Oncology, Nuclear Medicine and Transplantology
(eISSN 3105-8760)

Congress Abstract

Anesthetic Management for Cytoreductive Thoracic Surgeries with Hyperthermic Intrapleural Chemotherapy: Experience of the National Research Oncology Center

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Proceedings of International Scientific and Practical Conference *"ONCO FUTURE KAZAKHSTAN 2026: Precision Oncology Theranostics, Artificial Intelligence,"* **September 24-26, 2026, Astana, Kazakhstan**

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Introduction: Hyperthermic intrapleural chemotherapy combined with cytoreductive surgery is used for malignant pleural neoplasms and tumors with pleural dissemination. Anesthetic management is complicated by prolonged one-lung ventilation, surgical trauma, blood loss, fluid loading, hyperthermia, and the potential nephrotoxicity of cisplatin.

Objective: To evaluate the characteristics of anesthetic management and major perioperative complications associated with cytoreductive thoracic surgeries with hyperthermic intrapleural chemotherapy.

Materials and Methods: A retrospective analysis was conducted on 15 patients who underwent the aforementioned procedures between 2024 and 2025. General anesthesia included intubation with a double-lumen endobronchial tube and one-lung ventilation with a tidal volume of 4–6 mL/kg of ideal body weight and positive end-expiratory pressure of 5–8 cm H_2O. Non-invasive blood pressure, temperature, urine output, acid-base status, and venous blood lactate were monitored; central venous access was used. Perfusion was performed in a closed circuit at 42 °C for up to 60 minutes with cisplatin at 125 mg/m². Descriptive statistics were used.

Results: Patient age ranged from 35 to 68 years, with a mean age of 56.6 years. The median duration of anesthesia was 8 hours and 13 minutes, blood loss – 500 mL, fluid therapy – 5500 mL, and urine output – 900 mL. Respiratory and pleural complications were recorded in 9 (60.0%) patients, acute kidney injury – in 2 (13.3%); one patient required 10 sessions of hemodialysis. One case each (6.7%) of thrombotic complications and atrial fibrillation was observed. The median length of stay in the intensive care unit was 2 days. All patients were discharged from the hospital; two late deaths were recorded during follow-up.

Conclusions: Cytoreductive thoracic surgeries with hyperthermic intrapleural chemotherapy are associated with significant perioperative burden and a risk of respiratory, pleural, and renal complications. Our experience highlights the need for protective one-lung ventilation, adequate fluid and hemodynamic support, monitoring of acid-base status, temperature, and urine output, as well as early detection of renal dysfunction.

Funding: This study was financially supported by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan, Grant No. BR24992950 "Creation and implementation of innovative methods for the treatment of oncological diseases."

Keywords: Hyperthermic Intrapleural Chemotherapy; Anesthesia; One-Lung Ventilation; Cisplatin; Thoracic Surgery; Perioperative Management