Commentary: The need to RIOT (return to intended oncologic treatment) after lung cancer surgery

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Central Message

Enhanced recovery programs can improve long-term cancer outcome by facilitating return to indicated oncologic treatments and decreasing mitogenic stimulation of mu-opioid receptors on cancer cells.

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Novel protocols aimed to increase the efficacy and tolerability of non-small cell lung cancer (NSCLC) resections now expand well beyond minimally invasive incisions and extend throughout the perioperative period. Enhanced recovery protocols (ERPs) are revolutionizing surgical care. The European Society of Thoracic Surgeons and Enhanced Recovery After Surgery Society recently published Enhanced Recovery After Surgery recommendations¹ that include evidence-based care recommendations throughout the perioperative experience, emphasizing smoking cessation, minimally invasive surgery, decreased fasting, opioid-sparing analgesia, early mobilization, and increased patient education. The MD Anderson thoracic surgeons are leaders in ERP use in the United States and reported decreased length of stay and cardiopulmonary complications with implementation of their ERP for patients undergoing thoracic surgery.²

There is also evidence suggesting that the value of ERP in patients with cancer goes beyond the perioperative period. Surgical complications and postoperative debility can hinder the ability of patients to undergo subsequent oncologic therapies and negate the value of surgical intervention. Return to intended oncologic treatment (RIOT) is a novel quality indicator in surgical oncology.

Initially evaluated in hepatic resections for cancer, the inability to RIOT after surgery correlated with shorter disease-free and overall survival.³ Innovative work from Nelson and colleagues⁴ outlines how the initiation of ERP for patients with early-stage NSCLC at MD Anderson resulted in increased rates of adjuvant chemotherapy use in eligible patients. They demonstrated that ERP helped patients with early-stage NSCLC to RIOT. Similar findings regarding ERP and RIOT are reported in breast and pancreatic surgery.⁵

An additional long-term oncologic benefit of ERP is reduced perioperative opioid consumption. NSCLC cells have mu-opioid receptors, and stimulation results in cell

proliferation, growth, and metastasis.^{6,7} Increased postoperative opioid consumption correlates with increased recurrence rates after resection in early-stage NSCLC.⁸ Reductions as much as 74% in morphine equivalents are achievable with initiation of ERP in patients with NSCLC.⁹ In this way, ERP may improve cancer outcomes by reducing exposure to the potentially mitogenic effect of opioids.

Lung cancer care is increasingly multimodal. Thoracic surgeons need to think beyond the immediate perioperative outcomes and consider the impact of our interventions in a broader treatment paradigm. This requires implementation of processes that lessen the negative physiologic impact of resections, speed recovery, and facilitate additional oncologic therapies.

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