

## Chemotherapy & Biotherapy Induced Hypersensitivity

### What is chemotherapy or biotherapy induced hypersensitivities?

Chemotherapy drugs have the potential to cause hypersensitivity reactions. The reactions are a result of mediators on target organs and they can present as a local reactions and progress to a systemic reaction.

### What agents have the potential for causing hypersensitivity reactions?

**High Potential:** L'asparaginase; Taxanes-Paclitaxel, Docetaxel; Platinum Compounds-Cisplatin, Carboplatin, Oxaliplatin; Epipodophyllotoxins-Etoposide & Teniposide

**Occasional Potential:** Anthracyclines-Doxorubicin, Daunorubicin, Idarubicin, Epirubicin, Mercaptopurine & Azathioprine

**Rare Potential:** Bleomycin, Chlorambucil, Melphalan, Cytarabine, Cyclophosphamide, Ifosfamide, Dacarbazine, Fluorouracil, Methotrexate, Hydroxyurea, Vincristine & Vinblastine

### Grading and documenting a reaction using the National Cancer Institute (NCI) Common Terminology Criteria for Adverse Events (CTCAE) Version 3.0:

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Transient flushing or rash; drug fever <38°C	Rash; flushing; urticaria; dyspnea; drug fever >38°C	Symptomatic bronchospasm with or without urticaria, edema, angioedema, hypotension	Anaphylaxis	Death

**Symptoms may also include:** nausea, vomiting, back pain, feelings of impending doom, and alterations in HR & B/P. **Preventative Management:** steroids e.g. dexamethasone, antihistamine e.g. diphenhydramine, histamine 2-receptor blocker e.g. ranitidine

### Grade 1-3 Reaction Management

1. **Stop** offending drug.
2. **Notify** physician and pharmacist.
3. **Establish** I.V. with 0.9% Sodium Chloride, as ordered.
4. **Monitor** vital signs (B/P, HR, RR and Temperature) as appropriate and until stable.
5. **Administer** medications as ordered such as steroids e.g. dexamethasone, antihistamine e.g. diphenhydramine, histamine 2-receptor blocker e.g. ranitidine.

### Grade 4 Anaphylaxis Management

1. **Stop** offending drug.
2. **Notify** physician and pharmacist
3. **Establish** I.V. with 0.9% Sodium Chloride, as ordered.
4. **Monitor** vital signs (B/P, HR, RR and Temperature) as appropriate and until stable. Follow steps 1-4 as above
5. **Administer Epinephrine** as ordered. Epinephrine is the primary pharmacologic treatment to counteract bronchoconstriction and vasodilatation.

	Adult	Pediatric
First Line	Diphenhydramine 25-50 mg. IM/IV	Diphenhydramine 2 mg/kg dose IM/IV (50 mg maximum)
Second Line	Hydrocortisone 100 mg IV push	Hydrocortisone 5-10 mg/kg/dose IV push (100 mg maximum)
Third Line	Ranitidine 50 mg IM/IV	Ranitidine 0.5-1.5 mg/kg/dose IM/IV (50 mg maximum)

