Oral Health Status of southern Chinese Nasopharyngeal Carcinoma Survivors

EHN Pow*, AS McMillan, WK Leung,
MCM Wong, DLW Kwong, WK Ho

Oral Rehabilitation, Faculty of Dentistry
Clinical Oncology & Otorhinolaryngology, Faculty of Medicine

University of Hong Kong

Objective

- To assess the oral health status of the disease-free survivors of NPC after radiotherapy, using verified clinical examination techniques.

Materials and Methods

- Disease-free NPC survivors, no recurrence for >1 year post-radiotherapy
- Subjects recently diagnosed with NPC prior to treatment
- Patients previously attending the Prince Philip Dental Hospital, HK (control group)

Materials and Methods

- Stimulated whole saliva (volume, pH, buffering capacity)
- Mouth opening (incisal separation + overbite)
- Candidiasis, mucositis (Spijkervet et al, 1989), xerostomia (Jansma et al, 1992)
- Plaque, CPI, loss of attachment, teeth, prosthetic status and need (WHO, 1997)

Stimulated Whole Saliva

	Survivors	New NPCs	Controls
Volume (ml/min)	0.05(0.06)*	0.85(0.53)	0.92(0.53)
pH	6.4(0.5)*	7.2(0.5)	7.2(0.4)
Buffering Capacity			
High	7.9%*	67.5%	74.2%
Medium	55.3%*	27.5%	19.4%
Low	13.2%*	5.0%	6.5%
Nil	23.7%	0%	0%

Oral Examination

	Survivors	New NPCs	Controls
Mouth opening (mm)	39(9)*	48(10)	49(6)
Candidiasis	23.7%*	7.5%	0%
Mucositis	7.9%	0%	0%
Xerostomia index			
Nil	7.9%	90%	96.8%
Dry	63.2%	10%	3.2%
Dry, atrophic tongue	18.4%	0%	0%
Dry, atrophic tongue + fissure	10.5%	0%	0%

Dental Status

	Survivors	New NPCs	Controls
No. of teeth	20.1(6.5)*	26.1(7.9)	26.0(4.3)
Caries free	39.5%*	60.0%	67.7%
DMFT	16.8(7.1)*	9.6(9.0)	11.9(7.1)
D	1.42(1.8)	0.83(1.4)	0.61(1.1)
M	12.0(6.5)*	6.1(7.9)	6.0(4.3)
F	3.6(3.2)	2.1(2.8)*	4.9(4.2)
DF root	2.3(2.9)*	0.9(1.8)	1.0(1.6)

Mean % of sites with plaque per subject

Survivors	New NPCs	Controls
45%	53%	54%

Highest CPI Score*

	Survivors	New NPCs	Controls
2 (calculus)	71.1%	50.0%	48.4%
3 (4-5mm)	21.1%	36.8%	32.3%
4 (6-8mm)	5.3%	7.9%	9.7%
5 (9-11mm)	2.6%	0%	6.5%
6 (/ 12mm)	0%	5.3%	3.2%

*Modified CPI (Lo et al)

Highest Loss of Attachment Score*

	Survivors	New NPCs	Controls
0 (0-3mm)	44.7%	39.5%	32.3%
1 (4-5mm)	34.2%	39.5%	35.5%
2 (6-8mm)	18.4%	15.8%	22.6%
3 (9-11mm)	2.6%	2.6%	6.5%
4 (/ 12mm)	0%	2.6%	3.2%

*Lo et al

Prosthetic Status

%	Survivors (U/L)	New NPCs (U/L)	Controls (U/L)
No prosthesis	81.6/89.5	82.5/87.5	77.4/90.3
Bridge	2.6/2.6	7.5/0.0	3.2/3.2
>1 bridge	0.0/0.0	2.5/0.0	0.0/0.0
RPD	5.3/7.9	5.0/7.5	19.4/6.5
Bridge + RPD	0.0/0.0	0.0/0.0	0.0/0.0
Complete denture	10.5/0.0	2.5/5.0	0.0/0.0

Prosthetic Need

%	Survivors (U/L)	New NPCs (U/L)	Controls (U/L)
No prosthesis needed	68.4/65.8	72.5/70.0	51.6/71.0
Prosthesis needed	31.6/34.3	27.5/30.0	48.4/29.0

Discussion

- Oral complications in the survivors were contributed by the radiotherapy treatment.
- More missing teeth was due to pre-radiation extractions and higher prevalence of root caries.
- Xerostomia seems to favour the growth of yeasts.
- Plaque score was not significantly great.
- Radiotherapy treatment had minimal effects on periodontal tissues
- Prosthetic treatment need was not great

Conclusion

- Damage of salivary glands following radiotherapy is the main complication in nasopharyngeal carcinoma patients. A pre- and post-irradiation dental program appears to minimize the risk of dental diseases.