Immunotherapy for metastases

Immunotherapy (i.e. immune checkpoint inhibitors) showed a significant impact on the prognosis of patients with metastatic melanoma, also in the setting of patients with brain metastases. Despite various possible treatments, the survival of patients with melanoma brain metastases is still unsatisfactory; new treatment modalities or combinations of therapies need to be explored. Being immunotherapy and radiotherapy alone both efficient in the treatment of melanoma brain metastases, the combination of these two therapies seems logical. Moreover, radiotherapy can improve the efficacy of immunotherapy and the immune system plays a relevant role in the action of radiotherapy. Preclinical data support this combination. Clinical data are more contradictory [1].

Immune checkpoint inhibitors (anti-CLTA-4 antibodies and anti-PD-1/PD-L1 antibodies) potentiate the host's own antitumor immune response. These immune checkpoint inhibitors have shown impressive clinical efficacy in advanced melanoma, metastatic kidney cancer, and metastatic non-Small-cell lung cancer (NSCLC)-all malignancies that frequently cause brain metastases. The immune response in the brain is highly regulated, challenging the treatment of brain metastases with immune-modulatory therapies. The immune microenvironment in brain metastases is active with a high density of tumor-infiltrating lymphocytes in certain patients and, therefore, may serve as a potential treatment target. However, clinical data of the efficacy of immune checkpoint inhibitors in brain metastases compared with extracranial metastases are limited, as most clinical trials with these new agents excluded patients with active brain metastases. In this article, we review the current scientific evidence of brain metastases biology with specific emphasis on inflammatory tumor microenvironment and the evolving state of clinical application of immune checkpoint inhibitors for patients with brain metastases [2].

1)
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2)
Berghoff AS, Venur VA, Preusser M, Ahluwalia MS. Immune Checkpoint Inhibitors in Brain Metastases: From Biology to Treatment. Am Soc Clin Oncol Educ Book. 2016;35:e116-22. doi: 10.14694/EDBK_100005. PubMed PMID: 27249713.