The role of GABA-ergic system in human mammary gland pathology and in growth of transplantable murine mammary cancer.


Source

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Abstract

In this paper we described the results of our studies on the baclophen (gamma aminobutyric acid (GABA)-B receptor agonist) inhibitory effect on the growth of experimental mammary cancer 16/C in mice and on the estimation of GABA level and GAD (glutamine acid decarboxylase—the key enzyme in GABA synthesis) activity after this treatment in mice. The experimental data are confronted with the estimation of GABA level and GAD activity in human mammary gland material taken from the patients with benign breast tumors of different pathological and age related hormonal stages. A significant inhibition of 16/C tumor growth in treated with baclophen mice was observed. Mean GABA level and GAD activity were significantly higher both in tumor and in normal tissue of baclophen treated mice in comparison to control animals. The results of clinical studies have shown that the lowest GABA level and GAD activity in tumor and normal mammary gland tissue was detected in patients in perimenopausal stage. Both, in human and mouse material, the GABA level and GAD activity were higher in tumor than in normal tissue and there was a clear positive correlation between GABA level and GAD activity in both tissues studied. GABA level and GAD activity in tumor and in normal tissue were lower in patients with dysplasia than in patients with fibroadenoma. Considering our results, namely an inhibitory effect of GABA receptor agonist on mammary cancer growth and the correlation between GABA level and the stage of breast pathology and/or hormonal activity, it seems probable that GABA-ergic system is involved in hormonal regulation and pathogenesis of breast cancer.

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