What are Dendritic cells?
Dendritic cells (DCs) are immune cells that form part of the mammalian’s immune system. They are present in every person’s tissues mainly the skin and the inner lining of the nose, lungs, stomach and intestines and their main function is antigen presentation. Once activated, they migrate to the lymphoid tissues where they interact with T cells and B cells to initiate and shape the adaptive immune response. Dendritic cells (DC) are a highly specialized subtype of white blood cells with a unique function. DC can pick up foreign cells or cell particles including cancer cells with the help of tentacles like structures called “dendrites”. Within the DC the cancer cells are destroyed and several pieces of the foreign material (antigens) are displayed on the cell surface of DC’s. The exhibition of antigen on the surface of the DC is recognized by other cellular effector cells that recognize and destroy tumor cells displaying similar material as expressed by DC. In this way, DC “tutor” the effector cells what type of cells are harmful for the body while the search and the destruction of tumor cells are mediated by specific killer cells.

New therapy uses immune system to fight cancer

Trial on

This is a relatively new technology for India but it is all happening in the US. Doctors there have been working on a new therapy for cancer patients to help them fight the disease. The therapy involves the use of cells from the patient’s own body to fight the cancer. Doctors at the University of Pennsylvania have developed a new therapy for cancer patients. The therapy involves the use of cells from the patient’s own body to fight the cancer. Doctors at the University of Pennsylvania have developed a new therapy for cancer patients. The therapy involves the use of cells from the patient’s own body to fight the cancer.
Dendritic Cell Therapy - An emerging immunotherapy
Cancer immunotherapy has come at the right time as much of the twentieth century’s focus was on cancer immunosurveillance. Despite the availability of multiple modalities of cancer treatment, the therapeutic benefits the patients receive are still insufficient. For decades, cancer researchers have been interested in immunologic treatments against cancer but with little progress. The lack of effective treatment modalities for many inoperable solid malignancies led to the search of new therapeutic options such as adaptive immunotherapy. Dendritic Cell Therapy (DCT) has emerged as a new and promising immunotherapeutic approach for the treatment of Cancer and is gaining momentum as the fourth modality for the treatment of cancer.

The Functions of Dendritic cells (DC)
The functions of Dendritic Cell in the human body can be categorized as Antigen Presentation and activation of T cells, maintaining the immune tolerance and also maintaining the immune memory in tandem with B cells. Thus the mature Dendritic cells are exploited for its use in cancer immunotherapy.

Discovery of Dendritic Cells
Dendritic Cells were first described by Ralph Steinman nearly thirty years ago. He found a population of striking Dendritic-shaped cells in the spleen. Shortly thereafter it became clear that DCs existed in all lymphoid and most non-lymphoid tissues. The Nobel Prize in Physiology and Medicine 2011 has been shared by Ralph M. Steinman along with two other scientists “for his discovery of the Dendritic cell and its role in adaptive immunity”.

Process of Dendritic Cell Therapy
Dendritic Cell Therapy is an autologous process that involves the harvesting of Peripheral blood Mononuclear cells from patient’s own blood by a process called Leukopheresis. The cells are then cultured in the specialized and sophisticated laboratory for 8 days in the presence of immune stimulatory agents (cytokines) and matured into Dendritic Cells by exposing them to patient’s own inactivated tumor cells or with certain tumor specific proteins. On the 8th day matured dendritic cells are infused through IV to the patient to boost and fortify the immune system of the patient. It provides necessary impetus the body requires to fight back the cancer. The Apheresis is done to make 6 doses, the 1st first dose is infused on the 8th day and the subsequent doses are infused at two weeks interval.

The heart of the Dendritic cell process is the pulsing of the immature Dendritic cells with cancer specific tumor cells. Each cancer tumor has certain proteins that are phagocytosed by the Dendritic cells and the Phagocytosed peptides are then presented on the surface of the Dendritic cells for the activation and proliferation of the T cells. The T Cells proliferate secrete certain cytokines that act on the cancer cells. It is different from the conventional therapeutic modalities like surgery, chemotherapy and radiation therapy, as it is highly customised and tailor-made for individual patients and it amplifies the patient’s natural body defence mechanism.

DCT is an immune therapy which harnesses the body’s own immune system to fight cancer. The Dendritic cell itself is an immune cell whose role is the recognition, processing and presentation of foreign antigens to the T-cells in the effector arm of the immune system. It is an autologous therapy which enhances the immune system of a patient naturally and helps combating the cancer cells. The therapy is safe with minimal toxicity.

Dendritic Cell Therapy is completely autologous, it is safe and does not produce toxicity which is generally associated with other therapeutic agents.

What are Dendritic cells, and why are they useful?
Dendritic cells are in every person’s tissues. Their usual function is to identify a foreign substance, including cancer cells, and process the bits of such foreign substances and then jumpstart the immune response by bringing the foreign substance to the attention of the rest of the immune system (mostly T lymphocyte cells). The activated immune system is then able to circulate throughout the body and destroy the cancer cells.

What kind of cancers can be treated with Dendritic Cell therapy?
Theoretically all solid cancers can be treated, by Dendritic cells. To date, therapeutic benefit has been documented in B cell lymphoma, myeloma, melanoma, head and neck, prostate cancer, colon cancer, ovarian cancer, breast cancer, and renal cell cancer amongst others.

At what cancer stage should a patient consider Dendritic Cell therapy?
The patient can consider Dendritic cell therapy at any stage of the cancer.

How effective is Dendritic Cell therapy in cancer?
Responses have generally been promising as it is an autologous process; It does not have side effects, reduces cancer morbidity and improves the quality of life. Depending on the type of cancer and the functional status of patients the response may differ from patient to patient.

Are any drugs or procedures used as part of the Dendritic Cell Therapy?
Few ingredients are added like cytokines such as recombinant human IL-4 recombinant human GM-CSF and antibiotics to process the preparation of the APCDEN™.

Is Dendritic Cell Therapy safe?
Multiple early phases of Dendritic Cell therapy for cancer have been completed and establish the treatment as generally safe. Are there any contraindications to Dendritic Cell Therapy?
Immunologic testing can better establish the condition of the immune system to help physicians determine if a patient is a good candidate for Dendritic Cell therapy. Active autoimmune disease as well as pregnancy is possible contraindications. Contraindications should be carefully discussed and reviewed with the consulting physician before proceeding.

A NEW RAY OF HOPE