ASO AUTHOR REFLECTIONS

ASO Author Reflections: PCI is Not Predictive of Survival After Complete CRS/HIPEC for High-Grade Appendiceal Primaries

Konstantinos Chouliaras, MD and Konstantinos I. Votanopoulos, MD, Ph.D., FACS

Division of Surgical Oncology, Department of General Surgery, Wake Forest Baptist Health, Winston-Salem, NC

PAST

In colon cancer carcinomatosis treated with CRS/HIPEC, a PCI above 17 is associated with survival that is not different from the survival obtained from best supportive care.¹ It was unknown to us whether there is a similar PCI limit for HGA primaries, above which even a complete CRS is not offering the patient a survival benefit.²

PRESENT

PCI, either when analyzed at arbitrary cutoff points or as a continuous variable, was not a predictor of survival after complete CRS/HIPEC. Survival was dependent on completion of CRS and not PCI. A CC1 resection in HGA primaries should not be regarded as a complete cytoreduction, because it has similar survival outcomes with a CC2 resection.

The importance of PCI is it that it can predict in a linear fashion who is the patient who will achieve a CC0 resection. In this cohort, only 31% of the patients with a $PCI \geq 21$ had a complete cytoreduction.³ These findings suggest that PCI can be viewed as a key indicator of the ability to achieve a complete resection, which ultimately predicts the ability to affect survival.

The above analysis was performed categorizing HGA based on Bradley's classification and subgroup analysis of patients with positive nodes, lymphovascular invasion, or signet ring features was not possible.⁴

FUTURE

The current classification of low- and high-grade appendiceal primaries lumps together tumors with great variability in clinical behavior. This is almost a universal problem for all light microscopy-based classifications or even staging systems. With advances in biomedical engineering and sequencing, we are slowly moving from cohort-based analysis to interactive ex vivo personalized study of patient's individual tumors in the lab. We are currently entertaining for the first time the possibility of a future, that for every patient who presents with appendiceal cancer, we will be able grow its own tumor organoids and decide what is the best course and timing of action in a prospective fashion.⁵

REFERENCES

1. Goere D, Souadka A, Faron M, et al. Extent of colorectal peritoneal carcinomatosis: attempt to define a threshold above which HIPEC does not offer survival benefit: a comparative study. *Ann Surg Oncol*. 2015;22(9):2958–64.
2. El Halabi H, Gushchin V, Francis J, et al. The role of cytoreductive surgery and heated intraperitoneal chemotherapy (CRS/HIPEC) in patients with high-grade appendiceal carcinoma and extensive peritoneal carcinomatosis. *Ann Surg Oncol*. 2012;19(1):110–4.
3. Votanopoulos KI, Bartlett D, Moran B, et al. PCI is not predictive of survival after complete CRS/HIPEC in peritoneal dissemination from high-grade appendiceal primaries. *Ann Surg Oncol*. 2018;25(3):674–8.
4. Bradley RF, Stewart JH, Russell GB, et al. Pseudomyxoma peritonei of appendiceal origin: A clinicopathologic analysis of 101 patients uniformly treated at a single institution, with literature review. *Am J Surg Pathol*. 2006;30:551–9.
5. Votanopoulos KI, Shen P, Skardal A, Levine EA. Peritoneal metastases from appendiceal cancer. *Surg Oncol Clin N Am*. 2018; 27(3):551–61

ASO Author Reflections is a brief invited commentary on the article, “PCI is Not Predictive of Survival After Complete CRS/HIPEC in Peritoneal Dissemination from High-Grade Appendiceal Primaries”. *Ann Surg Oncol*. 2018;25:674–8.

© Society of Surgical Oncology 2018

First Received: 29 October 2018;

Published Online: 12 November 2018

K. I. Votanopoulos, MD, Ph.D., FACS

e-mail: kvotanop@wakehealth.edu