



Illustration by Erin Moore

CLINICAL Genitourinary Prostate, Kidney, & Bladder Cancer

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Original Studies

- 8 **Avelumab Maintenance Treatment After First-line Chemotherapy in Advanced Urothelial Carcinoma—A Cost-Effectiveness Analysis**
Dong Lin, Shaohong Luo, Shen Lin, Lixian Zhong, Wei Zhou, Dian Gu, Xiaoting Huang, Qixin Chen, Xiongwei Xu, Xiuhua Weng
(1) This pharmacoeconomics evaluation focuses on the maintenance treatment of avelumab in metastatic urothelial cancer. (2) A three-state Markov model was used to estimate the cost-effectiveness of avelumab based on the data of a clinical trial. (3) From the perspective of the US taxpayer, avelumab is not cost-effective unless lowering the drug price. (4) The study would provide reference for decision makers to choose more economical drugs, or to implement policy to improve the availability of avelumab.
- 16 **Management of Localized T1c Prostate Cancer Among Men 75 Years and Older: A National Cancer Database Study**
Stephanie Gleicher, Michael F. Basin, Louis Arens, Joseph Jacob, Timothy Byler, Elizabeth Ferry
Elderly men are less likely to receive local therapy for prostate cancer, despite data showing improved outcomes in those with high-grade cancer. Using the National Cancer Database, we found that elderly men who underwent local therapy, particularly surgery, had improved survival rates compared to those that underwent hormone therapy or observation. Non-age based approach and proper patient selection is critical
- 24 **Primary Thromboprophylaxis and the Risk of Venous Thromboembolic Events in Patients With Testicular Germ Cell Tumors Treated With Cisplatin-Based Chemotherapy**
Angelika Terbuch, Gudrun Walser, Michael Stotz, Armin Gerger, Florian Posch, Thomas Bauernhofer
This retrospective cohort study shows that patients with Testicular Germ cell tumors (TGCT) undergoing cisplatin-based chemotherapy have a high risk of venous thromboembolism (VTE). The risk of VTE was significantly reduced with primary thromboprophylaxis. Given the low risk of bleeding in patients with TGCT, it might be worthwhile to consider thromboprophylaxis for the duration of cisplatin-based chemotherapy.
- 32 **DNA Methylation Architecture Provides Insight into the Pathogenesis of Upper Tract Urothelial Carcinoma: A Systematic Review and Meta-Analysis**
Yifei Lin, Ling Lin, Yong Yang, Mei Li, Xin Jiang, Tingting Fu, Youlin Long, Qiong Guo, He He, Zhenglong Chen, Liang Du, Ga Liao, Banghua Liao, Jin Huang
Methylation modifications help better understand the pathogenesis of upper tract urothelial carcinoma. A

total of 11 eligible studies regarding DNA methylation alterations were included in this meta-analysis. Twelve methylated genes were found to be significant in the diagnosis or prognostic outcome of UTUC, including tumor recurrence, progression, and mortality. Candidate biomarkers with essential diagnosis and prognosis function might provide precision medicine references for personalized therapies.

43 Perioperative Morbidity of Radical Prostatectomy After Intensive Neoadjuvant Androgen Blockade in Men With High-Risk Prostate Cancer: Results of Phase II Trial Compared to a Control Group

Eder N. Ilario, Diogo A. Bastos, Giuliano B. Guglielmetti, Claudio B. Murta, Leonardo Cardili, Mauricio D. Cordeiro, Jose P. Junior, Rafael F. Coelho, William C. Nahas

In this study, we investigated whether intense neoadjuvant therapy could increase the risk of complications in radical prostatectomy. After analyzing 124 patients we concluded that intense neoadjuvant therapy doesn't increase morbidity of radical prostatectomy and reduces positive surgical margins. The association of neoadjuvant therapy with extended pelvic lymphadenectomy may increase the risk of perioperative thromboembolic events.

55 Cabozantinib Safety With Different Anticoagulants in Patients With Renal Cell Carcinoma

Akram M. Shayeb, Hannah Dzimitrowicz McManus, Danielle Urman, Chinmay Jani, Tian Zhang, Nazli Dizman, Luis Meza, Akhilesh Sivakumar, Chun L. Gan, Pedro Barata, Mehmet A. Bilen, Xin Gao, Daniel Heng, Sumanta Pal, Ravi Narra, Deepak Kilari, Marina D. Kaymakcalan, Bradley McGregor, Toni K. Choueiri, Rana R. McKay

In this retrospective multicenter study (9 sites), including 298 patients with advanced RCC, we investigated the safety of cabozantinib with different anticoagulants. DOACs appear safe for VTE treatment for patients with RCC on cabozantinib as we did not observe any difference in major bleeding events between the no anticoagulant, LMWH, and DOAC groups. Optimized anticoagulation management remains vital in clinical practice.

63 The Natural History of Renal-Cell Carcinoma with Sarcomatoid Differentiation, a Stage-by-Stage Analysis

Karl H. Tully, Sebastian Berg, Marco Paciotti, Florian Janisch, Stephen W. Reese, Joachim Noldus, Shahrokh F. Shariat, Toni Choueiri, Guido Müller, Bradley McGregor, Steven L. Chang, Quoc-Dien Trinh, Matthew Mossanen

In this retrospective study using the National Cancer DataBase, the unfavorable median overall survival in patients diagnosed with renal cell carcinoma with sarcomatoid differentiation was found to be caused by the high number of cases diagnosed with late-stage disease. Additionally, surgical therapy was associated with favorable overall survival across all stages.

69 Genomic and Clinical Prognostic Factors in Patients With Advanced Urothelial Carcinoma Receiving Immune Checkpoint Inhibitors

Neal S. Chawla, Nicolas Sayegh, Nishita Tripathi, Ameish Govindarajan, Zeynep B. Zengin, Errol J. Phillip, Nazli Dizman, Luis Meza, Ramya Muddasani, Alexander Chehrizi-Raffle, Jasnoor Malhotra, JoAnn Hsu, Neeraj Agarwal, Sumanta K. Pal, Abhishek Tripathi

There is a need for prospectively validated reliable biomarkers of response to immune checkpoint therapy (ICI) in advanced/metastatic urothelial cancer (mUC). Telomerase reverse transcriptase (TERT) promoter mutations are amongst the most commonly detected mutations in mUC and have been associated with ICI response in a prior study. ATM mutations, among the several DNA damage repair genes (DDR), have previously been associated with poor clinical outcomes, however other data show that DDR mutations are correlated with ICI response. Our study found no significant difference in clinical outcomes with TERT mutation, while patients with ATM mutations had worse outcomes with ICI. Further retrospective investigation of these mutations from tertiary cancer centers may further elucidate the prognostic and predictive value of these mutations with ICI therapy.

76 Distinct Profiles of DNA Repair Activity Define Favorable-risk Prostate Cancer Subtypes With Divergent Outcome

Nishwant Swami, Tiffany Nguyen, Ifeanyichukwu Ogoburo, Matthew Abramowitz, Fallon Chipidza, Elai Davicioni, Karthik Meiyappan, Alan Dal Pra, Paul L. Nguyen, Alan Pollack, Sanoj Punnen, Brandon A. Mahal, Mohammed Alshalalfa

DNA damage repair (DDR) pathways hold prognostic information in high-risk prostate cancer. Here, we investigated DDR in low-risk prostate cancer and demonstrated that high DDR is associated with poor clinical outcome and a distinct molecular subtype.

- 84 The Impact of Covid-19 Pandemic on Genitourinary Cancers Stage and Grade**
Diana Taheri, Fatemeh Jahanshahi, Alireza Khajavi, Fatemeh Kafi, Alireza Pouramini, Reza M. Farsani, Yasamin Alizadeh, Maryam Akbarzadeh, Leonardo O. Reis, Fatemeh Khatami, Seyed Mohammad Kazem Aghamir
Our study aims to evaluate the impact of the COVID-19 pandemic on the number of uro-oncological surgeries. Our study aims to evaluate the impact of the COVID-19 pandemic on the number of uro-oncological surgeries.
- 91 Prognostic Role of Long-Chain Acyl-Coenzyme A Synthetase Family Genes in Patients with Clear Cell Renal Cell Carcinoma: A Comprehensive Bioinformatics Analysis Confirmed with External Validation Cohorts**
Mustafa Zafer Temiz, Aykut Colakerol, Salih Zeki Sonmez, Adem Gokce, Ibrahim Ogulcan Canitez, Sule Ozsoy, Engin Kandirali, Atilla Semercioz, Ahmet Yaser Muslumanoglu
The prognostic role of long-chain acyl-CoA synthetases (ACSLs) was investigated using The Cancer Genome Atlas (TCGA) database for kidney clear cell carcinoma (KIRC) patients (n = 518). TCGA data were accessed via LinkedOmics database. We revealed lowered ACSL1 expression was associated with worse tumor histopathology and poor overall survival in ccRCC. It seems it may be used for prognostic marker for ccRCC.
- ## Editor's highlight
- 105 Assessment of Tolerability, Response and Complications of Concurrent Chemoradiation With Capecitabine and Cisplatin in Muscle-Invasive Bladder Cancer; A Single Arm Study**
Sara Soltanzadeh, Arefeh Saeedian, Reza Ghalehtaki, Mohsen Ayati, Mohammadreza Nowroozi, Peiman Haddad, Mahdieh Shafiee Sabet, Amin Kheirolah
Radical cystectomy is the popular therapy for muscle-invasive bladder cancer. Concurrent chemoradiation is an accepted alternative. In his single-arm clinical trial, we sought the outcomes of patients treated with chemoradiotherapy using once daily radiation and concurrent cisplatin and capecitabine. Considering the promising response and compliance rates, the administration of our protocol warrants further attention in the context of MIBC treatment.
- 106 CABOSEQ: The Effectiveness of Cabozantinib in Patients With Treatment Refractory Advanced Renal Cell Carcinoma: Results From the International Metastatic Renal Cell Carcinoma Database Consortium (IMDC)**
Vishal Navani, J Connor Wells, Devon J Boyne, Winson Y Cheung, Darren M Brenner, Bradley A McGregor, Chris Labaki, Andrew L Schmidt, Rana R McKay, Luis Meza, Sumanta K Pal, Frede Donskov, Benoit Beuselinck, Maxwell Otiato, Lisa Ludwig, Thomas Powles, Bernadett E Szabados, Toni K Choueiri, Daniel Y C Heng
In advanced kidney cancer, there is limited data to understand the efficacy of cabozantinib after contemporary first line therapy options. In a 346 patient real world database analysis we identified clinically meaningful activity of second line cabozantinib after all evaluated contemporary 1L therapies, including immune checkpoint blockade combination approaches.
- 107 Real World Outcomes in Patients With Metastatic, Castration-Resistant Prostate Cancer Treated With Radium-223 in Routine Clinical Practice in Sweden**
Pär Stattin, Marcus Westerberg, Ingela Franck Lissbrant, Marie Hjäl m Eriksson, Anders Kjellman, Anders Ullén, Zdravko Vassilev, Per Sandstrom, Rachel Weinrib, David Martinez, Xabier Garcia-Albeniz
We evaluated the effect of Ra-223 on the incidence of bone fractures and mortality compared with standard of care in patients with metastatic, castration resistant prostate cancer. We used real-world data from Swedish population-based healthcare registries. The results were imprecise and compatible with both a slight benefit or harm for both fractures and mortality in all lines of treatment.

- 108 Development of a Pocket Nomogram to Predict Cancer and Disease Specific Survival After Radical Cystectomy For Bladder Cancer: The CRAB Nomogram**
Antonio Cicione, Giuseppe Simone, Riccardo Lombardo, Antonio Franco, Antonio Nacchia, Nicola Ghezzi, Filippo Zammitti, Alessio Guidotti, Giacomo Gallo, Emilio Molinaro, Costantino Leonardo, Michele Gallucci, Siamak Daneshmand, Gus Miranda, Mihir M Desai, Inderbir Gill, Hassan Abol-Enein, Andrea Tubaro, Cosimo De Nunzio
Data from a consecutive series of 2395 patients with primitive or progression to muscle invasive bladder cancer (MIBC) undergoing to radical cystectomy and lymph nodes dissection in 5 centers were evaluated. A quick nomogram to predict death from cancer and relapse was developed. The nomogram showed to be effective and accurate in predicting both outcomes. The nomogram may improve communication with the patients.
- 115 Modern Active Surveillance in Prostate Cancer: A Narrative Review**
Trent A Pattenden, Dhanika Samaranayke, Andrew Morton, Wee Loon Ong, Declan G Murphy, Elizabeth Pritchard, Susan Evans, Jeremy Millar, Venu Chalasani, Prem Rashid, Matthew Winter, Ian Vela, David Pryor, Stephen Mark, Nathan Lawrentschuk, Isaac A Thangasamy
The authors reviewed and summarised the literature about active surveillance in prostate cancer. It provides a useful reference on patient selection criteria, surveillance investigations, barriers and enablers of active surveillance and evolving technologies that will be used in the future.
- 124 Multimodal Management of Testicular Mesothelioma - A Retrospective Analysis From a Tertiary Cancer Care Centre**
Narmadha Rathinasamy, Santosh Menon, Gagan Prakash, Nandini Menon, Mahendra Pal, Ganesh Bakshi, Vanita Noronha, Kumar Prabhash, Vedang Murthy, Nilesh Sabale, Archi Agrawal, Amit Joshi
- 128 Site-Specific Differences in PD-1 Blockade Success and Biomarkers in Urothelial Carcinoma Treated with Pembrolizumab**
Kota Umeda, Nobuyuki Tanaka, Yota Yasumizu, Toshikazu Takeda, Kazuhiro Matsumoto, Shinya Morita, Takeo Kosaka, Ryuichi Mizuno, Mototsugu Oya
Targeting PD-1 / PD-L1 has shown the ability to improve overall survival in urothelial carcinoma; however, there are cases of nonresponse and resistance. In this study, we evaluated time-course changes in all tumor locations after pembrolizumab treatment to examine the differences in immune checkpoint inhibitor efficacy in different organs. We also examined the usefulness of neutrophil-to-lymphocyte ratio, CRP, and kinetics as prognostic biomarkers in urothelial carcinoma treated with pembrolizumab.
- 136 Impact of Body Mass Index on Outcomes in an Asian population of Advanced Renal Cell Carcinoma and Urothelial Carcinoma Treated With Immune Checkpoint Inhibitors**
Hiroki Ishihara, Yudai Ishiyama, Yuki Nemoto, Kazutaka Nakamura, Hidekazu Tachibana, Hironori Fukuda, Kazuhiko Yoshida, Hirohito Kobayashi, Junpei Iizuka, Hiroaki Shimmura, Yasunobu Hashimoto, Kazunari Tanabe, Tsunenori Kondo, Toshio Takagi
We aimed to clarify the impact of body mass index in patients with advanced renal cell carcinoma (RCC) and urothelial carcinoma (UC), treated with immune checkpoint inhibitors in an Asian population. There was no direct association between obesity (i.e., body mass index ≥ 25 kg/m²) and treatment outcomes in this population.
- 146 Health-related Quality of Life of Patients Treated With Different Fractionation Schedules for Early Prostate Cancer Compared to the Age-standardized General Male Population**
Petri Reinikainen, Miikka Lehtonen, Ilari Lehtinen, Tiina Luukkaala, Harri Sintonen, Pirkko-Liisa Kellokumpu-Lehtinen
This prospective study investigated the health-related quality of life (HRQoL) of the patients with an early prostate cancer (PC) treated with radiotherapy (RT) without hormonal treatment compared to that in the

age-standardized general male population. Patients have equal overall HRQoL measured with the 15D instrument compared to the general male population. Patients had more depression at the beginning of RT, and their sexual activity remained at a lower level after RT.

155 Renal Sarcoma: A Population-Based Study

Michail Alevizakos, Apostolos Gaitanidis, Dimitrios Korentzelos, Spyridon P. Basourakos, Melissa Burgess

Renal sarcomas are very rare and currently lack a prognostic classification. Utilizing a multi-institutional cohort of 365 patients, we proposed a novel classification into stage I, II, and III (metastatic) disease which led to distinct survival trends. Advancing patient age, increased tumor grade, and lacking medical insurance were also independently and significantly associated with poorer OS.

162 Natural History of Patients with Prostate MRI Likert 1-3 and Development of RosCaP: a Multivariate Risk Score for Clinically Significant Cancer

Luca Orecchia, Alessandra Nardi, Peter Fletcher, Simona Ippoliti, Jonathan Grounds, Ibifuro Dokubo, Claudia Fede Spicchiale, Saiful Miah, Roberto Miano, Tristan Barrett, Christof Kastner

Negative and equivocal MRI of the prostate can miss some significant cancer. Outcomes from 469 patients with low suspicion of significant cancer were investigated in a tertiary level British hospital. A predictive score was developed to better assess patients' risk. The results show that using PSA-density in community follow-up and the predictive score in specialist risk assessment could minimise missed diagnosis.

171 Antibody-Drug Conjugates in Prostate Cancer: Where Are we?

Georges Mjaess, Fouad Aoun, Elie Rassy, Romain Diamand, Simone Albisinni, Thierry Roumeguère

175 External Validation of a Novel Risk Model in Patients With Favorable Risk Renal Cell Carcinoma Defined by International Metastatic Renal Cell Carcinoma Database Consortium (IMDC): Results From the Turkish Oncology Group Kidney Cancer Consortium (TKCC) Database

Emre Yekedüz, Serdar Karakaya, İsmail Ertürk, Deniz Tural, Gökhan Uçar, Nihan Şentürk Öztaş, Rukiye Arıkan, Mutlu Hızal, Ahmet Küçükarda, Özlem Nuray Sever, Çağatay Arslan, Orçun Can, Saadettin Kılıçkap, Coşkun Yazgan, Nuri Karadurmuş, Mehmet Ali Şendur, İrfan Çiçin, Umut Demirci, Mustafa Özgüroğlu, Berna Öksüzoğlu, Yüksel Ürün

In this report, we validated a novel prognostic model structured by the International Metastatic Renal Cell Carcinoma Database Consortium (IMDC) for patients with metastatic renal cell carcinoma. The former favorable risk group was divided into 2 new categories: very favorable and favorable. Patients with very favorable risk had better survival than those with the novel favorable risk. Further studies are needed to evaluate whether less intensive therapies could be as effective as current combinations of therapies in the very favorable risk group.

183 Review of Toxicities of PARP Inhibitors in Metastatic Castrate Resistant Prostate Cancer

Udit Nindra, Jun Hee Hong, Bavanthi Balakrishnar, Abhijit Pal, Wei Chua

PARPi have become new treatments in mCRPC. Toxicities of treatment are less well established. Our review encompasses all published studies of PARPi in mCRPC outlining both hematological and non-hematological toxicities. Overall PARPi appear to have consistent hematological toxicities across malignancies with an overall low toxicity burden.

194 Does the Time to Start First-Line Treatment Influence the Survival of Favorable-Risk Patients With Metastatic Renal Cell Carcinoma? Results of the MetaSurv-UroCCR 79 Study

Cyrielle Rolley, Philippe Barthelemy, Karim Bensalah, François-Xavier Nouhaud, Arnaud Villers, Franck Bruyère, Souhil Lebdaï, Solène Ricard, Marine Gross-Goupil, Morgan Rouprêt, Jean-Christophe Bernhard, Pierre Bigot

This study shows that delaying first-line medical treatment may safely undergo in patients with favorable IMDC group metastatic renal cell carcinoma without significantly compromising cancer control. For this population of patients under surveillance median systemic treatment-free survival was 39 months.