Toxic Erythema of Chemotherapy: Updating the Schema for Cutaneous Adverse Drug Reactions
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BACKGROUND

- Chemotherapy can cause cutaneous adverse reactions which are hard to distinguish from drug allergies or infections in the setting of immunosuppression
- Toxic Erythema of Chemotherapy (TEC) is a CLINICAL SYNDROME of self-limited, painful erythema, bullae, desquamation, and post-inflammatory hyperpigmentation caused by chemotherapy
- It is a TOXIC reaction caused by chemotherapy excretion through sweat glands

PRESENTATION & CLINICAL COURSE

- 71 year-old woman with refractory AML s/p 4 lines of chemotherapy presents with leukostasis (WBC 67,000, blasts 77%) and febrile neutropenia (ANC 0). She was started on intensive salvage chemotherapy with high-dose cytarabine, clofarabine, and broad-spectrum antibiotics vancomycin/meropenem
- New rash on C1D6. She was afebrile, still on broad spectrum antibiotics and neutropenic
- Exam: lower extremities (LE) with painful red plaques and desquamation and sloughing of both LEs and the antecubital fossa, multiple 2-3 cm tense bullae on the thighs and feet, and 2+ LE edema
- There was NO mucosal involvement. Nikolsky sign negative
- Labs: leukopenia (WBC < 0.1), neutropenia (ANC 0). Infectious workup including blood and urine cultures were negative
- Differential: skin/soft tissue infection, SJS/TEN, IgE mediated drug allergy (to antibiotics or chemotherapy), and autoimmune reaction. Dermatology felt her presentation was consistent with TEC. Biopsy not pursued as it is a clinical diagnosis (but may have been helpful)
- She was started on topical triamcinolone followed by oral prednisone with improvement

Differential: skin/soft tissue infection, SJS/TEN, IgE mediated drug allergy (to antibiotics or chemotherapy), and autoimmune reaction. Dermatology felt her presentation was consistent with TEC. Biopsy not pursued as it is a clinical diagnosis (but may have been helpful). She was started on topical triamcinolone followed by oral prednisone with improvement.

Figure 1: Progression of the Patient’s Rash
(A and B) Hyperpigmented demarcation of ankles and feet, subcutaneous swelling of the lower extremities and plantar surfaces of feet, pink plaques of plantar surface and anterior shins (C) erosion in prior bulla of antecubital fossa, (D and E) near-circumferential tense bullae of bilateral medial and lateral malleoli (F) ruptured bullae of bilateral medial thighs

DISCUSSION

- Patients with TEC might be misdiagnosed as allergy or infection. If they are assigned incorrect allergies it could limit future treatment options. They could also receive an inappropriate course of antibiotics or systemic immune suppression
- TEC is NOT a hypersensitivity reaction and is NOT a contraindication to completing chemotherapy on the implicated agent. There is risk for recurrence, but limited data suggests this may be minimized with pre-treatment cooling
- TEC is difficult to distinguish from other rashes (like SJS/TEN) and biopsy is often helpful. Biopsy will not impact immediate management (supportive care) but unlike SJS/TEN it is NOT a contraindication to the culprit agent which is important for the patient’s long term management

TAKE HOME POINT

- Most internists are not familiar with TEC and should consider toxic mediated reactions when they encounter cancer patients with new rashes
- TEC is a clinical diagnosis but biopsy may help distinguish it from similar drug reactions

REFERENCES


Figure 2. A sample schema for approaching cutaneous adverse drug reactions