



Patterns of Care for Stage II Colon Cancer by Lymph Node Harvest in Kentucky

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Introduction

- 34 colon cancer cases/100,000 individuals in Kentucky.¹
- Certain factors affect treatment & overall survival.
- Stage based on depth of tumor invasion, lymph nodes (LN) involved, & metastasis.²
- Standard of care: harvest ≥ 12 LN at surgery.
- If LN positive, recommend adjuvant chemotherapy to reduce recurrence.
- <12 LN impact accurate staging & possible survival.
- Clinical conundrum: Should individuals with stage II colon cancer with <12 LN harvest receive chemotherapy?

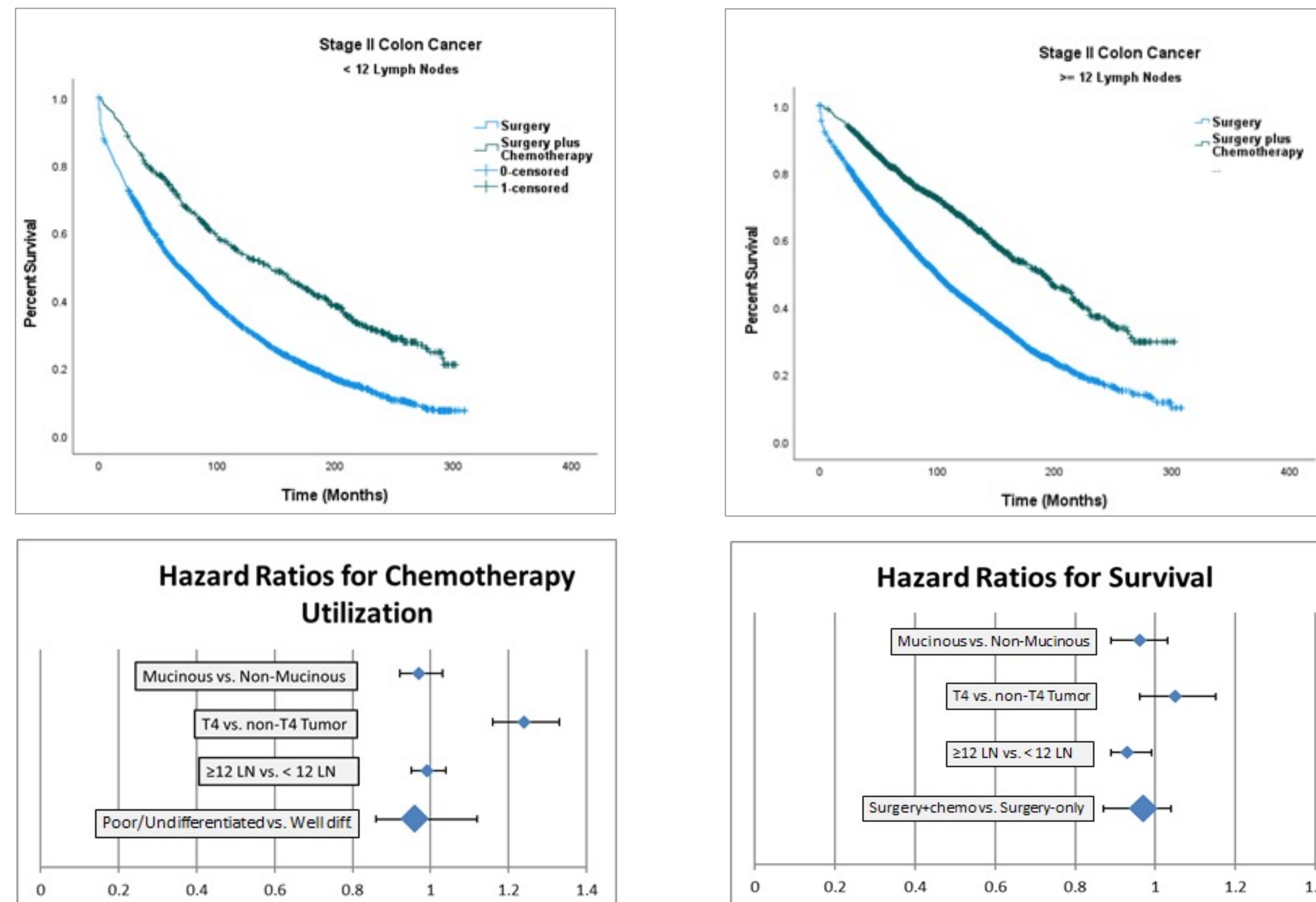
Objectives and Hypothesis

We hypothesize that guideline concordant lymph node harvest is **not** associated with chemotherapy utilization & overall survival.

Methods

- Kentucky Cancer Registry (KCR) used to identify all stage II colon cancer cases in Kentucky residents from 1995 – 2018.
- KCR is a premier cancer & population-based registry.
- Patient & tumor factors were analyzed.
- Univariate analyses performed using Chi-squared tests.
- Survival analyses performed using: Kaplan-Meier & Cox Proportional-Hazards models.
- Study was exempt by UofL IRB.

Results



Hazard models controlled for age, race, year of diagnosis, tumor grade, histology, T-status, lymph node harvest.

Results

- 9,856 total stage II cancer cases: 82% (n=8,056) surgery-only & 18% (n=1,800) surgery plus chemotherapy.
- Lymph node Harvest: 37% <12 LN & 63% ≥ 12 LN total.
- Increase ≥ 12 LN Harvest over time: 33% during period from 1995-1999 vs. 44% during 2015 – 2018, p-value <0.01 .
- Similar rates of chemotherapy utilization over the study period.
- Reduced rates of chemotherapy in the elderly population: Age 70-79 years 32% surgery-only vs. 22% surgery plus chemotherapy, p-value 0.01.
- Mucinous vs. non-mucinous cancers- similar rates of chemotherapy utilization 20% vs. 18%, p-value 0.08.
- Poorly/undifferentiated tumors: 14% surgery-only vs. 19% surgery plus chemotherapy, p-value <0.01 .
- T4 tumors: 8% surgery vs. 18% surgery plus chemotherapy, p-value <0.01 .

Conclusions

- Low rates of recommended LN harvest with mild improvements over time.
- Age & T4-status were the only independent predictors of chemotherapy utilization.
- Improved survival with chemotherapy on univariate analysis, however, other factors nullified survival benefit on multivariate analysis.
- Limitations: other high-risk factors not included: margin status, tumor budding, perforation, obstruction, perineural invasion (PNI), high microsatellite instability (MSI-H), and lymphovascular invasion (LVI).

Significance and Future Directions

- LN harvest will continue to be tracked as marker of quality; however, other factors may affect the decision to utilize chemotherapy for stage II colon cancer.
- Analyze database with other high-risk factors.
- Evaluate the role of geographic location with chemotherapy utilization.

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- Kentucky Cancer Registry collecting, managing, & making this data available for research.

References

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