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Treatment strategies of chemotherapy

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DESCRIPTION

Chemotherapy is a type of cancer treatment that uses one or more anticancer drugs (chemotherapeutic agents) as part of a standardized chemotherapy regimen. This can be done for therapeutic purposes and can always be a combination of drugs or can be aimed at extending lifespan or relieving symptoms (palliative chemotherapy). Chemotherapy is one of the major categories of medicine specializing in drug therapy for cancer called oncology. Chemotherapy has evolved into a non-specific use of intracellular toxins to inhibit mitosis and induce DNA damage. The meaning of the word chemotherapy excludes more selective drugs that block extracellular signals (signal transduction). The development of treatments with specific molecular or genetic targets that block the growth-promoting signals of classical endocrine hormones, especially estrogen for breast cancer and androgens for prostate cancer, is now known as hormone therapy. In contrast, other inhibitions of growth signals, such as those associated with receptor tyrosine kinases, are called targeted therapies.

Traditional chemotherapeutic drugs are cytotoxic by destroying cell division (mitosis), but cancer cells are very different in their sensitivity to these drugs. Chemotherapy can be seen primarily as a method of damaging or stressing cells and can lead to cell death when apoptosis begins. Many of the side effects of chemotherapy can be traced back to damage to normal cells that divide rapidly, and are therefore sensitive to mitotic agents such as cells in the bone marrow, gastrointestinal tract, and hair follicles. This has the most common side effects of chemotherapy: myelosuppression (decreased blood cell production and thus immunosuppression), mucositis (inflammation of the lining of the gastrointestinal tract) and alopecia (hair loss).

Because chemotherapeutic agents affect immune cells (especially lymphocytes), they are often used in a variety of diseases resulting from the harmful over activity of the immune system against so-called autoimmunity. These include rheumatoid arthritis, systemic lupus erythematosus, multiple sclerosis, vasculitis, and many others.

TREATMENT STRATEGIES

There are many strategies for the chemotherapeutic agents used. Chemotherapy can be given for the purpose of healing, or to extend lifespan or relieve symptoms. All chemotherapy regimens require the recipient to be able to receive treatment. Performance status is often used as a measure of whether a person is able to receive chemotherapy or needs to reduce their dose. Only a small portion of the cells in the tumor die with each treatment (partial killing), so repeated doses are needed to further reduce the size of the tumor. Chemotherapy can reduce or delay the cancer, which can help you live longer and relieve symptoms. In a small number of people with borderline resectable cancer, chemotherapy can shrink the cancer enough to allow surgery to remove the cancer. Current chemotherapy regimens use medication on a regular basis, and the frequency and duration of treatment is limited by toxicity. Some of the treatment strategies of chemotherapy are:

- Induction chemotherapy
- Combined modality chemotherapy
- Consolidation chemotherapy
- Intensification chemotherapy
- Combination chemotherapy
- Neo-adjuvant chemotherapy
- Adjuvant chemotherapy
- Maintenance chemotherapy
- Salvage chemotherapy/palliative chemotherapy