

Prophylactic of Metastases of Uveal melanoma by Xenovaccination with - Mouse Tumor Cells

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Prophylactic of infectious diseases by live vaccines were the most successful events in the struggle against viruses and bacteria in the XX century. Small pox, poliomyelitis and tuberculosis were taken under control by wide application of corresponding live vaccines.

We suggested that live vaccine for oncology could be live xenogenic tumor. Mouse models have shown that xenotransplantation of tumors are safe for recipients with normal immunity. Moreover, unsuccessful xenotransplantation is very successful immunization.

Xenotransplantation of tumors, widely used in experimental oncology, is successful only in immunodeficient mouse models but can be used as powerful immunization tools for creation of anti-tumor immunity in normal subjects. We have shown significant protection for mouse melanoma B-16, when we vaccinated animals with human Sk-Mel -1 melanoma cells transplanted into connective tissue capsule. Xenogenic transplantation of mouse melanoma cells to humans healthy volunteers – authors of this presentation, have shown raise of serum antibodies against common human/ mouse melanoma antigens, s-100 and GM-3, by ELISA. T-cells anti-melanoma response was detected by gamma-interferon Elispot test. Local immunity, immediate and delayed types, against mouse B-16 melanoma was present in the course of this xenogenic anti-tumor vaccination.

Classical vaccination according to Sir Edward Jenner means prophylactics but in oncology, there is a great will to apply vaccines for therapeutic purposes. In case of melanoma, one point of application for prophylactic vaccine is post surgical immunization to prevent future metastasis. It is especially important for uveal melanoma; where primary tumor is removing with the completely affected organ – eye and metastasis usually appear in lungs and liver several years after surgery.

In the frame of Phase 1 clinical trial of xenovaccination for melanoma, approved by Russian Ministry of Health, vaccination of uveal melanoma patients with live mouse melanoma B-16 was started in 2004. 35 patients with stage $T_{2-4}N_0M_0$ uveal melanoma were vaccinated with 100 mln, mouse melanoma cells by injection into connective tissue capsule preliminary formed by subcutaneous injection of biocompatible gel. 5 patients have got metastasis with in the first 18 months of observation. The rest 30 patients are free from melanoma up today.