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PODPORNÁ LIEČBA

Ciernikova S, Sevcikova A, Stevurkova V, Mego M.

Diet-driven microbiome changes and physical activity in cancer patients.

Front. Nutr. 10:1285516. doi: 10.3389/fnut.2023.1285516

Exploring the role of the gut microbiome in oncology is gaining more attention, mainly due to its ability to shape the immune system in cancer patients. A well- balanced microbial composition forms a symbiotic relationship with the host organism. Mounting evidence supports the potential of modifiable lifestyle factors, such as diet and physical activity, in restoring intestinal dysbiosis related to cancer development and treatment. In this Minireview, we describe the host- microbiome interplay following different dietary patterns, including a high-fat diet, fiber--rich diet, diet rich in rice and beans, Mediterranean diet, ketogenic diet, and physical activity in preclinical findings and clinical settings. According to the results, nutrition is a critical factor influencing the composition of gut microbial communities. Therefore, knowledge about the patient's nutritional status in pre-treatment and treatment becomes crucial for further management. A combination of individualized dietary habits and professional training plans might help to maintain gut homeostasis, potentially improving the response to anti--cancer therapy and the quality of life in cancer survivors. However, a deep understanding of underlying mechanisms and large clinical trials are needed to uncover clinically relevant correlations for personalized treatment approaches leading to better outcomes for cancer patients.

Sevcikova A, Mladosievicova B, Mego M, Ciernikova S.

Exploring the Role of the Gut and Intratumoral Microbiomes in Tumor Progression and Metastasis

Int. J. Mol. Sci. 2023, 24,17199. https://doi.org/ 10.3390/ijms242417199

Cancer cell dissemination involves invasion, migration, resistance to stressors in the circulation, extravasation, colonization, and other functions responsible for macroscopic metastases. By enhancing invasiveness, motility, and intravasation, the epithelial-to-mesenchymal transition (EMT) process promotes the generation of circulating tumor cells and their collective migration. Preclinical and clinical studies have documented intensive crosstalk between the gut microbiome, host organism, and immune system. According to the findings, polymorphic microbes might play diverse roles in tumorigenesis, cancer progression, and therapy response. Microbial imbalances and changes in the levels of bacterial metabolites and toxins promote cancer progression via EMT and angiogenesis. In contrast, a favorable microbial composition, together with microbiota-derived metabolites, such as short-chain fatty acids (SCFAs), can attenuate the processes of tumor initiation, disease progression, and the formation of distant metastases. In this review, we highlight the role of the intratumoral and gut microbiomes in cancer cell invasion, migration, and metastatic ability and outline the potential options for microbiota modulation. As shown in murine models, probiotics inhibited tumor development, reduced tumor volume, and suppressed angiogenesis and metastasis. Moreover, modulation of an unfavorable microbiome might improve efficacy and reduce treatment- related toxicities, bringing clinical benefit to patients with metastatic cancer.

GENITOURINÁRNE MALIGNITY

Lesko P, Obertova J, Kajo K, **Rejlekova K, Orszaghova Z,** Lehotska V, Ondrusova M, **Chovanec M, Ondrus D, Mego M.**

Testicular Seminoma in Prostate: Case Report and Review of Literature

Clin Genitourin Cancer. 2023 Nov 2:S1558-7673(23)00236-7.

This case report points out, unusual case of man with testicular cancer who experienced late relapse in unusual site of metastasis or another sequential primary extragonadal tumor in prostate (PEGCT). Case report also includes described cases available in literature and reviewed separately for PEGCT and for metastasis of germ cell tumor to prostate. Solitary unusual site of late relapse to prostate represents very rare entity, however we speculate, that mechanism of seeding in prostate might be caused by redirected blood flow, moreover, on the other hand, presence of seminoma in prostate could be caused by another primary germ cell tumor in prostate as well. Our finding suggests, that in our peculiar case and similar clinical scenarios is essential to think about another primary extragonadal tumor (PEGCT). Unfortunately, whether, appropriate treatment approach should be driven according to IGCCG criteria staged as intermediate-risk disease (in case of metastasis) or to good risk disease (in case that we suspect PEGCT) is up for debate. However, we incline to 4 cycles of VIP or BEP chemotherapy staged as intermediate-risk disease. Speculations about surgery were accompanied by lack of data and extrapolations from stage I relapses are only speculations. This case report impacts future by adding knowledge value to similar cases in terms of considering adequate treatment approach according to internal recommendations such as NCCN or ESMO. However, question about primary origin of tumor in terms of, whether it is late recurrence or PEGCT in similar clinical scenarios will mostly remain unresolved. Thus, in similar case scenario treatment approach as intermediate—risk disease should be standard of care according to international guidelines.

ABSTRAKTY Z KONFERENCIÍ

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Molecular characterization of primary tumors associated with various CTCs' subpopulation

San Antonio Breast Cancer Symposium 2023, San Antonio, TX, USA, December 5–9, 2023

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Pregnancy after breast cancer in young women with germline BRCA pathogenic variants: results from an international cohort study

San Antonio Breast Cancer Symposium 2023, San Antonio, TX, USA, December 5–9, 2023