



FREQUENTLY ASKED QUESTIONS ABOUT MELANOMA (SKIN CANCER)

1. Who is at risk of developing malignant melanoma of the skin?

The risk of developing melanoma correlates with the amount of sun exposure. The ultraviolet (UV) component is responsible for damaging a certain cell that resides in the skin (melanocytes). Usually, this damage can be repaired by the body, but this repair mechanism can be overwhelmed leading to melanoma formation. A large dose of UV, such as results in a severe sunburn rather than gradual tanning can result in this damage. Risk factors for melanoma related to ultraviolet radiation exposure include a history of sunburn or sun sensitivity, a tendency to freckle, the presence of lightly pigmented skin, blue eyes, and blond or red hair. Other risk factors include a family or personal history of melanoma and the presence of a large number of moles or any atypical moles.

2. What are the sources or exposure to ultraviolet light?

Sources for exposure to ultraviolet radiation include sunlight and artificial light (eg, tanning booths), both of which can cause acute sunburn.

3. At what age is a person most vulnerable to the damaging effects of sunlight?

Excessive sun exposure and severe sunburns in the first 10 to 15 years of life can result in a threefold increase in the lifetime risk of developing melanoma.

4. Has melanoma become more or less common in recent years?

Skin cancer is the most common of all cancers. According to the American Cancer Society, melanoma accounts for about 4 percent of skin cancer cases, but it is also the most serious and most aggressive type. In the United States, an estimated 62,190 new cases of melanoma will be diagnosed and approximately 7,910 people will die of the disease in 2006. The incidence of malignant melanoma has risen 1,900% since 1930, a trend attributed to the increase in recreational exposure to skin areas left covered in the past.

5. Have we made strides in the treatment of melanoma to counteract the increase of melanoma cases?

From 1973 through 1992, the overall percentage increase in the rate of deaths from melanoma (34.1%) was the third highest of all cancers; for males, the percentage increase for melanoma (47.9%) was the highest for all cancers. During the same period, the increase in the rate of deaths from melanoma was greater for white males than for other racial and sex groups. During 1973-1975 and 1990-1992, death rates were highest for white men over the age of 50. The death rate increased more with age for males than for females during 1990 to 1992.



6. What measures can be taken to decrease the risk of malignant melanoma?

Health organizations recommend the use of protective clothing and a sunscreen with an SPF of at least 15 when the sun cannot be avoided, regular examination of all areas of the skin, and an annual skin examination by a professional. The increased risk among persons who sustain intermittent, acute sunburn at an early age (i.e. < 18 years) underscores the need for initiating prevention measures early in childhood.

7. I am concerned about a skin lesion. How do I know that this is not melanoma?

The ABCD approach can be used to assess pigmented lesions and represents mole asymmetry (A), border irregularity (B), variation in color (i.e. pigmentation; C), and diameter > 6 mm (D). If there is any doubt about the nature of the lesion, visit with a healthcare provider (primary care physician, dermatologist).

8. What tests are used to detect melanoma?

If a mole or pigmented area of the skin changes or looks abnormal the following tests and procedures can help detect and diagnosis melanoma:

- Skin examination: A doctor or nurse examines the skin to look for moles, birthmarks, or other pigmented areas that look abnormal in color, size, shape, or texture.
- Biopsy: A local excision is done to remove as much of the suspicious mole or lesion as possible. A pathologist then looks at the tissue under a microscope to check for cancer cells. Because melanoma can be hard to diagnose, patients should consider having their biopsy sample checked by a second pathologist.

9. A person has been diagnosed with the melanoma; what factors affect the outcome in this person?

The prognosis (chance of recovery) and treatment options depend on the following:

- The stage of melanoma (whether cancer is found in the outer layer of skin only, or has spread to the lymph nodes, or to other places in the body).
- Whether there was bleeding or ulceration at the primary site.
- The location and size of the tumor.
- The patient's general health.

10. After melanoma has been diagnosed, what tests are done to find out if cancer cells have spread within the skin or to other parts of the body?

The process used to find out whether cancer has spread within the skin or to other parts of the body is called staging. The information gathered from the staging process determines the stage of the disease. It is important to know the stage in order to plan treatment. The following tests and procedures may be used in the staging process:



- Wide local excision: A surgical procedure to remove some of the normal tissue surrounding the area where melanoma was found, to check for cancer cells.
- Lymph node mapping and sentinel lymph node biopsy: Procedures in which a radioactive substance and/or blue dye is injected near the tumor. The substance or dye flows through lymph ducts to the sentinel node or nodes (the first lymph node or nodes where cancer cells are likely to have spread). The surgeon removes only the nodes with the radioactive substance or dye. A pathologist then checks the sentinel lymph nodes for cancer cells. If no cancer cells are detected, it may not be necessary to remove additional nodes.
- Chest x-ray: An x-ray of the organs and bones inside the chest. An x-ray is a type of energy beam that can go through the body and onto film, making a picture of areas inside the body.
- CT scan (CAT scan): A procedure that makes a series of detailed pictures of areas inside the body, taken from different angles. The pictures are made by a computer linked to an x-ray machine. A dye may be injected into a vein or swallowed to help the organs or tissues show up more clearly. This procedure is also called computed tomography, computerized tomography, or computerized axial tomography. For melanoma, pictures may be taken of the chest, abdomen, and pelvis.
- MRI (magnetic resonance imaging): A procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body. This procedure is also called nuclear magnetic resonance imaging (NMRI).
- PET scan (positron emission tomography scan): A procedure to find malignant tumor cells in the body. A small amount of radionuclide glucose (sugar) is injected into a vein. The PET scanner rotates around the body and makes a picture of where glucose is being used in the body. Malignant tumor cells show up brighter in the picture because they are more active and take up more glucose than normal cells.
- Laboratory tests: Medical procedures that test samples of tissue, blood, urine, or other substances in the body. These tests help to diagnose disease.

11. If the prognosis depends among others on the stage of the melanoma, how many different stages are there, and how or on a defined?

There are 5 different stages of melanoma:

Stage 0 – In stage 0, melanoma is found only in the epidermis (outer layer of the skin). Stage 0 is also called melanoma in situ.

Stage I – Stage I is divided into stages IA and IB.

- **Stage IA:** In stage IA, the tumor:
 - is not more than 1 millimeter thick, with no ulceration.
 - is in the epidermis and upper layer of the dermis.
- **Stage IB:** In stage IB, the tumor is either:
 - not more than 1 millimeter thick, with ulceration, and may have spread into the dermis or the tissues below the skin; or
 - 1 to 2 millimeters thick, with no ulceration.



Stage II – Stage II is divided into stages IIA, IIB, and IIC.

- **Stage IIA:** In stage IIA, the tumor is either:
 - 1 to 2 millimeters thick, with ulceration; or
 - 2 to 4 millimeters thick, with no ulceration.
- **Stage IIB:** In stage IIB, the tumor is either:
 - 2 to 4 millimeters thick, with ulceration; or
 - more than 4 millimeters thick, with no ulceration.
- **Stage IIC:** In stage IIC, the tumor is more than 4 millimeters thick, with ulceration.

Stage III – In stage III, the tumor may be any thickness, with or without ulceration, and:

- has spread to 1 or more lymph nodes; or
- has spread into the nearby lymph system but not into nearby lymph nodes; or
- has spread to lymph nodes that are matted (not moveable); or
- satellite tumors (additional tumor growths within 2 centimeters of the original tumor) are present and nearby lymph nodes are involved.

Stage IV – In stage IV, the tumor may be any thickness, with or without ulceration, may have spread to 1 or more nearby lymph nodes, and has spread to other places in the body.

12. When does the melanoma spread to other organs?

Many patients with melanoma are diagnosed at the stage when a skin lesion can be removed surgically, and many of these patients never experience a recurrence or spread of the melanoma thereafter. However, depending on certain risk factors, melanoma may recur after surgical removal of the skin lesion. When this event occurs varies greatly. Melanoma may come back shortly after surgery, or may lay dormant for many years. In some patients the melanoma has already silently spread to other organs at the time a skin lesion is found.

13. What are the treatment options for melanoma that has spread to other organs?

Depending on the location and extent of spread surgery and radiation therapy can be used. For example, if the melanoma had formed a single or limited number of lesions in the lung, these can be successfully resected by a surgeon. Similarly, melanoma that has travel to the brain can be resected in some cases, or the patient can undergo radiation therapy. For patients with more extensive disease, systemic treatment (medication given into the veins as an infusion or by mouth in pill form) is frequently the only treatment option.

14. In general, what is the success rate of systemic treatment?

Unfortunately, advanced melanoma is not very responsive to standard systemic treatment. If clinical trials are available and if the patient is a candidate from a general health point of view, participation in an experimental study should be considered. Only 10 to 20% of patients respond to standard chemotherapy. The response is usually short lived, although a small number of patients enjoy a sustained complete response (complete disappearance of all the tactical manifestations of melanoma).



15. What is the goal of systemic treatment in patients with metastatic melanoma?

Patients that respond to treatment are likely to experience an improvement in the quality of life by controlling the tumor disease for a limited period of time. Disappointingly, the medications available do not guarantee an improvement in the overall survival. The exceptions are the few patients that achieve a complete response with therapy.

16. What are the names of the medications that are commonly used in the treatment of metastatic melanoma?

The most commonly used medications are dacarbazine (DTIC), CCNU, Cisplatin and BCNU. These medications are used either individually or in combination. One treatment regimen used a combination of these medications and added Tamoxifen (a medication taken by mouth that is commonly used in the hormonal treatment of breast cancer patients). In spite of a slightly higher number of patients responding to this treatment, a prolongation of the survival could not be convincingly demonstrated.

17. Are there any other medications that can be used besides chemotherapy agents?

So-called biological response modifiers (interferon, interleukin) have been used in this disease. These substances occur naturally in the body in response to viral infections. They are an important part of the immune defense system. When these substances are given at very high doses a small number of patients enjoy a short lived shrinkage of their tumor manifestations. The majority of patients, however, experience severe side effects such as fevers, chills, depression, extreme fatigue, muscle aches, loss of appetite and weight loss. Many patients cannot tolerate this treatment which has also not been shown to significantly prolong the survival - even in patients that respond to the therapy.

18. How about using the patient's own immune system to fight the melanoma?

Autologous lymphocytes – a person's own white blood cells -- have previously been used to treat metastatic melanoma. In a process called adoptive cell transfer, lymphocytes are first removed from patients with advanced melanoma. Next, the most aggressive tumor-killing cells are isolated, multiplied in the lab, and then reintroduced to patients who have been depleted of all remaining lymphocytes. While reasonably successful, this method can only be used for melanoma patients and only for those who already have a population of specialized lymphocytes that recognize tumors as abnormal cells.

19. Most recently there have been reports of cure accomplished in patients even with advanced melanoma disease. Are these reports true?

A team of researchers at the National Cancer Institute (NCI), part of the National Institutes of Health, has demonstrated sustained regression of advanced melanoma in a study of 17 patients by genetically engineering patients' own white blood cells to recognize and attack cancer cells.



In this study, genetically engineered lymphocytes were infused into 17 patients with advanced metastatic melanoma. Two patients experienced cancer regression, had sustained high levels of genetically altered lymphocytes, and remained disease-free over one year. There were no toxic side effects attributed to the genetically modified cells in any patient. Additional studies are required until this treatment method can be considered "standard therapy".

