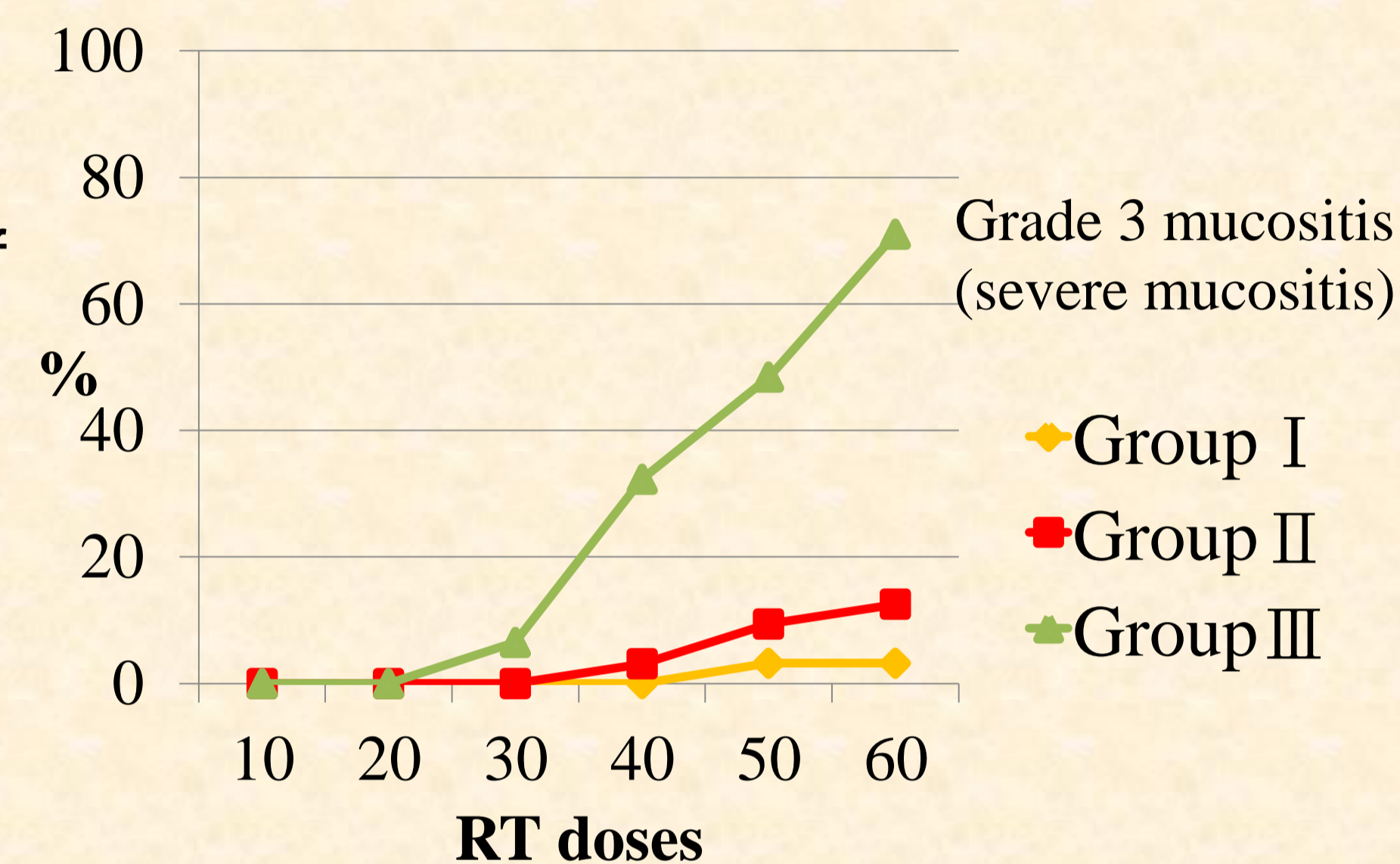
Mucositis (Primary Outcome)

The first onset of grade 1 mucositis was significantly different among these three groups by Log-Rank test survival analysis.

Group	M±SD	95% confidence interval		F	p value	Post Hoc Bonferroni analysis
		lower	upper			
I	11.48±0.44	10.63	12.34	8.29	<.001	Group I >Control group ; Group II >Control group
II	10.75±0.46	9.86	11.64			
III	9.23±0.27	8.69	9.76			

In regard to the ratio for occurrence of oral mucositis at each point of assessment, group I and II had a trend of lower ratio than the group III at the 3th, 4th, and 6th assessment.

None of the patients developed grade 4 OM. However, when the dose of RT cumulated > 40 Gy, the ratio of grade 3 mucositis was significantly lower in group I and II when compared with group III ($\chi^2= 19.06\sim 40.98$, $p<.001$).



Body Weight (Secondary Outcome)

The comparisons of weekly changes in BW showed that group I and II had less changes than group III ($\chi^2= 15.88\sim 9.00$, $p<.001$).

Quality of Life (Secondary Outcome)

The study found that, for all patients, the overall QOL were significantly decreased along with the cumulated doses of radiation (Wald $\chi^2= 44.99$, $p <.001$).

After adjusting the group, time and interaction effects, results of GEE for EORTC QOL-C30 and QOL-H&N35 were showed in table below.

Independent variables	EORTC QOL-C30						EORTC QOL-H&N35					
	physical functioning		role functioning		appetite		speech problems		sociability eating		Social contact	
	β	p value	β	p value	β	p value	β	p value	β	p value	β	p value
At RT 40 Gy												
Group I vs T1	4.30	0.26	6.44	0.26	2.14	0.76	2.52	0.61	-5.38	0.25	-2.81	0.48
Group II vs T1	1.44	0.75	6.13	0.35	-17.59	0.02	-3.88	0.44	-12.39	0.03	-6.36	0.13
At the end of RT												
Group I vs T2	11.61	0.01	9.67	0.14	-2.16	0.78	-7.89	0.16	-10.22	0.06	-5.39	0.31
Group II vs T2	9.49	0.04	14.18	0.04	-21.95	0.01	-14.94	0.01	-13.16	0.04	-12.76	0.02

At RT 40 Gy, the symptom scales of "appetite (Wald $\chi^2= 5.47$)" and "sociability eating (Wald $\chi^2= 4.74$)" were significantly less problems in group II when compared with group III.

At the end of RT, the functional scales of "physical functioning (Wald $\chi^2= 7.23$; Wald $\chi^2= 4.43$)" in group I and II were significantly better than in group III. In addition, the functional scales of "role functioning (Wald $\chi^2= 4.28$)" in group II was significantly better than in group III.

In group II, there were less problems of "appetite (Wald $\chi^2= 6.38$)", "speech problems (Wald $\chi^2= 7.13$)", "sociability eating (Wald $\chi^2= 4.28$)", and "social contact (Wald $\chi^2= 5.68$)" than in group III at the end of RT.

Conclusion

This study showed that, when compared with the control group, patients in both experimental groups reported less occurrence and late onset of first mucositis, less severe OM, less weekly BW changes, and even better QOL during research period. Therefore, the application of "honey mouthwash plus instruction of oral care" or "instruction of oral care alone" were strongly suggested in clinical practice.