



Frailty and sarcopenia impact surgical and oncologic outcomes after radical cystectomy in patients with bladder cancer

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Comment on: Mayr R, Fritsche HM, Zeman F, *et al.* Sarcopenia predicts 90-day mortality and postoperative complications after radical cystectomy for bladder cancer. *World J Urol* 2018;36:1201-7.

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Radical cystectomy and urinary diversion are the treatment of choice for muscle-invasive and recurrent, high-grade bladder cancer. Patient outcomes are based on surgical technique (1), the nature/biology of the disease, and patient-specific factors, such as age and co-morbidity status. When assessing the early and long-term complications of cystectomy and urinary diversion (2), it is not only imperative to investigate the biology of the cancer, i.e., grade/stage, presence of hydronephrosis, etc., but also decipher patient-related factors such as frailty and, even more concrete, sarcopenia.

Given the intimate relationship of oncologic and perioperative outcomes with sarcopenia, frailty has been studied extensively in the field of urology. In a series of 137 patients with stage III and IV renal cell carcinoma cancer who underwent radical nephrectomy, the presence of sarcopenia was associated with significantly more perioperative complications (Clavien grade III or higher, $P=0.03$) and poorer oncologic outcomes (node-positive disease, $P=0.01$) (3). With respect to bladder cancer, the impact of sarcopenia on cancer-specific and all-cause mortality has been proven. In a particular robust study with long-term follow-up (6.7 years), sarcopenic patients had significantly poorer cancer-specific survival and overall survival, and sarcopenia was independently found to be linked to all-cause mortality (4).

The authors do a commendable job of re-affirming the

notion of the link between sarcopenia and postoperative complications and 90-day mortality in patients undergoing radical cystectomy for urothelial carcinoma of the bladder. In a series of 327 patients, Mayr *et al.* calculated sarcopenia radiographically using the cross-sectional skeletal muscle surface area at the L3 vertebral level. The authors evaluated 90-day mortality and postoperative complications and found that sarcopenia, ASA status (3,4), and metastatic disease were significant predictors of 90-day mortality on multi-variable analysis. Furthermore, sarcopenic patients were more likely to suffer major complications (Clavien-Dindo >3b) (2).

The authors suggest that patients with sarcopenia should undergo preoperative counseling given the increased likelihood of 90-day mortality and postoperative complications and offer alternative routes including an adoption of minimally-invasive approaches or a total abandonment of diversion using bowel segments. Although these recommendations might ameliorate some of these complications, the bigger picture of frailty and the frailty index (5) is far more significant than a refinement of surgical technique.

Moreover, the patient population described by the authors may not truly represent the patient population of today. The rate of neoadjuvant chemotherapy, as the authors correctly state, was significantly low, as only 2.4% of patients received neoadjuvant therapy. Even after

the knowledge of a known survival benefit, only 8% of the population from 2012 to 2014 received neoadjuvant chemotherapy.

Unfortunately, sarcopenic patients receiving adjuvant therapy may not benefit similarly than non-sarcopenic patients. In a series of 56 patients undergoing radical cystectomy and adjuvant therapy, a significant difference of approximately 25 months with respect to overall survival was found (6). Perhaps, the best strategy for these patients is aggressive preoperative nutritional and physical support via a multidisciplinary approach, using enhanced recovery after surgery (ERAS) protocol including the consideration of chemotherapy in the neoadjuvant setting, and tailoring surgical techniques [minimally-invasive surgery (MIS) in favor of open surgery] and considering cutaneous ureterostomy to lessen operating time and avoid bowel complications.

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Footnote

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