

Hyperthermic Intraperitoneal Chemotherapy with Mitomycin C versus Oxaliplatin after Cytoreductive Surgery for the Treatment of Peritoneal Metastases of Colorectal Cancer Origin

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Abstract

Background: Mitomycin C and oxaliplatin are considered the main chemotherapeutic agents used in the context of hyperthermic intraperitoneal chemotherapy (HIPEC) after the performance of cytoreductive surgery for peritoneal metastases of colorectal cancer origin. However, there is lack of a generally accepted consensus regarding the optimal choice between them as upfront chemotherapeutic agent. Our paper aims to summarize in a comprehensive manner the available evidence, while individualised schemes with targeted therapies are under development.

Methods: We conducted a comprehensive, narrative review of the literature including all previous studies until 03/2022, which reported perioperative and/ or oncological outcomes after the use of mitomycin C and/ or oxaliplatin as main hyperthermic chemotherapy agents after cytoreductive surgery for colorectal peritoneal metastatic disease.

Results: Data from a total of 23 single-agent and 13 comparative studies were included in our review. Despite the demonstrated safety profile of both chemotherapeutics, the heterogeneity of the included studies, their retrospective nature and the absence of relevant randomized trials prohibits the drawing of safe conclusions regarding the superiority of one of the two agents. However, it seems that perioperative morbidity is less with oxaliplatin-based HIPEC, while mitomycin C appears as a more cost-effective option.

Conclusions: Selection of the optimal intraperitoneal chemotherapy agent for peritoneal metastases of colorectal cancer origin after the completion of cytoreductive surgery is still a matter of debate, with significant institutional variation. Further randomized clinical trials between the two commonest HIPEC agents are required, assessing the differences in perioperative outcomes, oncological outcomes, healthcare-associated costs and patients' quality of life.

Key words: mitomycin, oxaliplatin, hyperthermia, chemotherapy, cytoreduction