




ASO AUTHOR REFLECTIONS

ASO Author Reflections: International Standardization of Hyperthermic Intraperitoneal Chemotherapy (HIPEC) Protocols—Malignant Peritoneal Mesothelioma as a Model

Vahan Kepenekian, MD, PhD^{1,2}, Olivia Sgarbura, MD, PhD³, Frederic Marchal, MD⁴,
Laurent Villeneuve, PhD^{2,5} , Shigeki Kusamura, MD, PhD⁶, and Marcello Deraco, MD, PhD⁶

¹Service de Chirurgie Digestive, Hôpital Lyon Sud, Hospices Civils de Lyon, Pierre-Bénite, France; ²CICLY, Faculté de Médecine Lyon-Sud, Université Claude Bernard Lyon 1, Université de Lyon, Lyon, France; ³Surgical Oncology Department, Montpellier Cancer Institute (ICM), University of Montpellier, Montpellier, France; ⁴Department of Surgical Oncology, Institut de Cancérologie de Lorraine, Université de Lorraine, Nancy, France; ⁵Service de Recherche et d'Epidémiologie Cliniques, Hôpital Lyon Sud, Hospices Civils de Lyon, Pierre-Bénite, Lyon, France; ⁶Peritoneal Malignancy Program, Department of Surgery, Fondazione IRCCS Istituto Nazionale dei Tumori, Milan, Italy

PAST

Diffuse malignant peritoneal mesothelioma (DMPM) could be regarded as an archetype of a peritoneal surface malignancy (PSM) considering the wide dissemination of metastatic nodules within the peritoneal cavity, their global chemoresistance and the rarity of the associated systemic lesions.¹ Logically, DMPM served as a model for the development of the comprehensive locoregional radical approach summarized by the combination of complete cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (HIPEC).¹ This treatment is thus associated with the best long-term outcomes, including cure, and is recommended by international guidelines in selected patients.²

In parallel, DMPM has also embodied the difficulty for PSM expert centers to bring the need together to develop new treatment strategies based on evidence-based medicine requirements for a rare and aggressive disease. While the initial dose escalation studies of HIPEC protocols were led in DMPM patients, no prospective controlled data are available to compare HIPEC protocols in these patients. However, multiple HIPEC protocols have been proposed, but never compared prospectively and rarely retrospectively.^{3,4} The

result leads us to have a low level of evidence for determining which HIPEC protocol is associated with the best oncologic outcomes and the most acceptable morbidity.

PRESENT

The Peritoneal Surface Oncology Group International (PSOGI) initiative to solicit international PSM expert centers is therefore commendable.⁵ Thanks to a rigorous methodology based on an exhaustive literature review, the GRADE system and a two-round Delphi process, a consensus was reached. HIPEC was confirmed as a relevant treatment in addition to cytoreductive surgery with the protocol combining cisplatin and doxorubicin recommended as first-intent regimen, while cisplatin alone was proposed as second-line option.⁴

FUTURE

Thanks to this international standardization, it will be easier to collect bigger and relevant data and evaluate these recommended protocols in the future. However, these two protocols have never been compared and a future direction could be to discuss setting up such a study on an international level.

© Society of Surgical Oncology 2023

First Received: 26 July 2023

Accepted: 26 July 2023

Published online: 25 August 2023

V. Kepenekian, MD, PhD
e-mail: vahan.kepenekian@chu-lyon.fr

DISCLOSURE The authors declare no conflict of interest.

REFERENCES

1. Sugarbaker PH, Averbach AM, Jacquet P, Stephens AD, Stuart OA. Peritoneal carcinomatosis: principles of management. *Canc Treat*. 1996;82:415–21. https://doi.org/10.1007/978-1-4613-1247-5_26.
2. Kusamura S, Kepenekian V, Villeneuve L, et al. Peritoneal mesothelioma: PSOGI/EURACAN clinical practice guidelines for diagnosis, treatment and follow-up. *Eur J Surg Oncol*. 2020. <https://doi.org/10.1016/j.ejso.2020.02.011>.
3. Bartlett DL, Buell JF, Libutti SK, et al. A phase I trial of continuous hyperthermic peritoneal perfusion with tumor necrosis factor and cisplatin in the treatment of peritoneal carcinomatosis. *Cancer*. 1998;83(6):1251–61.
4. Kepenekian V, Sgarbura O, Marchal F, Villeneuve L, Kusamura S, Deraco M. 2022 PSOGI consensus on HIPEC regimens for peritoneal malignancies: diffuse malignant peritoneal mesothelioma. *Ann Surg Oncol*. 2023. <https://doi.org/10.1245/s10434-023-13973-8>.
5. Kusamura S, Bhatt A, Hubner M, et al. The 2022 PSOGI international consensus on HIPEC regimens for peritoneal malignancies: methodology. *Ann Surg Oncol*. 2023. <https://doi.org/10.1245/s10434-022-12990-3>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.