

Biobehavioral influences on tumor progression:

There has been recently taken attention to biobehavioral influences on cancer development. Importance of biobehavioral influences such as depression, social stress and chronic disease is supported by clinical experience made in out of trial treated patients who underwent FD.

Biobehavior influence acts via activation of hypothalamic-pituitary-adrenal axis and autonomous nervous system. Both of this processes causes chronic elevation of cortisol, adrenalin and noradrenalin. These processes are shown to influence stronger progression of cancer rather than it's incidence. (Paige G., 2007, Biobehavioral influences).

There has been shown that mild daily stressors may cause increased glucocorticoid response in mice which lead to decreased apoptosis and overall tumor growth. This effect is attributed to activation of glucocorticoid receptor which intracellularly increases SGK and MKP-1 which are supposed to be initiators of surviving signaling pathways. More over activation of glucocorticoid receptor has been shown to be the most important growth factor for mammary epithelial cells (Suzanne D., 2007, Social).

Noradrenalin released by activation of sympathetic nervous system is documented to be able to play important role in up regulating several genes involved in tumor cell invasion and metastasis (e.g. VEGF, IL 6 and MMP) by activating B adrenergic signaling pathway through increase of intracellular cAMP/PKA and Src pathway (Steven W., 2007, Bioinformatic).

There has been demonstrated decrease in local immunity on mice model caused by chronic stress. This effect has lasted for months even in the absence of continued stress. There has been demonstrated increased susceptibility to skin cancer after UV exposure, shift to Th 2 immunity, decreased T cell chemoattraction in precancerous lesions. (Firdaus S., 2007, Stress and UV).

literature

Biobehavioral influences on cancer biology: an emerging opportunity, Paige Green McDonald, PhD, MPH, 2007, Behavioral influences on cancer biology an emerging opportunity

Social enviromental and tumor biology: the role of glucocorticoid-mediated tumor survival, Suzanne D. Conzen, MD, MPH, 2007, Behavioral influences on cancer biology an emerging opportunity

Bioinformatic analyses of gene-social enviroment interactions in cancer, Steven W. Cole, PhD., MPH, 2007, Behavioral influences on cancer biology an emerging opportunity

Stress and UV-induced squamos cell carcinoma, Firdaus S. Dhabhar, PhD, MPH, 2007, Behavioral influences on cancer biology an emerging opportunity