DRY MOUTH, PAIN, AND SLEEP DISTURBANCE IN NASOPHARYNGEAL CARCINOMA (NPC) SURVIVORS IN TAIWAN

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INTRODUCTION

Nasopharyngeal carcinoma (NPC) is a highly radiosensitive cancer with relatively good prognosis with 5-year survival rate as 67.1% to 81.6%. However, due to the long-term side-effects of radiotherapy (RT), NPC survivors might suffer from physical distress.

OBJECTIVES

This study aims to explore the current status of dry mouth, pain and sleep disturbance and their relationship in NPC survivors in Taiwan.

METHOD

A cross-sectional study was conducted to recruit NPC patients who had completed concurrent chemo-radiotherapy (CCRT) or RT more than 3 months in a medical center in Northern Taiwan. The Xerostomia Questionnaire (XQ), Brief Pain Inventory (BPI), Medical Outcome Study-Sleep Scale (MOS-SS), and Background Information Form were used to assess patients’ distress.

RESULTS

- There were 113 patients recruited.
- The results showed that patients’ sleep hour per day was 7.0 hours (SD=1.7) with major sleep problem as sleep adequacy, snoring, and sleep disturbance.
 - The total score on XQ was 42.7 (SD=16.2) with the highest problems as frequency of sipping liquids to aid in swallowing food and swallowing difficulty.
 - More than one-fourth of patients (26.5%) reported to have pain.
 - Overall, patients with more severe dry mouth and pain intensity reported to have more sleep problems, with $r=.30$ and $r=.27$, respectively.

CONCLUSION

Dry mouth, pain and sleep disturbance are three major problems for NPC survivors. Clinically, careful assessment and related interventions should be applied to increase patients’ care quality.

Table 1. Background Information (N=113)

Variable	Mean (SD)	
Age (year)	50.2	(11.4)
Education (year)	12.1	(4.4)
Karnofsky Performance Scale (KPS)	87.3	(8.5)
Gender	N (%)	
Female	32	(28.3)
Male	81	(71.7)
Marital status		
Single/Divorced/Widowed	24	(21.2)
Married	89	(78.8)
Stage		
I	7	(6.2)
II	20	(17.7)
III	40	(35.4)
IV	46	(40.7)

Table 2. Mean Scores of XQ (N=113)

	Mean (SD)	Rank
Frequency of sipping liquids to aid swallowing food	6.9(2.6)	(1)
Difficulty you experience in swallowing food due to dryness	6.2(2.7)	(2)
Dryness your mouth feels when eating a meal	6.1(2.7)	(3)
Frequency of fluid intake required for oral comfort when not eating	5.7(2.6)	
Difficulty you experience in chewing food due to dryness	5.6(2.9)	
Difficulty you experience in speaking due to dryness of mouth and tongue	5.0(2.6)	
Dryness in your mouth while not eating or chewing	5.0(2.4)	
Frequency of sleeping problems due to dryness	2.3(2.5)	
Total score (0-80)	42.7(16.2)	

Table 3. Mean Scores of MOS-SS (N=86)

Sleep adequacy	67.4(23.0)	(1)
Snoring	27.4(27.6)	(2)
Sleep disturbance	27.2(25.7)	(3)
Day somnolence	24.3(19.6)	
Sleep problems	21.7(16.0)	
Awaken short of breath or headache	2.1(8.7)	
Quality of life (The average hours slept per night)	7.0(1.7)	

Note: Of the 113 patients recruited, 86 completed MOS-SS.

Table 4. Correlations among XQ, MOS-SS, and BPI.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Xerostomia	1.00													
(2) Frequency of sleeping problems (dry mouth)	.53 **	1.00												
(3) Sleep problems	.15	.30 **	1.00											
(4) Average hours slept/night	-.33 **	-.31 **	-.60 **	1.00										
(5) Sleep disturbance	.21	.29 **	.79 **	-.48 **	1.00									
(6) Snoring	.03	.08	-.02	-.03	-.02	1.00								
(7) Sleep adequacy	.04	.13	.72 **	-.36 **	.36 **	-.06	1.00							
(8) Day somnolence	.18	.24 *	.58 **	-.46 **	.37 **	.01	.29 **	1.00						
(9) Awaken short of breath or with a headache	.07	.37 **	.14	-.08	.09	.05	-.17	.07	1.00					
(10) Worst pain	.04	.03	.24 *	-.16	.17	-.02	.07	.24 *	.16	1.00				
(11) Least pain	-.08	-.08	.37 **	-.17	.18	.10	.30 **	.37 **	-.06	.43 **	1.00			
(12) Average pain	-.05	-.01	.18	-.09	.05	.06	.04	.22 *	.17	.66 **	.72 **	1.00		
(13) Current pain	-.01	-.02	.27 *	-.18	.16	-.06	.15	.21	.05	.63 **	.33 **	.38 **	1.00	
(14) Pain interference	.07	.11	.10	-.05	.07	-.10	-.07	.13	.15	.78 **	.13	.48 **	.39 **	1.00

Note: *p<.05, **<0.01. (1)-(2) were measured by XQ, (3)-(10) were measured by MOS-SS, and (13)-(15) were measured by BPI.

Each item on XQ and BPI was scored 0-10. (the higher the score, the worse the problems).

The MOS-SS was rated 1 (all of the time) -6 (none of the time) with subscales ranging from 0-100. (the higher the score, the worse the problems).