

Acute Chemotherapy Reactions
'Holding the chemo bleep'
Mini Chalk Talk

Hypersensitivity to chemotherapy drugs can either be by IgE mediated (classic acute allergic reaction) or mediated through other pathways in the immune system such as cytokine release or direct histamine release from basophils.

Some drugs are more likely to cause reactions than others:

Chemotherapy associated with a higher risk of reactions:	Monoclonal antibodies associated with a higher risk of reactions:
Taxanes like Paclitaxel or Docetaxel Platinum compounds like Cisplatin or Carboplatin or Oxaliplatin Teniposide Doxorubicin (anthracyclines)	Trastuzumab (HER 2 Ab - breast cancer) Rituximab (anti CD20 Ab haematological cancers) Cetuximab (EGFR inhibitor) Bevacizumab (VEGF inhibitor)

Premedication is often given (eg. IV dexamethasone, IV chlorpheniramine and IV ranitidine) for those drugs such as Paclitaxel known to have a high risk of reactions. This has decreased the incidence of hypersensitivity reactions to 2-4%

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The Type and Grading of reactions: Nature of reactions can vary according to the agent. Skin changes can be absent in 20% of reactions. They can also have gastrointestinal symptoms.

Grade	Features			
	Skin	CVS	Respiratory	Gastro/Other
Mild GREEN	Mild / localised erythema, itch, flushing, nausea			
Moderate GREEN but use YELLOW if concerned about patient or symptoms in 2 or more systems	Generalised erythema or itch all over body, mild facial/tongue swelling, drug fever >38C	mild tachycardia, chest discomfort, hypertension	mild dyspnoea, rhinorrhoea	nausea, cramps, mild back pain
	<p>Taxanes - May also have mild chest / abdominal pain or back pain</p> <p>Platinum compounds - May also have Back pain</p> <p>Oxalipatin - Dysesthesia (unpleasant sensation - skin burning/itching due to peripheral nerves irritation), laryngeal spasm, joint pains, abdominal cramps, haemolysis</p>			
Severe OR Anaphylaxis YELLOW for immediate SHO review RED for crash team if anaphylaxis	Marked facial / tongue swelling, generalised erythema or skin changes	chest tightness or chest pain, tachycardia, hyper or hypotension, pre syncope or collapse	wheezing, stridor, hypoxia, objective dyspnoea	incontinence, persistent symptoms: back pain, abdominal pain, vomiting or diarrhoea

What is Anaphylaxis?

Criterion 1 — Acute onset of an illness (minutes to several hours) involving the skin, mucosal tissue, or both (eg, generalized hives, pruritus or flushing, swollen lips-tongue-uvula) **and at least one of the following**:

Respiratory compromise (eg, dyspnea, wheeze/bronchospasm, stridor, reduced peak expiratory flow, hypoxemia)

OR

Reduced blood pressure (BP) or associated symptoms and signs of end-organ malperfusion (eg, hypotonia [collapse], syncope, incontinence)

Criterion 2: Anaphylaxis should be diagnosed when 2 of the following organ systems exhibit signs and symptoms of mast cell activation:

1. Skin (flushing, urticaria, angioedema)
2. Cardiovascular (reduced blood pressure, syncope), and
3. Respiratory (dyspnea, wheeze, stridor, hypoxemia),
4. Persistent Gastrointestinal symptoms (persistent crampy abdominal pain, persistent vomiting)

Criterion 3 : Reduced BP (in an adult defined as <90mmSBP or 30% drop from baseline) after exposure to *known* allergen for patient.

Give IM epinephrine immediately on diagnosis of anaphylaxis.

The Onset of Reactions :

Cisplatin reactions are commonly seen between the 4th and 8th course while carboplatin and oxaplatin reactions are often seen after 7th to 8th course of the drug. These are acquired and consistent with typical Type I IgE hypersensitivity. In contrast paclitaxel and monoclonal Ab reactions are commonly noted within minutes of starting the infusion during the 1st cycle.

	Carboplatin	Paclitaxel
Initial onset	After multiple courses	1st or 2 nd course
Onset of symptoms	Variable (minutes to days)	Within minutes of infusion
Ability to safely retreat	Variable (based on severity of symptoms)	Almost always

Management of Chemotherapy Reactions Using PACLITAXEL as an example:

Grade	PATHWAY	Symptoms	Treatment
Mild	GREEN	Skin rash, flushing, localised itch	<ul style="list-style-type: none"> Reduce infusion rate to keep line open. Chlorphenamine 10mg iv. Monitor until recovery. SpR to review regarding rechallenge with infusion on same day at same rate.
Moderate	GREEN OR YELLOW (as per Nurse's Discretion)	Generalised itch or rash, mild dyspnoea, mild chest tightness, mild hypo or hypertension, back pain, drug fever >38C	<ul style="list-style-type: none"> Stop infusion. Hydrocortisone 200mg iv. Chlorphenamine 10mg iv. ABCDE review by SHO and management as appropriate. SpR to decide regarding rechallenge infusion 30 minutes after symptoms subside. This can be continued at same rate or at slower rate (give over 3 hrs as opposed to 1 hour) SpR to review regarding using Allergy Protocol for that specific Chemotherapy for future cycles / need for clinic review before next cycle of chemotherapy. Can include cetirizine 10mg OD x 3 days and dexamethasone 20mg night before and morning of next chemotherapy as part of protocol.
Severe OR Anaphylaxis	YELLOW or RED (RED for Crash team)	Bronchospasm, generalised urticaria, angio-oedema, hypotension.	<ul style="list-style-type: none"> Stop infusion Anaphylaxis management. Call CRASH team if needed. ABCDE resuscitation IM adrenaline. 1:1000 dilution, 0.5mg. Repeat after 5 min if needed. IV hydrocortisone and chlorpheniramine `Admit

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