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## Trends in Intraoperative Opioid Analgesic Use Among Patients Undergoing Laparoscopic

### Cholecystectomy

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**Mentor:** Andrea Dutoit

**Program:** Anesthesiology

**Type:** Case Report

**Background:** Over-reliance on opioids in the perioperative period has contributed to the opioid epidemic and new non-opioid strategies for multi-modal analgesia are being analyzed and implemented with anesthesiologists playing a vital role. Data regarding the pattern of opioid use intraoperatively is scarce. This study evaluates the trend of intraoperative opioid analgesic use at our institution from 2014 to 2018 among patients undergoing laparoscopic cholecystectomy.

**Methods:** We analyzed a retrospective cohort of 2,554 patients without opioid dependence, liver, or renal failure who were administered opioids intraoperatively. Doses of each opioid were converted into morphine milligram equivalents (MMEs). Data were analyzed via univariate and multivariate linear regression models including surgery date, age, BMI, length of surgery, gender, race, and procedure.

**Results:** Fentanyl was the most commonly prescribed opioid medication intraoperatively, and it was typically prescribed alone. There was a continuous decrease in intraoperative MMEs from 2014 to 2018. Sub-analyses among patients who were prescribed fentanyl alone or fentanyl and hydromorphone together indicated that the use of fentanyl

and hydromorphone decreased concurrently during the study period.

**Conclusions:** Our study shows a trend of decreasing opioid administration intraoperatively. This likely reflects awareness linked to the opioid epidemic and efforts to control opioid administration. However, this study reports isolated trends in opioid administration during the intraoperative period and does not quantify other analgesic modality utilization. Further studies comparing intra-operative opioid and non-opioid analgesic use, and related patients' pain scores are necessary to evaluate the efficacy of alternative methods. ■

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## Accelerated Fractionated Compared to Conventional Fractionated Salvage Radiation Therapy Improves Outcomes in Salvage Chemotherapy Refractory Diffuse Large B-Cell Lymphoma

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**Program:** Radiation Oncology

**Type:** Original Research

**Background:** To evaluate the role of accelerated fractionated salvage radiation therapy (SRT) in patients with diffuse large B-cell lymphoma (DLBCL) refractory to salvage chemotherapy in preparation for high dose chemotherapy (HDT) and autologous stem cell transplant (ASCT). Relapsed/primary refractory patients who are also salvage chemotherapy refractory are usually not considered eligible for HDT and ASCT. Conventional and accelerated fractionated salvage radiation therapy was used with the goal of making salvage chemotherapy refractory patients eligible for HDT and ASCT. Patients receiving two different radiation therapy fractionation schedules were compared.

**Methods:** We reviewed the medical records of 54 consecutive patients at one institution with DLBCL who were refractory to salvage chemotherapy and underwent salvage radiation therapy (SRT) from 2000-2019. Thirty-five patients underwent accelerated fractionated SRT (most commonly 3600 cGy in 20 twice daily 180 cGy fractions) and 19

patients underwent conventional fractionated SRT (most commonly 3600 cGy in 20 daily 180 cGy fractions). Patients were excluded if they had a complete response to salvage chemotherapy or the SRT fraction size <150 cGy.

**Results:** We evaluated 35 males (65%) and 19 females (35%) with a median age of 59 (range: 24-81) at the time of SRT. Thirty patients (56%) had primary chemotherapy refractory DLBCL having never achieved a remission and were also refractory to salvage chemotherapy, while 24 patients (44%) were refractory to salvage chemotherapy following relapse. All patients were found to have progressive disease in response to salvage chemotherapy. Thirty-seven patients (69%) underwent high dose chemotherapy and proceeded to HDT and ASCT within 180 days of radiation therapy. Accelerated fractionation compared to conventional fractionation was associated with a significant improvement in complete response (CR) rate (80% vs 26%, p<0.001), 1-year disease free survival (54% vs 26%, p<0.001), and 1-year overall survival (61% vs 39%, p=0.018). The rate of patients undergoing ASCT was not significantly different among patients

undergoing accelerated fractionation (73% vs 60%, p=0.14).

**Conclusion:** In patients with DLBCL who are refractory to salvage chemotherapy, the use of salvage radiation therapy was associated with a high rate of conversion to ASCT eligibility in a group of patients that are frequently ineligible for ASCT. Additionally, the use of accelerated fractionation compared to conventional fractionation SRT was associated with a significantly improve CR rate, PFS, and OS. ■

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