**Chemotherapeutic Toxicity**

**Organ Toxicity**
- **Cardiac Toxicity**: Anthracyclines (doxorubicin, daunorubicin, epirubicin, idarubicin, and mitoxantrone) are the main culprit of cardiac toxicity. Drugs of the taxane class, most notably paclitaxel, given in combination with anthracyclines, lead to cardiotoxicity which occurs in more than 20% of patients treated with this combination.
- **Renal & Urological Toxicity**: Chemotherapeutic agents can cause renal and urological toxicity directly (e.g., cisplatin, melphalan) or indirectly (e.g., through myelosuppression, nephrotoxicity). Cisplatin, for instance, is associated with glycaemia, hyponatraemia, and hypocalcaemia.

**Neurological Toxicity**

- **Metabolic Disorders**: Metabolic disorders in patients receiving cancer chemotherapy fall into two groups: (i) disorders related directly to the tumor (e.g., urinary tract compression, spontaneous lymphoma, syndrome of inappropriate secretion of antidiuretic hormone (SIADH)) and (ii) disorders related to anticancer agents (e.g., drug-induced tumor lysis, electrolyte disturbances).
- **Cardiotoxicity**: Anthracyclines are a major cause of cardiotoxicity.

**Haematological Toxicity**

- **Bleomycin**: Bleomycin toxicity occurs in 3% to 40% of patients, the lung being the main target.

**Pulmonary Toxicity**

- **Methotrexate**: Methotrexate causes acute or subacute pneumonitis simulating an infection, usually with interstitial involvement, in 1% to 7% of patients.
- **Other Drugs**: Fludarabine, Gemcitabine, and Cytarabine can also cause pulmonary toxicity.

**Hematologic Toxicity**

- **Organ Toxicity of Chemotherapeutics**

**Toxic Effect**
- **Anemia**: Methotrexate, 5-FU, cyclophosphamide, 6-mercaptopurine.
- **Thrombocytopenia**: Nitrosourea, 5-fluorouracil (5-FU), methotrexate, procarbazine.
- **Marrow Hypoplasia**: Nitrosourea, anticancer, busulfan.
- **Thrombotic microangiopathy**: Streptococcus, methotrexate.
- **Hemostasis disorders**: 1-Azauracil, Decreased PT, increased APTT, decreased fibrinogen, APTT, and plasminogen.
- **Induced Leukemia**: Alkyating agents, nitrosourea, aclacinomycin, methotrexate, procarbazine.
- **Impaired coagulation Immunity**: 2-GAG (Glucuronic acid, galactose, fucose, sucrose, pinitol, pentose, pyranosyl, arabinose).

**Toxic Effect**
- **Toxic Effect**
- **Diagnosis**
- **Treatment**
- **Cardiac Toxicity**

- **Other Drugs**: Methotrexate causes acute or subacute pneumonitis simulating an infection, usually with interstitial involvement, in 1% to 7% of patients.

- **Cyclophosphamide** leads to clinical lung toxicity in almost 1% of patients.

- **Bleomycin toxicity** occurs in 3% to 40% of patients, the lung being the main target.

- **Acute cardio toxicity** manifests as a rapid deterioration in cardiac function during or within 1 week after the administration of anthracycline therapy or acute cardiotoxicity and chronic cardiotoxicity, which may be early (subacute) or delayed.

- **Drug-induced lung disorders**: 1. Rule out pulmonary edema due to congestive heart failure. 2. Rule out lung infection due to an opportunistic or nonopportunistic organism. 3. Rule out lung infiltration by the cancer cells. 4. Check that the time from chemotherapy administration to respiratory symptom onset matches cases reported in the literature and determine whether the respiratory symptoms recur with each chemotherapy course (rechallenge). 5. Check that the clinical manifestations and laboratory test abnormalities are consistent with lung toxicity induced by the suspected drug (intrinsic evidence of causality). 6. Determine whether the symptoms resolve after the drug is stopped and glucocorticoids are given if needed.