Personalized prostate cancer diagnosis and treatment—are we ready?

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Received: 31 October 2018 / Accepted: 1 November 2018
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Prostate cancer (PCa) is the most common cancer in men and one of the leading causes of death [1]. In general, PCa varies from slow-growing indolent tumors to highly aggressive tumors associated with disease-related morbidity and mortality [2].

The use of prostate-specific antigen (PSA) for early detection of PCa has contributed to a favorable shift in tumor stage at diagnosis resulting in decreased PCa morbidity and mortality [3–5]. Despite this, PSA screening is one of the most controversial topics in urology as numerous tumors are low-risk cancers that probably never become aggressive.

In the past years, beside PSA measurement, multiparametric magnetic resonance imaging (MRI) has proven clinical efficacy in PCa detection [6].

Steinkohl et al. present the latest findings concerning a new technique in PCa detection denoted by “biparametric prostate MRI.” In contrast to multiparametric MRI protocols, biparametric MRI does not include dynamic contrast-enhanced sequences, thus having major advantages compared with the conventional prostate MRI such as shorter examination time, lower costs, or reduction of contrast-agent-based side effects.

Although most PCa are adenocarcinomas, there also exist histologically heterogeneous PCas including different forms of neuroendocrine carcinomas associated with poor clinical outcome. Tsaour et al. elaborately explain the tumor biology of these cancers and highlight the potential role of biomarkers in this rare disease. In addition, optimal treatment is discussed proposing cisplatin/etoposide chemotherapy in pure cell neuroendocrine PCa, while a taxane/

platinum-based regimen should be administered in neuroendocrine carcinoma/acinar adenocarcinoma.

Oligometastatic PCa has been considered an intermediate state between localized disease and widespread metastases mostly defined as up to five extrapelvic lesions [7, 8]. While until several years ago these patients were treated only with hormonal therapy, in the past few years the concept of multimodal treatment has evolved. Bektic et al. give a state-of-the-art overview of current data on the role of surgery in oligometastatic PCa and critically discuss advantages and disadvantages of this future-oriented treatment concept.

Lately the landscape of treatment for patients with metastatic castration-resistant PCa has substantially changed including new hormonal therapies (abiraterone, enzalutamide), chemotherapies, or radium-223 [9, 10]. Lutetium-prostate-specific membrane antigen (Lu-PSMA) therapy is an additional new therapeutic treatment option in metastatic castration-resistant PCa. Although data from phase III studies are not yet mature, phase II data indicate promising treatment responses accompanied by a good safety profile, as illustrated by the review article from Ladurner and colleagues [11].

One of the hot topics in current research is the gut microbiome, as novel findings provide new options to facilitate earlier diagnosis as well as to improve the efficacy of chemotherapy or immunotherapy by selective manipulation of the gut microbiota [12]. Strasser and colleagues give a comprehensive overview of the existing literature on the microbiome of PCa, thereby demonstrating that differences in the microbial composition analyzed in urine, prostate tissue, and feces as well as microbial metabolites seem to also be involved also in the pathogenesis of PCa. In addition, the authors underline that androgen-deprivation therapy may interfere with the intestinal microbiome.

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Conflict of interest I. Heidegger declares that she has no competing interests.

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