THE BREACH DOWN OF REGENERATION AMONG PEOPLE OF OLDER AGE GROUPS AND DEVELOPMENT OF CARCINOGENESIS

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Objectives: The likelihood of the development of oncological pathology increases significantly after 40 years of age (Napalkov, 1989). From this time one can see a reduction in the number of pluripotent stem cells as well as in the amount (in men) of testosterone circulating in the blood. This phenomenon has been named partial androgen deficiency of aging men (PADAM)) (Bremner et al., 1983; Gray et al., 1991). The cause-and-effect relations of these phenomena are an interesting subject of study.

Material and methods: The first study group had 7 patients who were given a transplantation of donor stem cells in connection with chronic myeloleukemia. The second study group contained 5 men aging from 50 to 75 years of age; the control group contained 5 men aging from 17 to 25 years of age. All persons of the second study group had died as a result of traumatic injury. Perietal skin of the head was used for the study of persons from the second group.

Results: In the first study group a comparison of blood samples from the patient and his close relative (mother of father) revealed the materials to be unrelated one year (or more) after transplantation, while the recipients had the same blood group as the donor. In 6 cases two types of cells were found in the recipients' cheek cells of the epitelium with a genotpye of two various individuals, while in one case related cells were found which had the genotype of an individual who wasn't a relative of the mother of the recipient. Androgen receptors were found in the stem cells of 5 male donors.

In the second study group persons of older age groups (as compared to the control group) revealed a regular reduction in the thickness of the papillary (by 3.1 times) and net-vein layers (by 2.0 times) of the corium, of the thickness of the fascicles of collagenous (by 1.5 times) and elastic (by 2.1 times) fibers, of the number of cambial epithelial cells of hair follicles (by 1.5 times), while the average number of fibroblasts increased (by 1.3 times), the majority of which were smaller in size, and had deformed and hyperchromic centers. Some of hair follicles were replaced by scar tissue. Androgen receptors were found when studying cells of the epidermis, the corium (fibroblasts), hair follicles, and sebaceous and sweat glands; in fact the values of the Histochemical score AR for persons of older age groups were regularly higher than the analogous values of the control group.

Discussion: An age-related reduction in the number of stem cells breaks down the processes of regeneration of tissues, including endocrine organs. The partial androgen deficiency which develops among men of older age groups intensifies these changes. The risk of development of oncological diseases increases, while destructive changes take place in connective tissue (with a reduction in solidity characteristics), as well as in the skin and other tissues and organs among people of older age groups.