Brain metastases from renal cell carcinoma

- Evaluation of primary venous thromboembolism prophylaxis in hospitalized patients with primary brain tumors or secondary brain metastases
- Peptide Hydrogels for Renal Carcinoma Therapy via Synergistic Inhibition of Glycolysis and Mitochondrial Metabolism Reprogramming
- Current status of adjuvant immunotherapy and relapse management in renal cell carcinoma: Insights from a European delphi study
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- Unilateral Pheochromocytoma in Von Hippel-Lindau Syndrome Revealed by a Hemangioblastoma
- Predictive Factors for Multiple Metastases of Clear-cell Renal Cell Carcinoma
- Severe hypercalcemia as the initial presentation of renal cell carcinoma: a diagnostic case report

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see also Clear cell renal carcinoma brain metastases.

Brain metastases from renal cell carcinoma refer to the spread of cancerous cells from the kidneys to the brain. Renal cell carcinoma (RCC) is known for its tendency to metastasize to various organs, including the brain. When RCC metastasizes to the brain, it can form tumors or lesions within the brain tissue, which can lead to symptoms such as headaches, neurological deficits, seizures, and other manifestations depending on the location and size of the metastases.

Renal cell carcinoma is the most common kidney cancer which tends to metastasize to the brain in about 4–11% of cases with an average interval from nephrectomy to brain metastasis of 1–5 years [1)] [2)])

The metastatic tumor from RCC has the propensity of intratumoral hemorrhage and relatively massive surrounding edema compared with other metastatic tumors. These characteristics make an emphasis on the surgical resection in the management of metastatic tumor. However, the surgery is not always possible due to the characteristics of tumor and patient. The outcome of conventional whole brain radiotherapy is unsatisfactory due to the resistant feature of RCC to the radiation, although it plays an important role in other malignancies. The stereotactic radiosurgery (SRS) including various modalities have showed the excellent outcomes in the control of tumor itself and surrounding edema. The repeatability of SRS is also attractive merit, because the new brain metastasis can be encountered in anytime regardless of the first-line treatment modalities. A few adverse effects following SRS have been reported however, incidence and severity could be acceptable without severe morbidity. Therefore, SRS must be emphasized in the management of brain metastasis from RCC and individual various combined treatment strategies could be suggested [3)].

Treatment

Brain metastases from renal cell carcinoma treatment.

Prognosis

The data of 322 patients with metastatic renal cell carcinoma, taken between 2012 and 2020, were retrospectively reviewed. Overall survival (OS) and prognostic factors were evaluated with Kaplan-Meier analysis and Cox regression analysis.

Forty (12.4%) of the patients had bmRCC. Seventeen (42.5%) of the patients were de novo metastatic, and nine (22.5%) of the patients had brain metastases at presentation. Twenty-four (60%) patients previously had received various therapies (tyrosine kinase inhibitors or checkpoint inhibitors). After brain metastases developed, 35 (87.5%) of the patients received brain radiotherapy (whole-brain radiotherapy or stereotactic radiosurgery), and twenty-five (62.5%) patients received different systemic therapies. Nine patients received sunitinib, nine received pazopanib, five received nivolumab, and two received axitinib. The median OS was 8.8 months (range: 2.9-14.6) for all patients with bmRCC. In univariate analysis, the number of brain metastasis ($P = 0.35$), the site of brain metastasis (left, right or bilateral) ($P = 0.79$), the largest size of brain metastasis ($P = 0.45$), the number of extracranial metastatic sites ($P = 0.81$), de novo metastatic disease ($P = 0.17$), primary tumor site (left or right) ($P = 0.90$), and tumor grade ($P = 0.09$) were not statistically significant factors on OS. However, age ($P = 0.02$), a history of nephrectomy ($P < 0.001$), receiving brain radiotherapy ($P = 0.005$), and type of systemic treatment ($P = 0.04$) were statistically significant. Only, the effect of brain radiotherapy on OS ($P = 0.01$) was confirmed in multivariate analysis.

The prognosis of patients with bmRCC was poor. Despite a small number of patients, we detected that the effect of tyrosine kinase inhibitors and nivolumab was comparable, and receiving brain radiotherapy was a prognostic factor for OS [4].

Case reports from the HGUA

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Treatment of brain metastases from renal cell cancer Carsten Nieder, M.D.a,b,*, Oddvar Spanne, Ph.D.c, Tone Nordøy, M.D.c,,Astrid Dalhaug, M.D.a a Department of Internal Medicine, Division of Oncology, Nordland Hospital, Bodø, Norwayb Faculty of Medicine, Institute of Clinical Medicine, University of Tromsø, Tromsø, Norwayc Department of Oncology, University Hospital of North Norway, Tromsø, Norway Received 15 May 2009; received in revised form 7 July 2009; accepted 7 July 2009.

2)

ChuanOu Yen, Ho Hao-Chung, Cheng Chen-Li. Treatment of metastatic renal cell carcinoma to the brain: a report oflong-term survival following multimodal treatment and sequentialuse of targeted agentsChih-Chin YuJian-Ri Li*Division of Urology, Department of Surgery, Taichung Veterans General Hospital, Taichung, Taiwan. ROCUrological Science. April 2014;25(4

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Kim YH, Kim JW, Chung HT, Paek SH, Kim DG, Jung HW. Brain metastasis from renal cell carcinoma. Prog Neurol Surg. 2012;25:163-75. doi: 10.1159/000331190. Epub 2012 Jan 6. PMID: 22236678.

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Dogan I, Iribas A, Paksoy N, Vatansever S, Basaran M. Outcomes and prognostic factors in metastatic renal cell carcinoma patients with brain metastases. J Cancer Res Ther. 2023 Jan 1;19(Suppl 2):S587-S591. doi: 10.4103/jcrt.jcrt_972_22. Epub 2023 Apr 29. PMID: 38384023.