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Treatment of Melanoma

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✓ **Abstract:**

Melanoma is a form of skin cancer that occurs in the melanocytes, may affect only the skin, or it may spread through the blood or lymph system to other organs and bones. If melanoma is recognized and treated early, it is almost always curable, but if it is not, the cancer can advance and spread to other parts of the body, where it becomes hard to treat and can be fatal, There are new studies for treat this type of skin cancer by use virus, by *Staphylococcus epidermidis*, and by *activating the nonclassical G-protein coupled estrogen receptor (GPER)*.

✓ **Introduction:**

Melanoma is a form of skin cancer that occurs in the melanocytes, which are cells in the outer layer of the skin. Melanocytes produce the skin coloring or pigment known as melanin, which gives skin its tan or brown color and helps protect the deeper layers of the skin from the harmful effects of the sun. It develops when melanocytes undergo malignant transformation, become abnormal, grow uncontrollably and aggressively invade surrounding tissues. Melanoma may affect only the skin, or it may spread through the blood or lymph system to other organs and bones. It is the most serious form of skin cancer. May be cured if caught and treated early, but, if left untreated, the majority of melanomas eventually spread to other parts of the body. It is the most common cancer in young adults aged 20-30 and is the leading cause of cancer death for women aged 25-30. Melanoma is significantly more prevalent among white populations than in blacks and Asians. According to World Health Organization statistics, 132,000 cases of melanoma are diagnosed each year and thousands of people die from melanoma annually. For this reason early detection of melanoma is essential to gain the best possible chance of treating the disease. In this report we'll discuss the treatments that use for this type of skin cancer.

✓ **Discussion:**

Immunotherapy for skin cancer patients is a systemic therapy used to treat melanomas with a high risk of recurrence and metastasis. Immunotherapy activates your immune system making it able to identify and destroy cancer cells.

Virotherapy is one type of immunotherapy, which uses a unique medicine that contains virus¹. Virotherapy uses modified herpes virus to attack melanoma cells and has potential to overcome cancer even when disease has spread throughout the body, The findings mark the first positive phase 3 trial results for cancer “virotherapy”, where one disease is harnessed and used to attack another. If approved, the drug, called T-VEC (Talimogene laherparepvec), could be more widely available for cancer patients by next year, scientists predicted. The treatment works by mounting a two-pronged attack on cancer. It is based on a genetically “neutered” version of the herpes virus, which has been modified to stop it producing the protein that allows it to infect healthy cells. Cancer cells then produce their own version of the blocked protein, filling in the deficit and allowing the modified virus to thrive within cancerous tissue. The herpes multiplies vigorously inside the cancer cells until they burst open, spilling the virus into the surrounding area, triggering a secondary immune reaction against the tumour. The therapy is given by injection and in the trial patients received a dose every two weeks for up to 18 months. The side-effects tend to be far milder than chemotherapy drugs, with patients typically experiencing mild flu-like symptoms after the first few injections.²

Staphylococcus epidermidis may help to protect against skin cancer, and could lead

to preventive treatments, *Staphylococcus epidermidis* strain produces the chemical compound 6-N-hydroxyaminopurine (6-HAP). Mice with *S. epidermidis* on their skin that did not make 6-HAP had many skin tumors after being exposed to cancer-causing ultraviolet rays (UV), but mice with the *S. epidermidis* strain producing 6-HAP did not. 6-HAP is a molecule that impairs the creation of DNA, known as DNA synthesis, and prevents the spread of transformed tumor cells as well as the potential to suppress development of UV-induced skin tumors. Mice that received intravenous injections of 6-HAP every 48 hours over a two-week period experienced no apparent toxic effects, but when transplanted with melanoma cells, their tumor size was suppressed by more than 50 percent compared to controls³. Female sex and pregnancy are associated with reduced risk of melanoma and improved stage specific survival; however, the mechanism underlying this apparent clinical benefit is unknown. We previously discovered that pregnancy-associated 17 β -estradiol drives melanocyte differentiation by activating the nonclassical **G-protein coupled estrogen receptor (GPER)**. Here, we show that pregnancy inhibits melanoma, and that transient GPER activation induces long-term changes in melanocytes, which are associated with increased cellular differentiation and resistance to melanoma. A selective GPER agonist induced c-Myc protein degradation, slowed tumor growth, and inhibited expression of immune suppressive proteins including PD-L1, suggesting that GPER signaling may render melanoma cells more vulnerable to immunotherapy. Systemically delivered GPER agonist was well tolerated, and cooperated synergistically with PD-1 blockade in melanoma-bearing mice to dramatically extend survival. These results thus define GPER as a target for differentiation-based melanoma therapy⁴.

✓ **Conclusion:**

Melanoma it is type of skin cancer, May be cured if caught and treated early, but, if left untreated, the majority of melanomas eventually spread to other parts of the body, There are new studies for treat this type of skin cancer by use:

1- Herpes Virus to attack melanoma cells and has potential to overcome cancer even when disease has spread throughout the body.

2- *Staphylococcus epidermidis* strain produces the chemical compound 6-N-hydroxyaminopurine (6-HAP) that protect the skin against cancer.

3- pregnancy inhibits melanoma, and that transient **GPER** activation induces long-term changes in melanocytes, which are associated with increased cellular differentiation and resistance to melanoma.

✓ **References:**

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