

CANCER AND CHEMOTHERAPY

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Cancer is one of a large number of diseases characterized by the development abnormal cells that divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. Cancer has the ability to spread throughout the body.

Symptoms can include: fatigue, thickening under the skin, weight changes, skin colour changes, persistent cough, difficulty swallowing, hoarseness, discomfort after eating, muscle or joint pain, changes in bowel or bladder habits, unexplained and persistent fevers or night sweats.

Causes are like these: Chemical carcinogens e.g. smoking and alcohol, Infection, Radiation, Hormones, Genetics. All of these causes lead to gene mutation (rapid and uncontrolled cell growth and mistakes in DNA repairing during cell cycle regulation).

Problems associated with cancer chemotherapy may appear: resistance, some of cancer (neoplastic) cell are resistant to most anticancer drugs; toxicity of chemotherapeutic agents. It affects normal cells especially rapid proliferation cells e.g., buccal mucosa cell; GI mucosa; bone marrow; hair follicle.

Anti-cancer(Anti-neoplastic) drugs differ. Cytotoxic drugs: antimetabolites, folic acid analogues (methotrexate), purine analogues (6-mercaptopurine,6-thioguanine,fludarabine,cladribine and pentostatine), pyrimidine analogues (5-fluorouracil,capecitabine and floxuridine), cytidine analogues (gemcitabine and cytarabine), alkylating agents: nitrogen mustard (mechlorethamine, cyclophosphamide, ifosfamide, mephalan and chlorambucil), nitrosourea (carmustine, lomustine and streptozocine), alkyl sulfonates (busulfan), triazines (dacarbazine and temozolomide), platinum (cisplatin, carboplatin and oxaliplatin), natural products: antibiotics: (dactinomycin, mitomycin, doxorubicin, epirubicin, idarubicin and bleomycin), plant alkaloids: vinca alkaloids (vincristine,vinblastine and vinorelbine), taxol (paclitaxel , docetaxel) – the amount isolated from 3 trees is required only for one cancer patient, enzymes (L-Asparaginase), endocrine therapy (agonist and antagonist), Monoclonal antibodies: monoclonal antibodies made by fusing cancer cells with the spleen cells from a mouse (hybridoma). The hybridomas grown in culture medium by using recombinant technology to produce humanized antibodies e.g. (Rituximab, Trastuzumab and Bevacizumab).

Eventually, people with cancer disease mostly have combination therapy to control this cursed disease, but it matters also that they don't lose the hope of complete healing.