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Background

Chemotherapy-induced alopecia (CIA) is a common and distressing side effect of chemotherapy treatment (1-3). Chemotherapy drugs work by targeting cells that proliferate rapidly, (4). Unfortunately, chemotherapy drugs do not discriminate between tumour cells and other rapidly proliferating cells in the body, such as bone marrow, hair and gastro-intestinal (GI) cells (5). As a result these cells may also be damaged, leading to characteristic side effects including alopecia (6, 7).

CIA is one of the most feared and distressing side-effects among patients receiving chemotherapy (6). Scalp cooling has been used to treat CIA since the 1970s. Newer technologies circulate a cooled fluid through a cap using a machine. Nangia et al (2017) reported a US randomised control trial in patients with breast cancer receiving chemotherapy showing prevention of significant hair loss in 50% of patients with scalp cooling compared to 0% of the control group (9). Rugo et al (2017) reported a prospective cohort study, showing that hair loss of 50% or more was prevented in 66.3% of scalp cooling patients versus 0% of the control group (10). Patient satisfaction with scalp cooling has not been comprehensively studied.

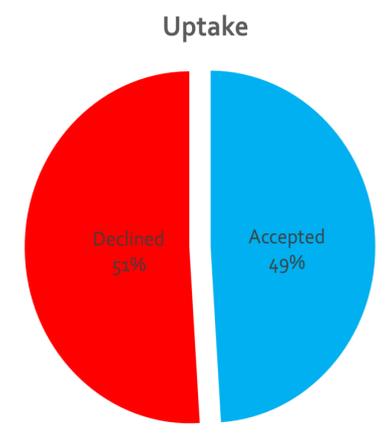
Objectives

1. What is the uptake of scalp cooling among chemotherapy patients who were offered the treatment?
2. What is the efficacy of scalp cooling in preventing chemotherapy induced alopecia as perceived by the medical team (“medical efficacy”) and by the patients (“patient efficacy”)?
3. What is the patient satisfaction of patients who received scalp cooling during chemotherapy treatment?
4. In patients who received scalp cooling treatment what is the relationship between patient satisfaction and medical efficacy?

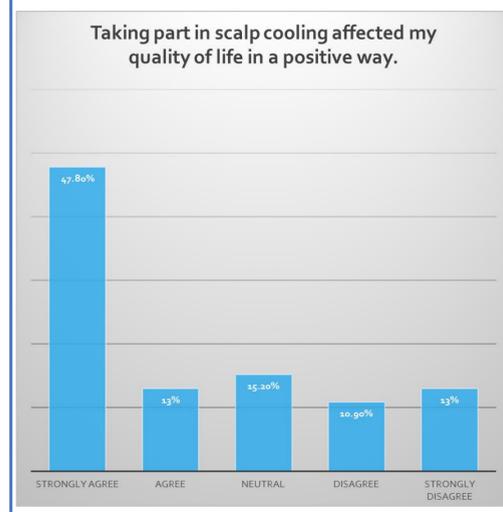
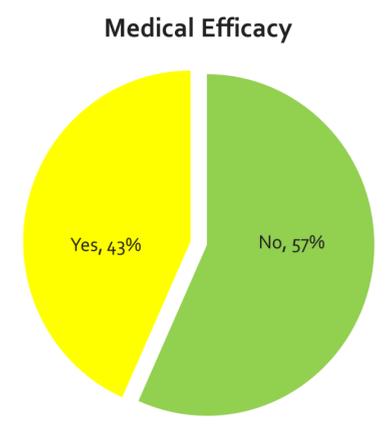
Methods

A combination of retrospective database review and postal patient questionnaire study was carried out. The database review was used to record patient demographics such as age, sex, cancer type and chemotherapy regimen. It was also used to assess the uptake of scalp cooling treatment and the recorded medical efficacy. Cooling was deemed medically efficacious when a patient continued to use scalp cooling treatment throughout the entire planned course of their chemotherapy regimen. The patient questionnaire was created specifically for this study, using a questionnaire developed for a large national study on clinical research participation as a template, but adapted to address the specific issues of patients receiving scalp cooling. The anonymous questionnaire used various questions to assess the patient’s overall satisfaction with scalp cooling as a treatment, the patient’s personal assessment of efficacy and whether they experienced any adverse effects. Statistical analysis was performed on the anonymised data using International Business Machines (IBM) SPSS version 24.

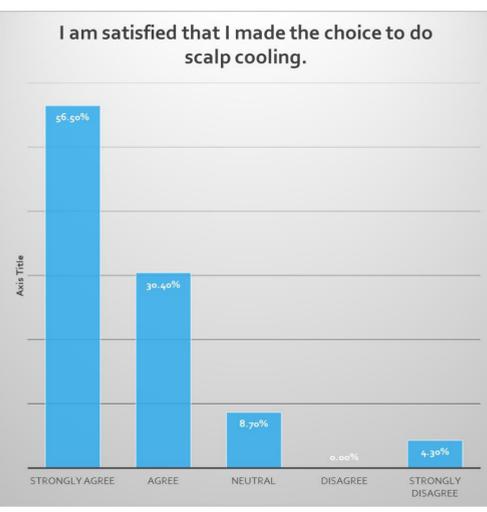
Results



- **63% (29/46) of patients retrospectively perceived their scalp cooling treatment to be efficacious, versus 43.3% (52/120) whose treatment was deemed efficacious by the medical team at the time of treatment, Fishers test p= 0.0253**
- **71.7% would recommend taking part in Scalp Cooling to other patients**
- **There was a strong association between patient perceived efficacy and satisfaction (p<0.001).**
- **No statistically significant association between med eff and cancer type or chemo regime or any other patient demographic using Fisher test**



Patient demographics	
Age	Mean- 60.1 y/o (SD- 10.9)
Gender	Female - 91.4%, Male - 8.6%
Cancer Type	Breast- 65% (78/120)
	Ovarian- 18.3% (22/120)
	Endometrial- 4.2% (5/120)
	Prostate- 4.2% (5/120)
	Other- 5% (6/120)
Chemotherapy	Carboplatin/Paclitaxel +/- Trastuzumab- 26.6% (32/120)
Regime	Weekly Paclitaxel +/- Trastuzumab- 15% (18/120)
	DDACT/CMF- 14.2% (17/120)
	TC/TCH- 21.7% (26/120)
	Docetaxel- 7.5% (9/120)
	Other- 15% (18/120)



Conclusion

The use of scalp cooling to prevent chemotherapy induced alopecia is an effective and well tolerated treatment in our real-world population. Patients were more likely than the medical team to consider scalp cooling treatment effective. This study found high levels of patient satisfaction with the decision to try scalp cooling, even among patients where treatment was ineffective. This data will help us to communicate more effectively with future patients regarding the expected efficacy of scalp cooling. Further research is warranted in this area, particularly regarding the factors which influence uptake.

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