



# ASO Author Reflections: The Timing of Onset of Peritoneal Metastases from Colorectal Carcinoma Is Not an Independent Predictor of Survival Outcomes After Cytoreductive Surgery with Hyperthermic Intraperitoneal Chemotherapy

Michelle V. Dietz, MD, and Eva V. E. Madsen, MD, PhD

Department of Surgical Oncology, Erasmus MC Cancer Institute, Rotterdam, The Netherlands

## PAST

Cytoreductive surgery (CRS) with hyperthermic intraperitoneal chemotherapy (HIPEC) is a treatment option for patients with peritoneal metastases (PM) from colorectal carcinoma (CRC). As CRS-HIPEC is associated with considerable morbidity, it is important to select those patients who will most likely gain survival benefit from this treatment. Synchronous onset of metastases has been proposed as a negative prognostic factor for different types of colorectal metastases.<sup>1</sup> Literature is inconclusive about the prognostic value of the timing of the onset of colorectal PM in patients undergoing CRS-HIPEC.<sup>2–4</sup> The current retrospective study aimed to determine the impact of the timing of onset of colorectal PM (synchronous, s-PM, vs meta-chronous, m-PM) on survival outcomes after CRS-HIPEC.

## PRESENT

This study shows that synchronous onset of colorectal PM was associated with poor tumor characteristics and more advanced disease.<sup>5</sup> Disease-free survival (DFS) did not significantly differ between groups (median 8 vs 9 months). s-PM patients had impaired overall survival (OS) compared with m-PM patients (median 28 vs 33 months), but synchronous onset of PM was not independently associated with OS in multivariable analysis. This is

probably explained by confounding factors, like tumor differentiation, lymph node status, and PCI were independently associated with OS.

## FUTURE

To optimize patient selection for CRS-HIPEC, it is important to identify prognostic factors that could aid in preoperative patient selection. This study shows that factors such as tumor differentiation, lymph node status, and PCI are better predictors of survival outcomes than the timing of onset of PM. However, as some of these factors can only be determined during surgery, their value in preoperative patient selection is limited. Future studies should focus on the development of a prediction model of survival outcomes of patients with colorectal PM undergoing CRS-HIPEC that could be used in preoperative patient selection. The timing of onset of PM might not be an independent factor but could be useful in preoperative prediction.

**DISCLOSURES** The authors have no conflict of interest to disclose.

**OPEN ACCESS** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

© The Author(s) 2022

First Received: 14 April 2022

Accepted: 20 April 2022

Published Online: 29 April 2022

M. V. Dietz, MD

e-mail: m.dietz@erasmusmc.nl

**REFERENCES**

1. Colloca GA, Venturino A, Guarneri D. Different variables predict the outcome of patients with synchronous versus metachronous metastases of colorectal cancer. *Clin Transl Oncol.* 2020;22(8):1399–406.
2. Hentzen JEKR, Kuipers H, van der Plas WY, Been LB, Hoogwater FJH, et al. Impact of synchronous versus metachronous onset of colorectal peritoneal metastases on survival outcomes after cytoreductive surgery (CRS) with hyperthermic intraperitoneal chemotherapy (HIPEC): a multicenter, retrospective, observational study. *Ann Surg Oncol.* 2019;26:2210–21.
3. Wong JSM, Tan GHC, Chia CS, Ong J, Ng WY, Teo MCC. The importance of synchronicity in the management of colorectal peritoneal metastases with cytoreductive surgery and hyperthermic intraperitoneal chemotherapy. *World J Surg Oncol.* 2020;18(1):10.
4. Bakkens C, Lurvink RJ, Rijken A, et al. Treatment strategies and prognosis of patients with synchronous or metachronous colorectal peritoneal metastases: a population-based study. *Ann Surg Oncol.* 2021;28:9073–83.
5. Dietz MV, van Kooten JP, Said I, Brandt-Kerkhof ARM, Verhoef C, Bremers AJA, de Wilt JHW, de Reuver PR, Madsen EVE. Survival outcomes after cytoreductive surgery with hyperthermic intraperitoneal chemotherapy in patients with synchronous versus metachronous onset of peritoneal metastases of colorectal carcinoma. *Ann Surg Oncol.* 2022. <https://doi.org/10.1245/s10434-022-11805-9>.

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