Utilization of Neoadjuvant Therapy for Low-Risk Gastric Gastrointestinal Stromal Tumors and the Association with Survival

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BACKGROUND
- Imatinib in the treatment of GISTs is primarily used in the adjuvant setting as a result of the ACOSOG Z9001 and SSG XVIII/AIO Trials demonstrating improved recurrence free and overall survival among GISTs exhibiting high risk features.
- Current National Comprehensive Cancer Center (NCCN) guidelines recommend neoadjuvant imatinib for GISTs in the setting of multi-visceral involvement or limited metastatic disease.
- However, whether less aggressive GISTs benefit from neoadjuvant therapy (NAT) remains unknown.

RESEARCH OBJECTIVES
(1) To characterize the practice patterns and factors associated with NAT use in patients with low-risk GISTs.
(2) To evaluate survival outcomes among patients treated with NAT compared with upfront surgical resection in patients with low-risk gastric GISTs.

METHODS
Patients ≥ 18 years of age were evaluated from the Gastric National Cancer Database (NCDB) who received either neoadjuvant therapy versus upfront resection for low-risk gastric GISTs.

Exclusion Criteria:
- Underwent palliative intent resection
- Patients with node positive and/or metastatic disease
- Patients who did not undergo definitive surgical resection following completion of NAT
- Tumors with evidence of extension beyond the gastric wall
- Tumors located in the cardia

Primary Outcomes: factors associated with utilization of NAT
Secondary Outcomes: overall survival, stratified by tumor size

Multivariable logistic regression models assessed the association of patient, hospital, and tumor factors with receipt of NAT.

Kaplan Meier methods and Cox proportional hazard regression assessed the association of NAT with overall survival and stratified by tumor size.

Patients underwent 1:1 Propensity Score Matching based on age, race, facility type, year of diagnosis, and tumor size.

RESULTS

CONCLUSION
Although patients who received neoadjuvant therapy had improved overall survival, this was primarily due to tumors >5.0cm among patients with low-risk gastric GISTs.

Expanding neoadjuvant therapy selection criteria to include low-risk gastric GISTs >5.0cm may improve outcomes and warrants investigation through future randomized clinical trials.

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Table 1. Factors associated with NAT use.

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>OR (95% CI)</th>
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<tbody>
<tr>
<td>Academic</td>
<td>1.00 (REF)</td>
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<tr>
<td>Community</td>
<td>0.47 (0.29-0.76)</td>
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<tr>
<td>Comprehensive</td>
<td>0.51 (0.39-0.67)</td>
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<tr>
<td>Network</td>
<td>0.71 (0.52-0.97)</td>
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<tr>
<td>Integrated</td>
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*Also assessed age, sex, comorbidities, and tumor location.

Figure 1. Study cohort.
7,203 patients with low-risk gastric GISTs
6,441 (89.4%) received NAT
1,762 (10.6%) underwent upfront resection
1,506 patients remaining after 1:1 Propensity Score Match

Figure 2. Trends in use of NAT for low-risk gastrointestinal GISTs over time.

Figure 3. Kaplan-Meier curves comparing survival between patients treated with upfront resection versus NAT among a) all patients with low-risk GISTs, b) tumors <2.0 cm, c) tumors 2.0-5.0 cm, and d) tumors >5.0 cm in size.

Figure 4. Survival probabilities for patients with low-risk GISTs, comparing upfront resection with neoadjuvant therapy.