Incidence of Hypersensitivity Reactions in Patients Receiving Trastuzumab Biosimilars

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Background

- Currently multiple biosimilars of trastuzumab (Herceptin®) are approved for use in human epidermal growth factor receptor-2 (HER2) positive breast cancers.
- These biosimilars have been approved based on extensive structural and functional characterization demonstrating similar activity with no clinically meaningful differences compared to the reference product. However, differences in hypersensitivity reactions (HSRs) have been reported.
- In October 2020, The University of Texas MD Anderson Cancer Center updated its formulary from the reference drug, trastuzumab (Herceptin®) to two trastuzumab biosimilars: trastuzumab-qyyp (Trazimera®) and trastuzumab-anns (Kanjinti®), with trastuzumab-qyyp designated as the institutional preferred agent.

Objective

- To evaluate the incidence of HSRs in patients receiving trastuzumab biosimilars compared to the reference product.

Methods

- Retrospective, single-center, observational cohort study
- Inclusion criteria
  - Patients with HER2 positive breast cancer (early and advanced)
  - Received at least one dose of trastuzumab/biosimilar in two specific time periods at MD Anderson Cancer Center:
    - **Group A** received treatment with **reference trastuzumab** (Herceptin®) from **January 1, 2019 to January 1, 2021**
    - **Group B** received treatment with **trastuzumab biosimilars** (Trazimera® or Kanjinti®) from **January 1, 2023 to January 1, 2025**
- Chi-square test comparing Group A to Group B was used for statistical analysis

Outcomes

Any reaction that warranted use of the MD Anderson Cancer Center HSR algorithm was counted as an HSR. Documented allergies in the clinical chart were compared to and verified through infusion center nurse notes.

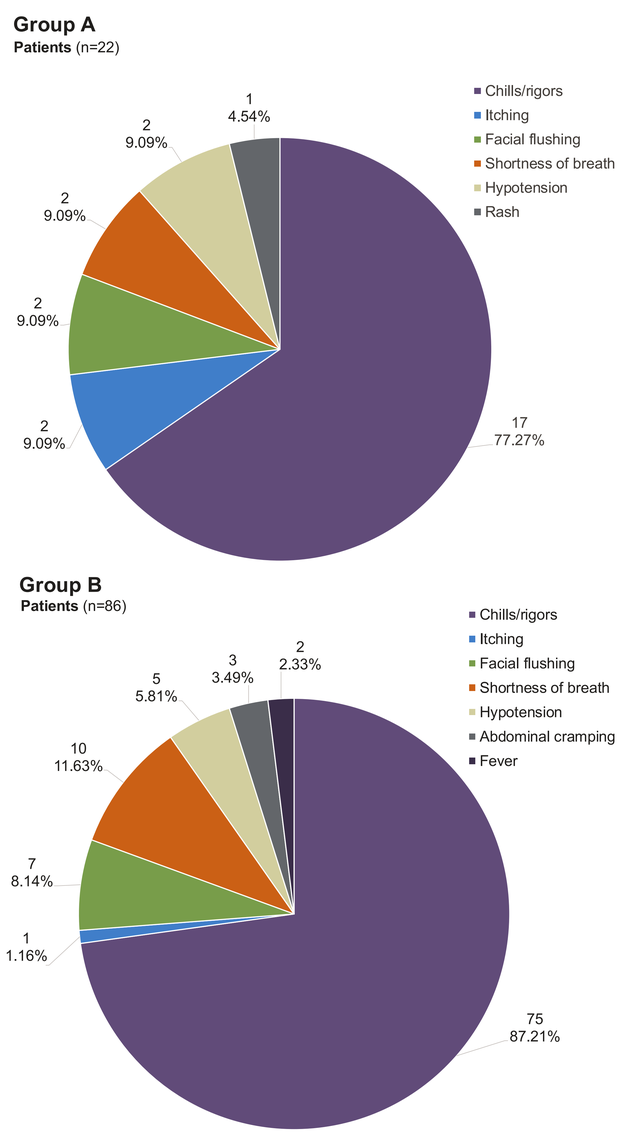
- HSR incidence
- HSR symptoms
- Pre-medications administered for future doses after HSR
- Cycle and day number when HSR occurred
- Dose received when HSR occurred

Results

Table 1: HSR Rates

Group A	HSR (%)	No HSR (%)	Total
Herceptin®	22 (3.76)	563 (96.24)	585
HSR rates were significantly higher in patients who received Trazimera® in comparison to Herceptin®, p<0.001			
Group B	**HSR (%)**	**No HSR (%)**	**Total**
Trazimera®	79 (16.81)	391 (83.19)	470
Kanjinti®	7 (29.17)	17 (70.83)	24

Figure 1: HSR Symptoms



Results cont'd

Figure 2: Pre-medications added to future doses after HSR

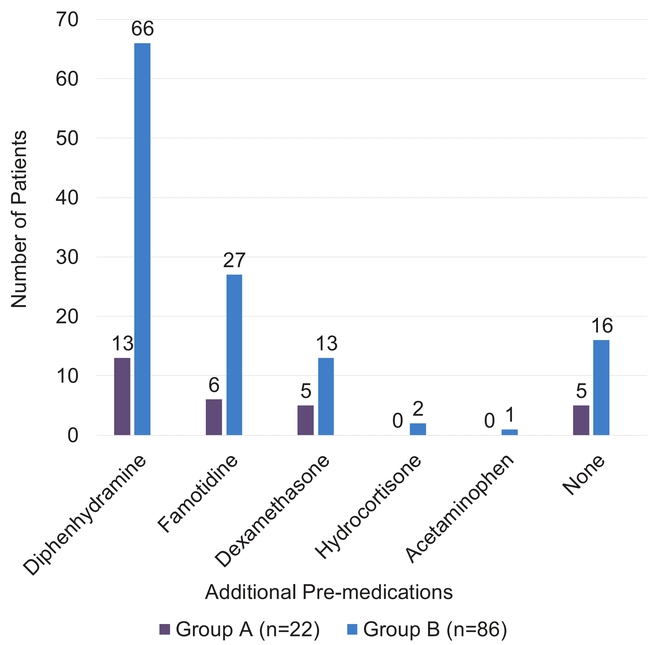


Table 2: Dose categorization at which HSR occurred

Group A (n=22)

Dose	Dose (mg/kg)	Number of Patients (%)
Loading dose	8 mg/kg	19 (86.36)
Maintenance dose	6 mg/kg	2 (9.09)
Maintenance dose	2 mg/kg	1 (4.55)

Group B (n=86)

Dose	Dose (mg/kg)	Number of Patients (%)
Loading dose	8 mg/kg	82 (95.35)
Loading dose	4 mg/kg	2 (2.33)
Maintenance dose	6 mg/kg	2 (2.33)

- HSR to 8 mg/kg loading dose in Group B
  - 75 patients received Trazimera®
  - 7 patients received Kanjinti®
- Patients in Group B who had HSR to 4 mg/kg loading dose and 6 mg/kg maintenance dose received Trazimera®.

Results cont'd

- Average subsequent dose administration time among patients with HSRs
  - Group A: 83.18 minutes (30-180)
  - Group B: 59.41 minutes (30-180)
- 7 patients in Group B required a change in trastuzumab product
  - 3 changed to Herceptin® from Trazimera®
  - 2 changed to Phesgo® from Trazimera®
  - 1 to Kanjinti® from Trazimera®
  - 1 to Trazimera® from Kanjinti®
- Two patients in Group B required epinephrine for severe HSR compared to zero in Group A

Discussion

- Dexamethasone is a common pre-medication administered to patients receiving taxane-based regimens (ex. docetaxel, paclitaxel). Patients receiving taxane-based therapy in addition to trastuzumab/biosimilar will be evaluated for timing of administration of dexamethasone pre-medication (ex. before trastuzumab/biosimilar or before chemotherapy).
- Limitations
  - Retrospective chart review study
  - Limited to information documented in infusion notes and allergies in the electronic medical record

Conclusions

- Incidence of HSRs occurred more commonly in patients who received a trastuzumab biosimilar compared to reference trastuzumab.
- HSR rates were statistically significantly higher in patients who received Trazimera® in comparison to Herceptin®.

Future directions

- Based on the results of these findings, a prospective study evaluating the addition of pre-medications prior to the first loading dose of Trazimera® is being planned / considered.

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