

The Impact of Rurality on the Incidence of Rare Thyroid Cancers and its Effects on Disease-Specific Outcomes

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Introduction

The incidence of thyroid cancer has been on the rise. Anaplastic thyroid cancer (ATC) and poorly differentiated thyroid cancer (PDTC) are both rare and highly challenging tumor types with generally poor prognoses. However, there is limited data regarding the differences in incidence in rural and metropolitan areas and its effect on the disease-specific outcomes.

Objectives

- To examine the role of rurality in the incidence of ATC and/or PDTC.
- To examine the influence of rurality on disease-specific outcomes.

Methods

An observational study on ATC and PDTC patients using Surveillance Epidemiology and End Results data (2000-2020). Age-adjusted incidence rates and ratios for the rurality were compared for rural and urban areas. Overall disease-specific survival was compared across the groups.

Results

Table 1. Age-adjusted rate ratio's

	No. of metropolitan patients	No. of non-metropolitan patients	P-value
ATC	1,555	232	0.704
PDTC	2,082	234	0.036

Table 2. Effect of multimodal treatment on the survival

	Hazard ratio	Confidence interval	P-value
ATC metropolitan	0.382	0.338 – 0.431	<0.001
ATC non-metropolitan	0.426	0.317 – 0.573	<0.001
PDTC metropolitan	0.561	0.487 – 0.646	<0.001
PDTC non-metropolitan	0.450	0.297 – 0.683	<0.001

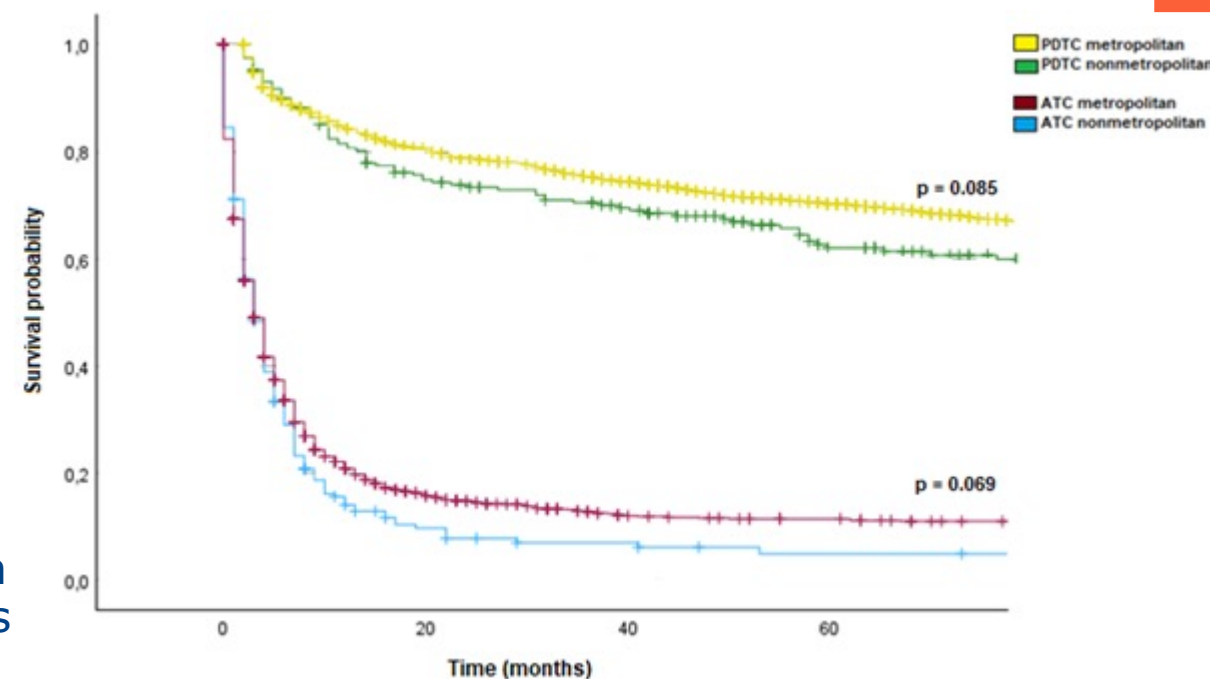


Fig 1. Kaplan Meier survival curve of ATC and PDTC metropolitan vs non-metropolitan patients

Conclusion

- A higher incidence of poorly differentiated thyroid cancer was noted in urban areas compared to rural areas.
- Overall survival was not different between urban and rural areas for both rare types of thyroid cancer.
- DSS improved significantly when patients were treated multimodally.