Intensive Care Admissions Among Ovarian Cancer Patients Treated with Primary Debulking Surgery and Neoadjuvant Chemotherapy-Interval Debulking Surgery

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Objective: Admissions to intensive care units (ICU) are costly, but are necessary for some patients undergoing radical cancer surgery. When compared to primary debulking surgery (PDS), neoadjuvant chemotherapy (NACT) with interval debulking surgery, is associated with less peri-operative morbidity. In this study, we compare rates, indications and lengths of ICU stays among ovarian cancer patients admitted to the ICU within 30 days of cytoreduction, either primary or interval.

Methods: We identified patients with stage III-IV ovarian cancer patients who underwent surgical cytoreduction at two large academic medical centers between 2010 and 2014. A retrospective chart review was performed and clinical data extracted from patient charts. Chi square tests, Student T-tests, and Mann-U Whitney tests were used to evaluate clinical variables.

Results: A total of 635 patients met inclusion criteria for the study. There were 44 ICU admissions, 7% of patients who underwent surgical debulking during this time period. Age, race, BMI, comorbidity index and stage did not vary significantly between patients who were and were not admitted to a ICU post-operatively. Patients admitted to a ICU had significantly higher pre-operative CA -125 levels 4125 U/mL (95%CI 702-11135) vs 545 U/mL (95%CI 435-678), ($p < 0.001$). Patients admitted to the ICU were more likely to have an estimated blood loss greater than 2 liters, 40% vs 2% ($P<0.001$). The most common indications for ICU admission were hemodynamic monitoring/pharmacologic blood pressure support (84.1%), respiratory failure/inability to extubate (22.7%), bacteremia/sepsis (18.2%), anastomotic leak (9.1%), cardiac indication (4.5%), neurologic indication (4.5%) and open abdomen (4.5%). Compared to NACT, a higher percentage of patients undergoing PDS, required ICU admission, 9.2% vs 3.9% of neoadjuvant chemotherapy patients ($P=0.022$). However, ICU admission indications did not vary between PDS and NACT patients. Most patients were admitted to the ICU during the initial hospitalization, but 7% of the ICU admissions occurred during a readmission within 30 days. Length of ICU admission did not vary between groups, PDS 2.7 days (95%CI 2.3-3.2) vs 3.5 days (95%CI 1.5-5.6) for NACT ($P=0.936$). Total hospital length of stay was longer among PDS vs NACT patients requiring ICU admission, PDS 14.6 days (95%CI 11.3-17.6) vs NACT 9.8 days (95%CI 6.2-13.5), ($p= 0.040$).

Conclusion: Although the rate of ICU admissions among patients undergoing PDS was higher than for patients undergoing NACT, the indications for ICU admission, length of ICU stay and overall hospital length of stay were similar between the two groups.