

Treating Melanoma in Skin Cancer using Drugs to Empower the Immune System

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DESCRIPTION

Immunotherapy is a type of treatment targets particular immune system parts to treat diseases like cancer. There are various methods to do this: the immune system's natural defenses can be stimulated or improved to work harder or smarter to find and eliminate cancer cells. Researchers are developing compounds in the lab that are comparable to immune system components in an effort to restore or improve the immune system's ability to recognize and destroy cancer cells.

Over the past few decades, immunotherapy has gained in significance as a component of numerous cancer treatments. The evaluation and approval of new immunotherapy treatments is proceeding swiftly, as is our understanding of how the immune system works. Immunotherapy works better on some cancer types than others. It can be used to treat some of these tumors on its own, but for others, it seems to work best in combination with other types of therapy.

Immunotherapy is the use of medications to improve the body's immune system's capacity to identify and destroy cancer cells. Numerous immunotherapies can be applied to the treatment of melanoma.

Immune checkpoint blockade

An essential component is the immune system's ability to stop attacking healthy body cells. Checkpoints, which are proteins on immune cells, need to be activated for an immune response to occur. Melanoma cells occasionally exploit these checkpoints to prevent immune system attacks. However, by specifically targeting the checkpoint proteins, these drugs function to reactivate the immune response against melanoma cells.

PD-1 blockers: Pembrolizumab and nivolumab are two medications that target PD-1, a protein on immune system cells known as T cells that generally helps to stop these cells from attacking other cells in the body. By blocking PD-1, these drugs improve the immune response against melanoma cells.

This frequently shortens life and causes tumors to shrink. Melanomas cannot be removed through surgery that has affected different body parts. After surgery, for some stage II or stage III melanoma there is a chance of tumor to return back. These drugs are often given intravenously (IV) infusions every 2 to 6 weeks.

PD-L1 blocker: Atezolizumab, a medicine, targets PD-L1, a protein associated with PD-1 that is found in some immune and tumor cells. The immune system's response to melanoma cells can be improved by blocking this protein. This drug can be given to individuals with melanoma that has the BRAF gene mutation in conjunction with cobimetinib and vemurafenib when surgical excision of the tumor is not an option or it has spread to other areas of the body. Each two to four weeks, this medicine is injected intravenously (IV).

CTLA-4 blocker: Ipilimumab, a different medicine that boosts the immune system, works on a different area of the body. It blocks another protein on T cells called CTLA-4, which usually helps to regulate them. It can be used to treat melanoma that cannot be surgically removed or that has migrated to other body parts. In some cases, it may also be used as an adjuvant therapy after surgery to treat less advanced melanomas in an effort to lessen the risk of the cancer coming back. One of those other medications is often used initially because it has more serious side effects than the PD-1 inhibitors and doesn't seem to shrink as many tumors when administered alone. In some cases, combining this drug with one of the PD-1 inhibitors may be an additional option. This may increase the possibility of tumor shrinking, but it may also increase the possibility of negative side effects. This medicine is given intravenously (IV) for four sessions, often once every three weeks.

LAG-3 blocker: LAG-3, another immune cell-specific checkpoint protein that frequently helps to regulate the immune system, is the target of relatlimab. This drug is used along with the PD-1 inhibitor nivolumab. It can be used to treat melanoma that cannot be surgically removed or that has migrated to other body parts.

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