SUMMARY

Skin is the biggest and very complex organ of human body. Its protective function is properly maintained due to its continuous renewal. Malignancies develop when the balance between proliferation and cell death is dysregulated in skin cells. Skin cancers are the most common neoplasms in humans. Its localisation and availability for the clinician and researcher make it a perfect model for exploring the carcinogenesis mechanisms. It seems that some of the results from the research done in the skin samples could be extrapolated to planoepithelial cancers of other localisation.

The search for factors that play a regulatory role and guarantee the balance of cell death and proliferation processes seems to be important in order to understand the process of carcinogenesis and potentially find ways to control and inhibit it.

Caspase-14 is a unique member of the family of caspases – molecules involved in the regulation of the apoptosis process. However, exceptionally, it does not take part in this process. Studies indicate that it regulates another type of programmed cell death characteristic of the epidermis – keratinisation.

In the literature there are publications on the biotechnological aspects of caspase-14-th, regulation, transcription, translation, post-translational modifications and functions in the physiology and pathophysiology of the cell. There are also numerous, though often conducted in small research samples, data on the role of caspase-14 in various cancers and diseases, including skin diseases. However, there is no data on caspase-14 and its association with non-melanocytic skin cancers.

The research work on which the doctoral dissertation is based consisted of two stages. First, the literature available as of May 2021 was reviewed, with particular emphasis on clinical aspects and the role of caspase-14 in the etiopathogenesis of human diseases. The results were presented in Markiewicz A, et al.(2021) Caspase-14-From Biomolecular Basics to Clinical Approach. A Review of Available Data.

The second stage of the work was to investigate the potential role of caspase-14 in skin cancer. The results were presented in Markiewicz A,et al.(2023) "mRNA expression of caspase 14 in skin epithelial malignancies".

The study included 56 patients of the Department of Dermatology, Sexually Transmitted Diseases and Clinical Immunology in Olsztyn (21 patients in the control group, 35 in the study group). The study group consisted of patients with basal cell carcinoma, squamous cell carcinoma or actinic keratosis. The expression of caspase-14 mRNA in skin samples taken from neoplastic

lesions and from healthy skin was studied. The results of the measurements show that caspase-14 may be a factor influencing the formation of skin cancers.

Caspase-14 expression was lower in healthy skin in a combined group of invasive squamous cell and basal cell carcinomas than in healthy skin of actinic keratosis patients and controls. In addition, the expression was lower in the group of invasive skin cancers in healthy skin than in diseased skin. The present study investigates an undescribed link between caspase-14 and skin cancers. It is advisable to extend the research in the future with a study at the protein level and to enlarge the study group so as to draw even more conclusions that could be used to better understand the biology of these tumors.