

Streszczenie w języku angielskim

Radical cystectomy remains the gold standard treatment for muscle-invasive bladder cancer as well as for selected cases of high-risk non-muscle-invasive disease. Despite advances in surgical techniques and the implementation of perioperative care protocols, the procedure continues to be associated with a high rate of complications, reaching up to 42% for severe complications according to the Clavien–Dindo classification. One of the most important yet modifiable components of perioperative management is fluid therapy strategy, which may influence both intraoperative haemodynamics and the occurrence of postoperative complications. At the same time, an important clinical challenge is represented by patients requiring bladder removal following prior pelvic irradiation. In this population, significant impairment of tissue healing and radiation-induced damage is observed, leading to an increased risk of postoperative morbidity. Furthermore, in a subset of patients, severe bladder dysfunction and/or the presence of vesical fistulas necessitate simple cystectomy. The available literature addressing this issue remains limited, and the lack of comparative studies makes it difficult to accurately estimate surgical risk in this patient group.

The aim of the present dissertation was to evaluate the impact of perioperative fluid management strategies and vascular bed filling on postoperative complications following radical cystectomy in patients with bladder cancer, and to analyse fluid therapy strategies described in the literature. In addition, the effect of prior radiotherapy on postoperative outcomes in patients undergoing simple cystectomy was assessed. The objectives were achieved through a series of three publications forming the core of the thesis. The first study evaluated the relationship between fluid administration, haemodynamic indices (VBFI and aVBFI), urinary diversion type, and postoperative complications in 288 patients undergoing radical cystectomy, demonstrating a greater predictive value of haemodynamic parameters compared with the total volume of administered fluids. The second publication presented a systematic review of 17 studies analysing perioperative fluid strategies, indicating benefits of restrictive fluid therapy supported by vasopressors and partial effectiveness of goal-directed fluid therapy (GDFT). The third publication analysed two groups comprising a total of 257 patients undergoing simple cystectomy for radiation-induced bladder injury and radical cystectomy for oncological indications. The results demonstrated significantly worse postoperative outcomes in the simple cystectomy group, including a higher complication rate, increased frequency of reoperations, greater need for total parenteral nutrition, and longer hospitalization compared with patients without prior radiotherapy.

The findings of the dissertation indicate that the total volume of administered fluids alone does not directly correlate with postoperative complications, whereas VBFI and aVBFI may serve as useful tools for assessing vascular bed filling and guiding intraoperative fluid management. Available evidence suggests an advantage of restrictive strategies supported by vasopressors, although current data remain insufficient to establish uniform clinical recommendations. Outcomes following simple cystectomy confirm that prior radiotherapy is associated with a significantly increased risk of postoperative complications and should be carefully considered during surgical qualification. The presented studies highlight the need for individualized fluid management and further optimization of perioperative strategies to reduce morbidity following bladder removal performed for oncological (radical cystectomy) or non-oncological (simple cystectomy) indications

