

Chapter 22

IMMUNOTHERAPY FOR PATIENTS WITH ADVANCED UROTHELIAL CANCER

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INTRODUCTION

Bladder cancer is the most common malignancy involving the genitourinary system. In the USA, It is the 6th most commonly diagnosed malignancy and an estimated 81.190 new cases of urinary bladder cancer will be diagnosed and approximately 17240 deaths occurring during the same period. (Siegel, Miller, & Jemal, 2017) Urothelial carcinoma is the most common bladder cancer histology but in clinical practice, other histological variants including squamöz cell carcinoma, small cell carcinoma, and adenocarcinoma can be seen (Dahm & Gschwend, 2003) Median age at diagnosis is 73 years, it is rarely diagnosed younger than 40 years of age (Siegel et al., 2017) The incidence rate for bladder cancer is lower in women compared to men. Risk factors are predominantly related to tobacco smoking, although infection with *Schistosoma haematobium* is another risk factor in selected populations (Antoni et al., 2017)

Despite these aggressive treatment measures, incidence and mortality have not changed over the past 20 years and survival for patients showing the advanced or metastatic disease is still poor (Siegel et al., 2017)(Dahm & Gschwend, 2003)(Antoni et al., 2017) For patients with advanced stage urothelial bladder carcinoma, cisplatin-based systemic chemotherapy regimens have been the gold standard of care for the first-line therapy There are an estimated 15 months median overall survival and almost 15% 5-year survival rate approximately in a patient who receive the standard of care platinum-based chemotherapy(García et al., 2016)(Gupta, Gill, Poole, & Agarwal, 2017)(De Santis et al., 2012) Additionally, nearly half of patients are not suitable for first-line cisplatin-containing chemotherapy and there is not a standard treatment, but carboplatin-based regimens or single agent therapies have been considered as acceptable alternatives, gemcitabine–carboplatin (GC) being considered, as the preferred combination according to European guidelines (Gupta et al., 2017) (Alfred Witjes et al., 2017).

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All checkpoint inhibitors are listed as an alternatively preferred recommendation, according to the National Comprehensive Cancer Network guidelines, with exception of Pembrolizumab which is listed as a Category 1 in second line treatment options.

Currently, studies are investigating the more compounds and combinations, the ideal sequence and duration of immunotherapy treatments to treat urothelial carcinoma in the neoadjuvant, adjuvant, and metastatic settings. These inspiring advances provide hope and promise to those diagnosed with urothelial bladder cancer and therefore, further efforts have to be made to optimize efficacy, while controlling side effects

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