

Effect of Frailty on Outcomes in Early-Stage HPV+ Oropharyngeal Squamous Cell Carcinoma

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BACKGROUND

Patients and providers often have perceptions that certain patients are too frail to receive surgery compared to radiation.

This study evaluated how accumulated health deficits affect survival and functional outcomes in patients with HPV-positive OPSCC treated with surgery or definitive XRT/CRT.

Hypothesis

Frailty and prefrailty negatively affect patient outcomes, but frail patients do equally well with surgery or radiotherapy. Frailty may also negatively affect swallowing and speech recovery following treatment.

METHODS

- Retrospective case series at a single institution (2019–2024)
- All patients receiving initial treatment for OPSCC were reviewed.
- Excluded: stage III+, follow-up <4 months, p16-negative tumors, and induction chemotherapy.
- Final analytic cohort: 204 patients
- Clinical data included demographics, disease course, treatment, dysphagia, dysphonia, xerostomia, and medical history
- Frailty was tabulated using the VA Frailty Index

CONCLUSION

Despite conceptions that certain patients are too frail for surgery, pre-frail and frail patients experienced similar survival outcomes with both surgery alone and definitive XRT/CRT, suggesting both are viable options for this population.

Frailty may also identify patients who may benefit from early speech and swallow interventions due to increased association with dysphonia.

RESULTS

FIGURE 1: Overall survival by frailty status (Kaplan–Meier)

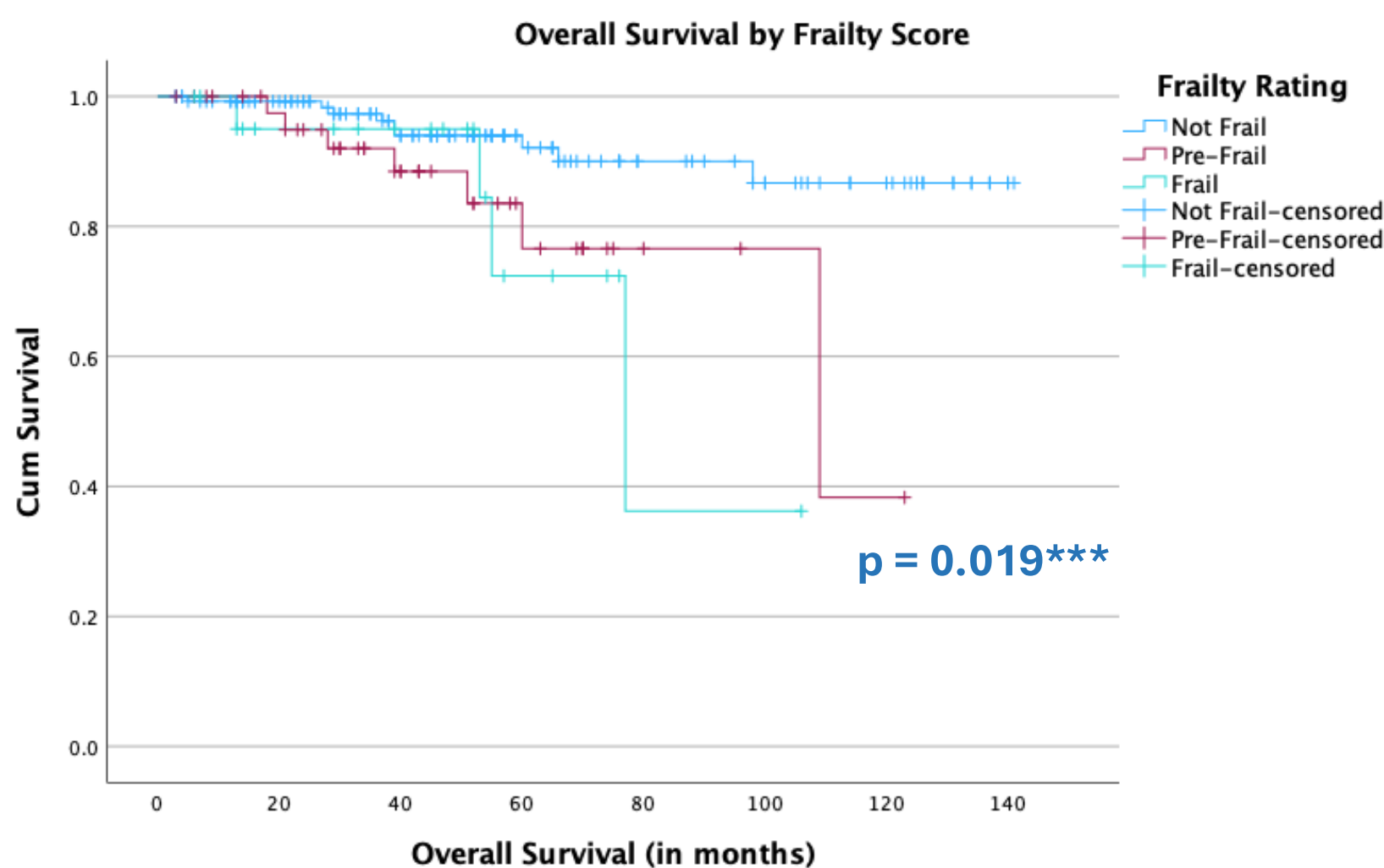


TABLE 1: Cohort Demographics

Characteristic	Percentage (n)
Age	62.98±9.27
Gender	
Male	90.2% (181)
Female	9.8% (23)
Treatment Modality	
Surgery	60.0% (123)
Radiation	87.3% (179)
Systemic Therapy	62.0% (127)
Stage	
I	66.8% (137)
II	32.7% (67)
T	
1	37.6% (77)
2	50.2% (103)
3	43.5% (27)
N	
0	11.7% (24)
1	62.9% (129)
2	24.9% (51)
LVI	11.2% (23)
PNI	7.3% (15)
ENE	21.0% (43)

FIGURE 2: Overall Survival by Treatment Modality in Frail and Prefrail Patients

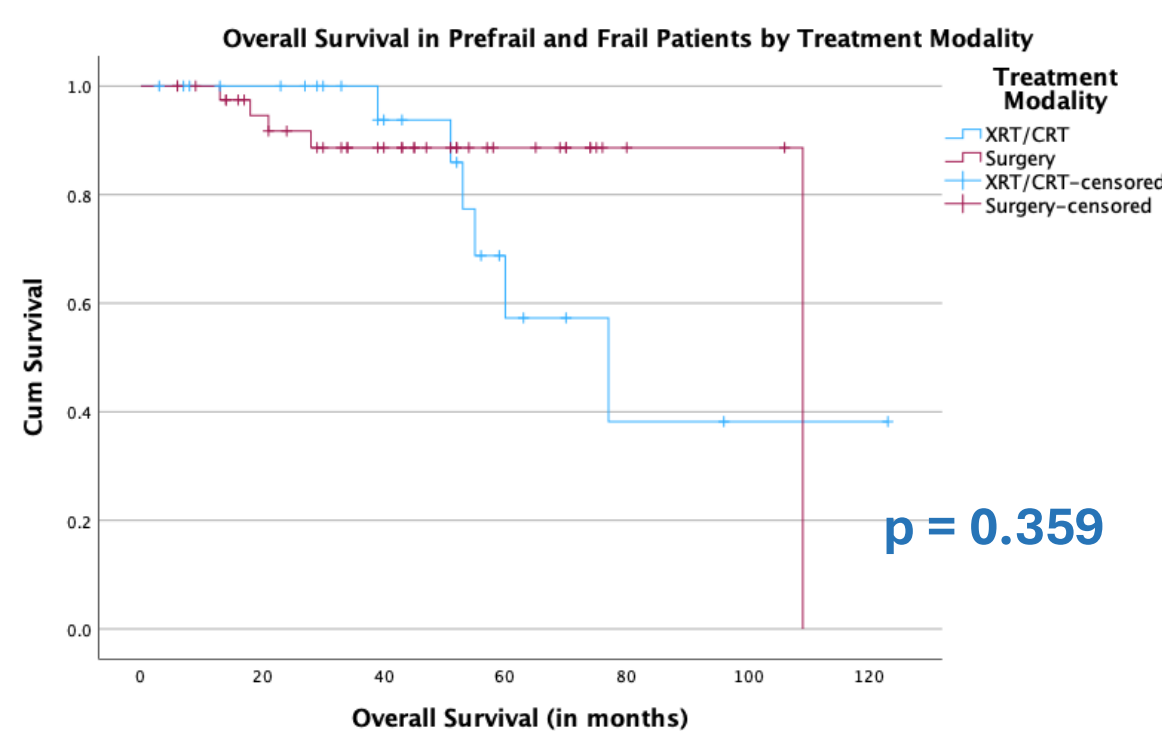


TABLE 2: Functional Outcomes by Frailty Status

Outcome	Association with Frail or Prefrail Status (p-value)	Association with Frail Status (p-value)
Dysphonia	0.001***	0.899
Dysphagia	0.303	0.093
Xerostomia	0.181	0.628
Trach Dependence	0.302	0.855
G Tube Dependence	0.112	0.261

KEY FINDINGS

- Frailty significantly reduced overall survival in a step-wise fashion (p = 0.017).
- Median survival: 77 months in frail patients; 109 months in pre-frail patients; not reached in healthy patients.
- Frailty scores had no effect on locoregional or distant recurrence.
- **Frail and pre-frail patients had equivalent outcomes with surgery and definitive XRT/CRT.**
- **Surgery was less associated with xerostomia (p = 0.047).**
- **No differences in speech or swallowing outcomes** were seen between surgery and radiation in frail or pre-frail patients.
- Greater frailty scores were associated with post-treatment dysphonia (p = 0.001).

CLINICAL IMPLICATIONS

- Frailty should not automatically preclude surgery.
- Both surgery and definitive XRT/CRT were viable treatment approaches in frail and pre-frail patients.
- Frailty may help identify patients who could benefit from early speech and swallow support.