

Saliva Profile in Irradiated and Sjögren's Syndrome Patients

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INTRODUCTION

Radiotherapy is commonly used in the treatment of head and neck cancer. Sjögren's syndrome is an autoimmune disorder characterized by progressive lymphocytic infiltration of exocrine glands particularly the salivary and lacrimal glands. Both conditions induce xerostomia due to salivary gland damage and result in an increased risk of oral diseases like dental caries and persistent fungal infections. To our knowledge, no data are available comparing saliva profile between these two groups of xerostomic patients.

AIM

A cross-sectional study to compare the saliva profile of Sjögren's syndrome (SS) patients and Nasopharyngeal carcinoma (NPC) survivors who had received conventional radiotherapy.

MATERIALS AND METHODS

Subjects

- NPC survivors (disease-free for >1 year) recruited from the Department of Clinical Oncology, Queen Mary Hospital, Hong Kong
- SS patients (diagnosed for >1 year) recruited from the Department of Medicine, Queen Mary Hospital, Hong Kong
- Age and gender matched controls attending Prince Philip Dental Hospital for review

Saliva collection and analysis

- Stimulated whole saliva (SWS): chewing on a rubber ring for 5min
- Saliva volume, pH and buffer capacity were measured immediately using Sentron 501 Pocket FET pH meter (Sentron, WA, USA) and CRT® buffer (Vivadent, Liechtenstein) respectively.

Clinical examination

- Degree of xerostomia was assessed by rating the morphologic appearance of the tongue using a 4-point scale developed by Jansma et al (1992) (Figure 1).

Data analysis

- Kruskal-Wallis tests to compare continuous variables between groups
- Chi-square tests to compare the categorical variables between groups



Figure 1. "Dry and atrophic tongue of a NPC survivor".

RESULTS

A total of 149 subjects participated in this study (Table 1).

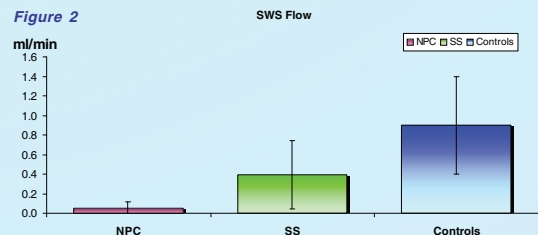
Table 1. Age and gender distribution, by group.

	NPC n=38	SS n=51	Controls n=60
Age (mean, SD)	50(11)	47(13)	47(11)
Gender (No., %)			
Male	27(71)	3 (6)	23(38)
Female	11(29)	48(94)	37(62)

Saliva profile

The results are shown in Figure 2-4.

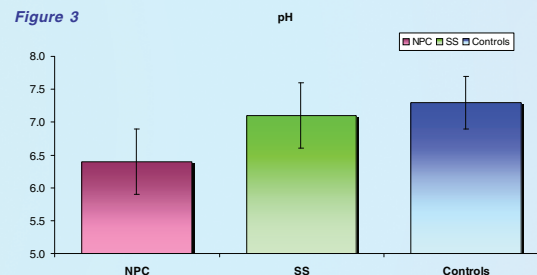
Figure 2



SWS flow

- Significant difference in SWS flow was found between 3 groups ($p < 0.01$).
- The SWS flow was least in NPC survivors and less in SS patients than controls ($p < 0.01$).

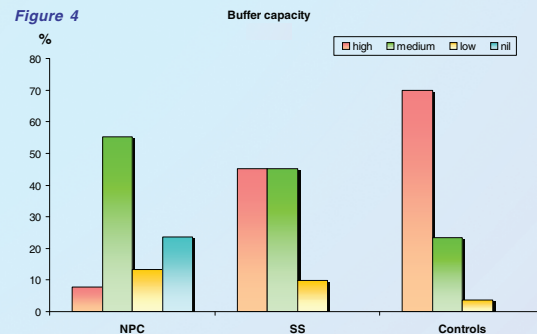
Figure 3



pH of SWS

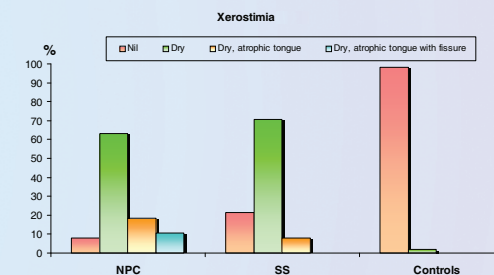
- Significant difference in pH was found between 3 groups ($p < 0.01$).
- The pH was least in NPC survivors and less in SS patients than controls ($p < 0.05$).

Figure 4



Buffer capacity of SWS

- Significant difference in buffer capacity was found between 3 groups ($p < 0.01$).
- Buffer capacity was less in NPC survivors than SS patients and both groups were compromised compared with controls ($p < 0.05$).



Clinical assessment of xerostomia

- Significant difference in xerostomia index was found between 3 groups ($p < 0.01$).
- Xerostomia was most severe in NPC survivors, less severe in SS patients, and least in controls ($p < 0.05$).

DISCUSSION

In both conditions saliva quality and quantity was impaired compared with controls. NPC survivors demonstrated a greater impairment than SS patients.

CONCLUSION

Radiotherapy for NPC seems to produce greater qualitative and quantitative damage to salivary glands than Sjögren's syndrome.

Jansma J, Vissink A, Spijkervet FKL et al. Protocol for the prevention and treatment of oral sequelae resulting from head and neck radiation therapy. Cancer 1992;70:2171-80.

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