Radiotherapy on the neck nodes predicts malnutrition in patients with early stage laryngeal cancer

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Rationale

- Malnutrition is a well-known problem during radiotherapy in patients with head and neck cancer
- Patients with early stage laryngeal cancer are thought to have few nutritional problems
- A substantial number of these patients do have severe weight loss at the end of radiotherapy (RT)

Objectives

- Evaluation of weight loss in patients with early stage laryngeal cancer before and during radiotherapy

- Selecting prognostic factors for early identification of patients in need of intensive nutritional support during radiotherapy

Patients

- T1 or T2 glottic, supraglottic or subglottic laryngeal cancer
- Age over 18 years
- Primary RT (without chemotherapy) for at least 4 weeks

Methods

Between 1999 and 2007, data were collected weekly during radiotherapy

- Weight
- Toxicity scores (RTOG/EORTC system):
  - mucositis
  - xerostomia
  - dysphagia
- General characteristics
- Treatment schedule
- QOL scores

Statistical analyses

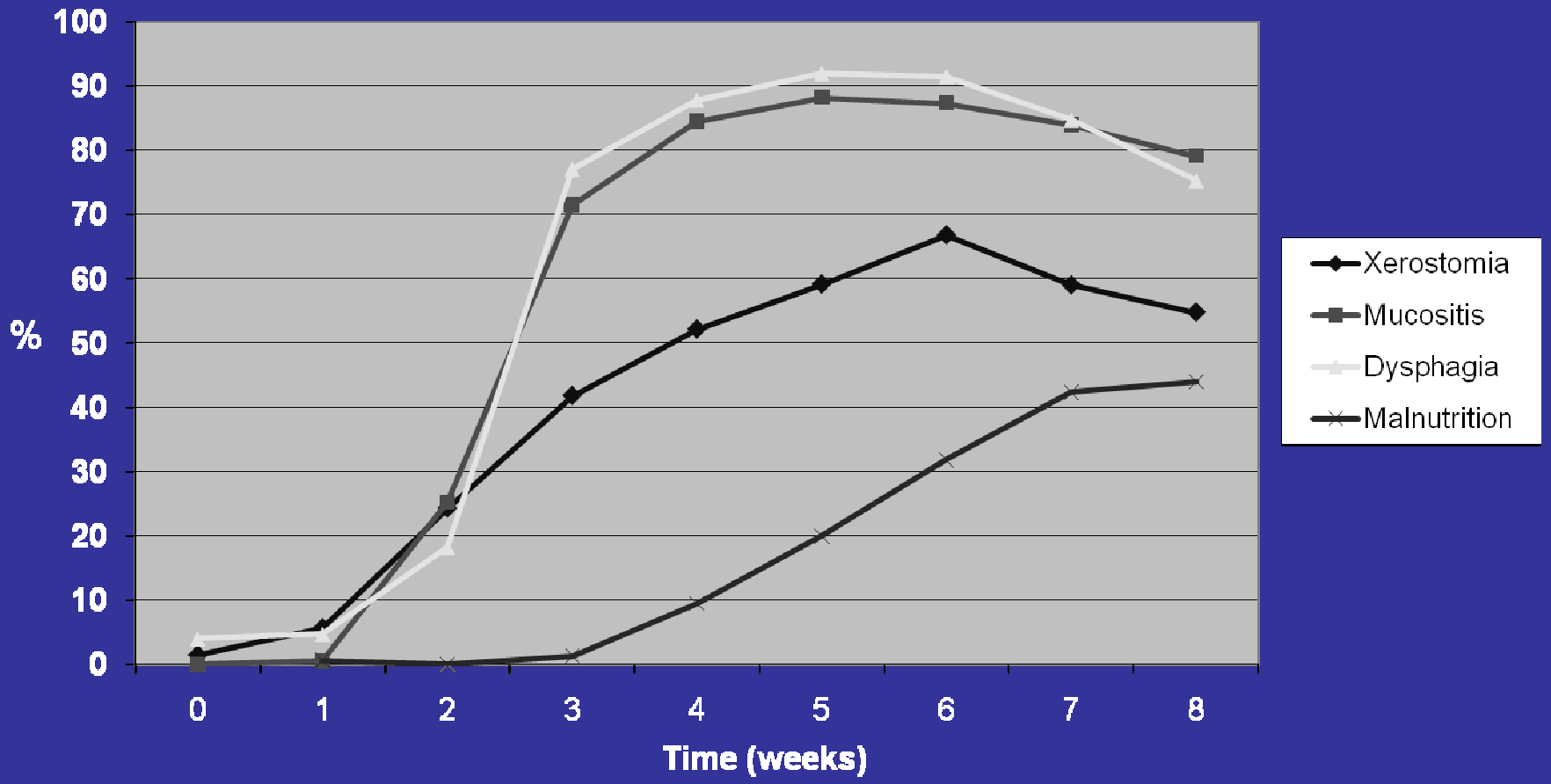
- Malnutrition was defined as ≥ 5% weight loss during radiotherapy

- Association between prognostic variables and malnutrition was analyzed by Cox proportional hazard regression analysis ($p<0.05$)

Patient characteristics

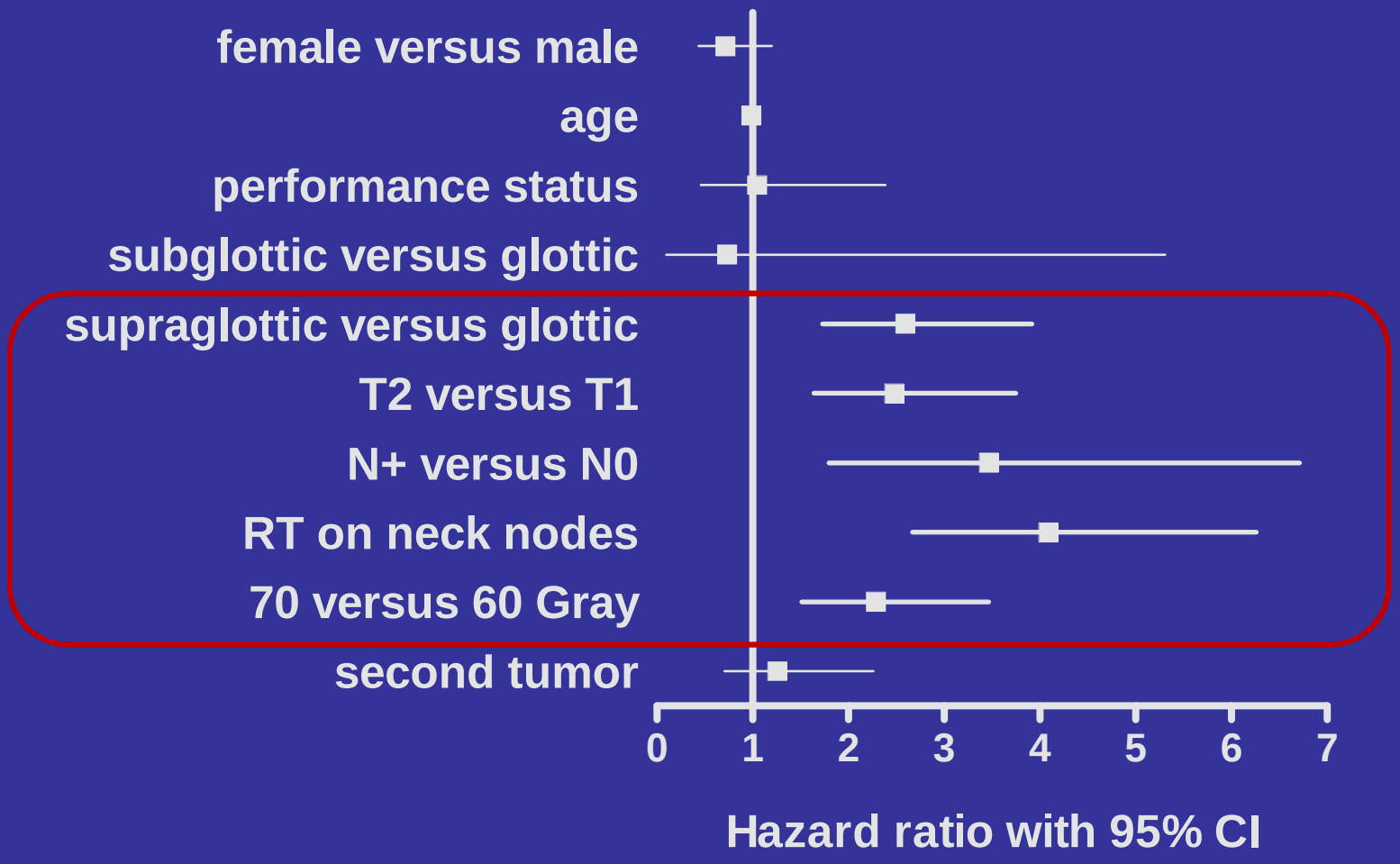
Characteristics		n	(%)
Sex	Male	207	(87)
	Female	31	(13)
Age, year (mean ± SD)		66 ± 11	
Tumor location	Laryngeal, Glottic	187	(79)
	Laryngeal, Supraglottic	48	(20)
	Laryngeal, Subglottic	3	(1)
T staging	T1	112	(47)
	T2	126	(53)
N staging	N0	226	(95)
	N1 or N2	11	(5)

Toxicity and malnutrition during RT

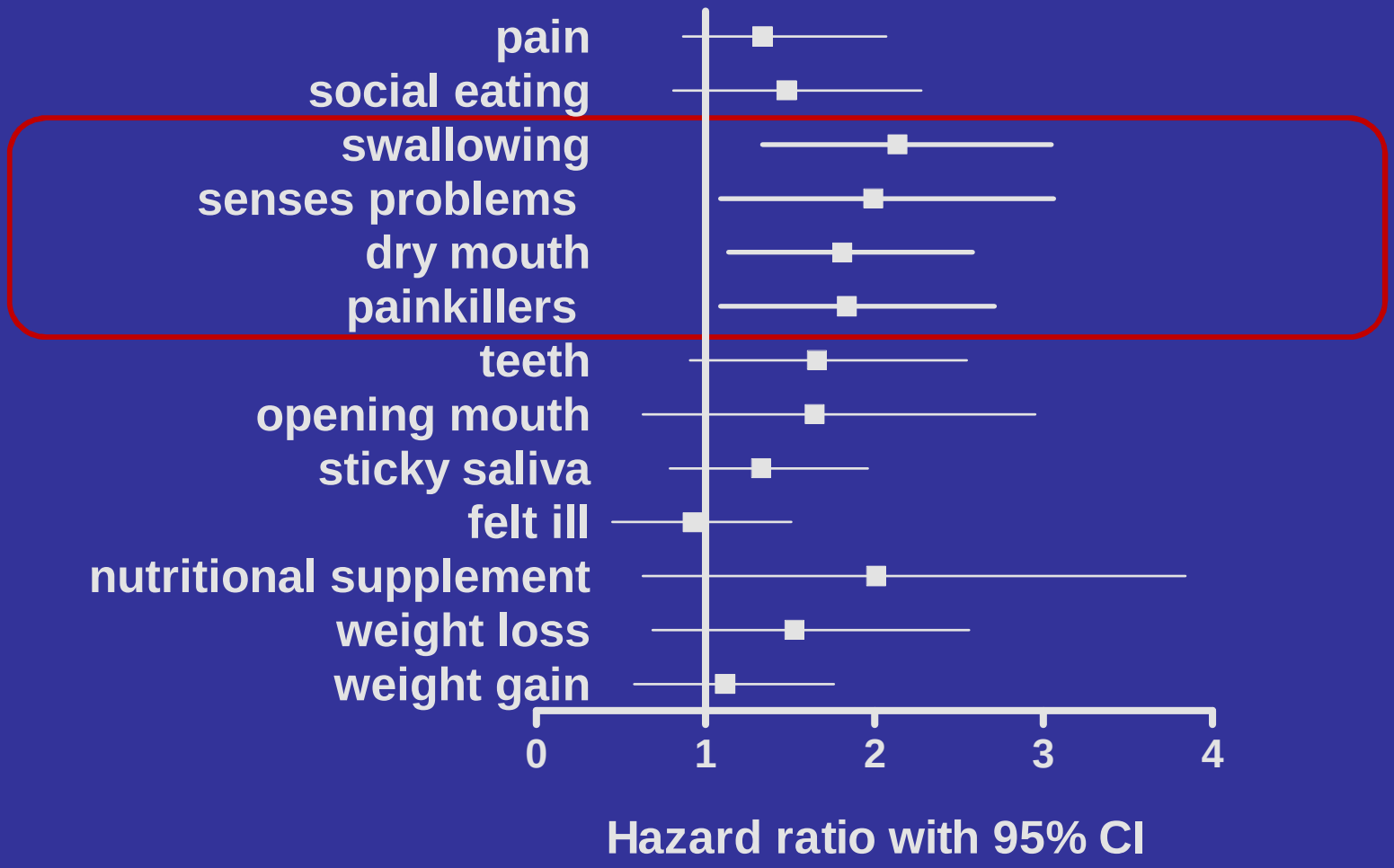


Percentage of occurrence of xerostomia, mucositis, dysphagia and malnutrition during radiotherapy

Prognostic variables for malnutrition



Prognostic variables for malnutrition



Multivariate model at baseline

	Variables		***HR***	***95% CI***	***P***
1	RT on neck nodes	Yes versus No	4.14	2.61 to 6.57	<.001
2	RT on neck nodes Dry mouth H&N-35	Yes versus No Yes versus No	4.16 1.72	2.62 to 6.60 1.14 to 2.60	<.001 .01

Diagnostic accuracy for malnutrition

Diagnostic accuracy (%) of the predictive variables for malnutrition

	RT neck nodes (1)	RT neck nodes & dry mouth (2)
Sensitivity	72	83
Specificity	73	48
Positive predictive value	70	62
Negative predictive value	75	74

Conclusion

- Almost half of patients (44%) with early stage laryngeal cancer are at risk of malnutrition during radiotherapy
- RT on the neck nodes predicts malnutrition in patients with early stage laryngeal cancer
- Offer nutritional support to all T1 and T2 laryngeal cancer patients who receive nodal irradiation

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