MELANOMA AND MELANOCYTIC NAEVI

EFFECT OF UVB ON MELANOMA CELLS VIABILITY INHIBITED BY KYNURENIC ACID - IN VITRO STUDY

M Turska [1] - K Walczak [1] - T Plech [1]

Medical University Of Lublin, Department Of Pharmacology, Lublin, Poland [1]

Introduction: Melanoma is the most dangerous skin neoplasm which develops mostly after ultraviolet radiation when skin cells (melanocytes) multiply rapidly and form malignant tumors in the basal layer of the epidermis. Melanoma accounts for only 1% of all skin cancers. But at the same time, most of the skin cancer deaths are melanoma-cancers.
Kynurenic acid (KYNA), an endogenous metabolite of tryptophan is an agonist of aryl hydrocarbon receptor (AHR) and G protein-coupled receptor 35 (GPR35). AHR is present in human melanoma cells and its function is linked with carcinogenesis. Expression of GPR35 in human skin samples was communicated, however neither specific cellular localization nor function of this receptor was described.

Objective: Here, we investigated the effect exerted by KYNA on metabolic activity and viability of human melanoma cells in vitro. Moreover, the effect of ultraviolet B (UVB) irradiation was investigated.

Materials and Methods: Experiments were conducted on human melanoma A375 cells. Cells were treated with kynurenic acid (100 nM – 5 mM) prior to irradiation with UVB (25 mJ/cm2) and incubated for 24 hours. The effects of kynurenic acid and UVB were evaluated by assessing MTT assay. The results were statistically significant with a P value of less than 0.05.

Results: It was found that KYNA inhibited metabolism and viability of A375 cells in a concentration-dependent manner. Irradiation of cells with UVB partly restored KYNA-inhibited viability of melanoma cells.

Conclusions: Our results suggest that (a) endogenous KYNA may control metabolism and viability of melanoma cells, and (b) UVB may inhibit this inhibitory effect of KYNA.