Complementary alternative medicine: fermented wheat germ extract - drugdiscovery.com

Avemar® is a biologically active, natural, non-toxic medical nutriment developed in Hungary in the early 1990s to complement conventional cancer therapy. It is an orally applicable fermented wheat germ extract (FWGE) containing a diverse array of chemical substances including 2-methoxy-p-benzoquinone and 2,6-dimethoxy-p-benzoquinone that are considered as the main active principles acting against malignant cells by multiple mechanisms.

According to its metabolic effect, FWGE perturbs the key pathways of biosynthesis of the building blocks of nucleic acids and interferes with enzymes responsible for energy supply of tumor cells being in hypermetabolic state. In animal models, antimetastatic activity of FWGE has been observed either alone or in combination with cytostatic drugs such as 5-fluorouracil, cisplatin, and dacarbazine. In another study, FWGE significantly augmented the activity of the estrogen receptor antagonist drug tamoxifen on estrogen-positive breast cancer cells. Wheat germ extract can also modulate immune response: it downregulates the expression of a protein on the surface of tumor cells required to evade their recognition and destruction by the immune system.

Importantly, FWGE is not toxic on normal cells in the doses that affect tumor cells in an adverse manner.

FWGE was evaluated in a randomized, pilot, phase II clinical trial, in high-risk skin melanoma patients. The efficacy of adjuvant chemotherapy (dacarbazine) treatment alone or in combination with 1-year long administration of FWGE were compared indicating the superiority of the latter regimen. Both the overall and the progression-free survival considerably improved in favor of the FWGE group: 66.2 months versus 44.7 months and 55.8 months versus 29.9 months, respectively. Additionally, the incidence of side effects related to anticancer treatment was lower in the combination arm.

Similarly, assessment of lung and breast cancer patients showed that adminsitration of FWGE consistently enhanced quality of life and reduced chemotherapy side effects including suppression of immune function.

Continuous supplementation of FWGE also significantly reduced the risk of chemotherapy-induced febrile neutropenia (decrease in white blood cells associated with a greater risk of infections) in pediatric cancer patients.

Taking into consideration of the antiproliferative, antimetastatic and immunological effects of FWGE observed both in preclinical and clinical studies make this multisubstance composition a promising candidate for further clinical trials to clarify its potential in the treatment of malignant diseases.

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