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INTRODUCTION AND OBJECTIVE

- Chemotherapy-induced alopecia (CIA) is one of the most traumatic side effects of chemotherapy with an incidence of 65%.
- Hair loss can negatively impact individual perceptions of appearance, body image, sexuality, and self-esteem.
- 47% of patients consider hair loss to be the most traumatic aspect of chemotherapy and 8% would even decline chemotherapy for fear of hair loss.
- Prior studies have found scalp cooling (SC) to be highly effective in preventing CIA.
- However, minority representation was largely limited in completed trials.
- A recent study found that SC devices are less efficacious in patients with skin of color (SOC), likely because SOC patients have predominantly type 3 (curly) and 4 (kinky) hair, which tend to become bulkier when wet and can interfere with SC cap fitting.
- **Objective:** The purpose of this study is to evaluate hairstyling techniques aimed at increasing efficacy of SC cooling in the prevention of CIA in SOC patients.

MATERIALS AND METHODS

- This is an ongoing single-institution, prospective open label study being conducted at Montefiore Einstein Cancer Center.
- Participants can elect to receive either the intervention (SC with water-conditioner emulsion and hairstyling to minimize hair volume and increase cooling cap to scalp contact) or no intervention (no SC).
- Aimed enrollment is 41 patients with types 3 or 4 hair undergoing chemotherapy for breast cancer, with 27 in the experimental group.
- Hair loss will be determined by hair counts and grading via CTCAE v5.0.
- Patient distress will be measured by the CADS questionnaire.
- Hair counts will be analyzed using T-test and CTCAE via Fisher's exact test.
- Multivariate logistic regression analyses will be performed to determine effect of SC after adjusting for potential confounders.

Figure 1 : Grade 0 alopecia (no hair loss) at baseline. Patient's hair thoroughly coated in a water-conditioner emulsion prior having hair styled in simple braids.



RESULTS

Figure 2 : Patient having cooling cap and cover fitted prior to scalp cooling



Figure 4: Grade 1 alopecia (hair loss <50% from baseline) post Cycle 3 of TC regimen



Figure 3: Grade 1 alopecia (hair loss <50% from baseline) post Cycle 2 of Taxotere + Cyclophosphamide (TC) regimen



Figure 5: Grade 1 alopecia (hair loss <50% from baseline) post Cycle 4 (final) of TC regimen



DISCUSSION

- Study still ongoing with 5 patients enrolled to date.
- Two patients that completed intervention had good preservation of hair (< 50% hairless from baseline) using the proposed study technique.
- Given the known disparities in cancer outcomes between White and Black breast cancer patients and the potential for CIA to contribute to such disparities, studying methods to make scalp cooling efficacious in all patients is imperative.
- The history of SC research emphasizes the importance of diverse representation in clinical trials

CONCLUSION

- SOC patients have been underrepresented in prior SC studies. This ongoing trial aims to show that SC is efficacious in preventing CIA utilizing using a water-conditioner emulsion and hair styling to minimize hair volume and increase cap fit in in patients of SOC with type 3 and 4 hair.

REFERENCES

1. Dilawari A, Gallagher C, Alintah P, Chitalia A, Tiwari S, Paxman R, et al. Does Scalp Cooling Have the Same Efficacy in Black Patients Receiving Chemotherapy for Breast Cancer? *Oncologist*. 2021.2.
 Mah P, Kruse, Megan, and Jame Abraham. "Management of Chemotherapy-Induced Alopecia with Scalp Cooling." *Journal of Oncology Practice*, vol. 14, no. 3, 2018, pp. 149-154.
 3. Dunnill, Christopher John, et al. "A Clinical and Biological Guide for Understanding Chemotherapy-Induced Alopecia and Its Prevention." *The Oncologist*, vol. 23, no. 1, 2017, pp. 84-96., .