SCALP COOLING EFFICACY IN 7524 PATIENTS

An audit into the real-world determinants of both head cover use and hair loss severity in the world's largest SC database

Patient-reported results for individuals receiving comparable treatment regimens and doses[1] for non-gender specific cancer types[2]

	n/total (%)		
	Female	Male	p-value
Use of a headcover			
No Headcover	265/429 (61.8%)	166/266 (62.4%)	0.9306
Severity of hair loss[3]			
WHO grade 0	144/417 (34.5%)	100/254 (39.4%)	
WHO grade 1	98/417 (23.5%)	55/254 (21.7%)	
WHO grade 2	63/417 (15.1%)	30/254 (11.8%)	
WHO grade 3	112/417 (26.9%)	69/254 (27.2%)	0.4761
Premature cessation of scalp cooling[4]			
Yes	163/374 (43.6%)	112/224 (50%)	0.1501

Figure 1: Abbreviations: A: doxorubicin (Adriamycin); Car: carboplatin; D: docetaxel (Taxotere); E: epirubicin; Eto: etoposide; Gem: gemcitabine; Irino: irinotecan (Campto); T: paclitaxel (Taxol); Vino: vinorelbine. 1. Treatment regimens: A60 (n=13), Car/CisEto (n=23), D70-90 (n=146), D(75) in combination (n=33), D100 (n=28), E (n=4), Gem in combination (n=21), Irino90-200 (n=39), Irino210-300 (n=29), Irino>300 (n=216), T50-70 (n=4), T75-90 (n=39), T50Car (n=38), T70-100Car (n=32), T175Car (n=23), Vino25-30 (n=7); dosages in mg/m². 2. Cancer types: lung (n=194), oesophageal (n=55), pancreas (10), sarcoma (n=12), skin (n=8), stomach/colorectal (n=315), urothelial cell/bladder (n=7) and other (n=86). 3. World Health Organisation (WHO) score for alopecia (0: none, 1: minimal, 2: severe and 3: total alopecia). 24 patients (12F, 12M) were omitted due to incomplete data. 4. Positive results for premature cessation included reasons of tolerability, hair loss/baldness & other. Stop chemotherapy/disease progression was deemed a negative result. 97 patients (55F, 42M) were omitted due to incomplete data.

INTRODUCTION

Chemotherapy-induced alopecia (CIA) is a significant consequence of chemotherapy; negatively impacting body image, self-esteem, social interactions, and health-related quality of life (HRQoL). Utilising scalp cooling (SC) preceding, during and following chemotherapy infusions has shown a protective effect against CIA. As of 2023, SC devices are available in over 40 states in the US and in over 50 other countries across the globe. Despite SC exhibiting efficacy in most cases, variabilities between cooling techniques, infusion regimens, duration and temperature of SC and outcome evaluation hinder large scale meta-analysis review and thus the opportunity to learn from large numbers of patients how to increase SC efficiency.

METHODS

In this prospective, longitudinal registry, all patients commencing chemotherapy with SC were asked to participate. Final analyses of SC efficacy included only patients who had completed at least two SC sessions or if they discontinued SC because of severe CIA after the first session. SC efficacy was measured by the patient's preference to wear a headcover (including a wig) during their last reported scalp cooling session. In addition, patients' self-reported World Health Organisation (WHO) score for alopecia (0: none, 1: minimal, 2: severe and 3: total alopecia) was evaluated to indicate the severity of hair loss during the last reported session. Success was defined by an individual's preference to not wear a headcover or severity of hair loss was self-reported as WHO score 0 or 1.

RESULTS

A total of 7424 patients were enrolled in the registry between 2006-2019. Most patients were female (87%), chemo naïve (77%), breast cancer patients (73%), treated in the adjuvant setting (61%). Over half of the patients (n = 4191, 56%) chose not to wear a headcover during the last SC session. No uniform patient characteristics or lifestyle tendencies were found to be determinants of SC efficacy between chemotherapy regimens. Amongst those who received comparable treatment regimens for non-gender-specific cancer types, gender played no statistically significant role in the preference to wear a headcover, WHO score, nor an individual's decision to prematurely cease SC [Figure 1]. Efficacy varied between cohorts with the latest showing increased hair preservation (WHO grade 0) and decreased total alopecia (WHO grade 3) [Figure 2].

CONCLUSION

SC efficacy is highest with low dose monotherapies and low dose taxane combination regimens. No uniform characteristics determining scalp cooling results were found between chemotherapy regimens. Patients should be acquainted with the benefits of SC to advance and enhance regrowth and encouraged to recommence SC after reported issues of tolerability or discouraging suboptimal results. Comprehensive standardised registration with outcome evaluation of hair loss and post-final chemotherapy (PFC) recovery is essential for long-term international protocol optimisation and refinement of the true determinants of SC efficacy.

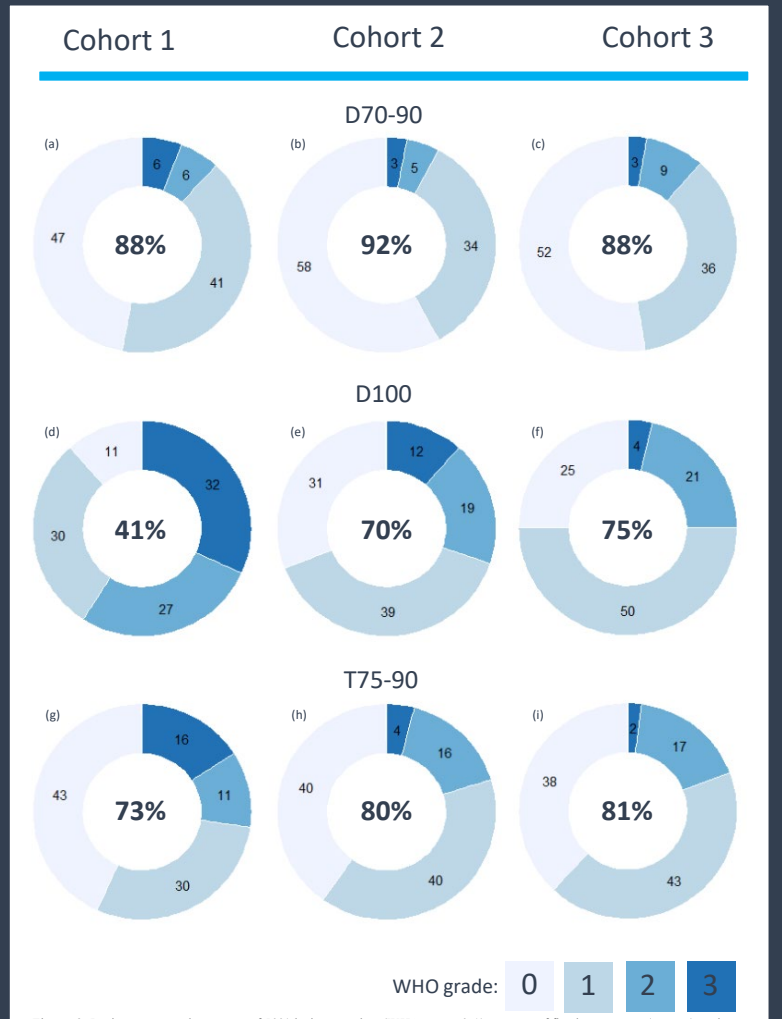

Figure 2: Patient-reported success of 50% hair retention (WHO score 0-1) at start of final treatment (centre) and relative (%) WHO grade breakdown (outermost). WHO grades: World Health Organisation (WHO) score for alopecia (0: none, 1: minimal, 2: severe and 3: total alopecia). Cohort 1: 2006-2009, Cohort 2: 2009-2013, Cohort 3: 2013-2019. n = (a)34, (b)526, (c)181, (d)44, (e)191, (f)28, (g)44, (h)459, (i)150. Dosages in mg/m².Abbreviations: D: docetaxel (Taxotere); T: paclitaxel (Taxol).

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