

RESULTS OF THE DUTCH SCALP COOLING REGISTRY IN 7424 PATIENTS:

Analysis of Determinants for Scalp Cooling Efficacy

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BACKGROUND Chemotherapy-induced alopecia (CIA) is a common consequence of cancer treatment with a high psychological impact to patients and can be prevented by scalp cooling (SC). With this multi-center patient series, we examined the results for multiple currently used chemotherapy regimens to offer an audit into the real-world determinants of SC efficacy.

METHODOLOGY The Dutch Scalp Cooling Registry collected data on 7424 scalp-cooled patients in 68 Dutch hospitals. Nurses and patients completed questionnaires on patient characteristics, chemotherapy, and SC protocol. Patient-reported primary outcomes at the start of the final SC session included head cover use (HC) (e.g. wig/scarf, yes/no) as a surrogate for patient satisfaction with SC and WHO score for alopecia (0 = no hair loss up to 3 = total alopecia) as a measure of scalp cooling success. Exhaustive logistic regression analysis stratified by chemotherapy regimen was implemented to examine characteristics and interactions associated with the SC result (Brook et al., Oncologist 2024).

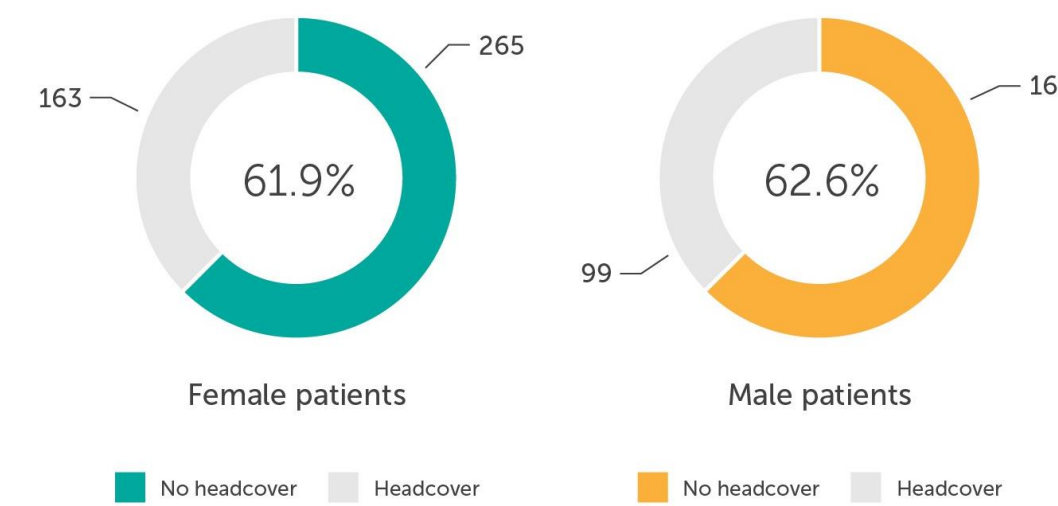
RESULTS Overall, over half of patients (n = 4191, 57%) did not wear a HC and 53% (n = 3784/7183) reported minimal hair loss (WHO score 0/1) at the start of their final treatment. Outcomes were drug and dose dependent. Besides chemotherapy regimen, this study did not identify any patient characteristic or lifestyle factor as a generic determinant influencing SC success. For non-gender specific cancers, gender played no statistically significant role in HC use, nor WHO score.

CONCLUSIONS Scalp cooling is effective for many patients. The robust model for evaluating the determinants of SC efficacy revealed no indications for changes in daily practice, suggesting factors currently being overlooked. As no correlation was identified between the determinants explaining HC use and WHO score outcomes, new methods for evaluation are warranted.

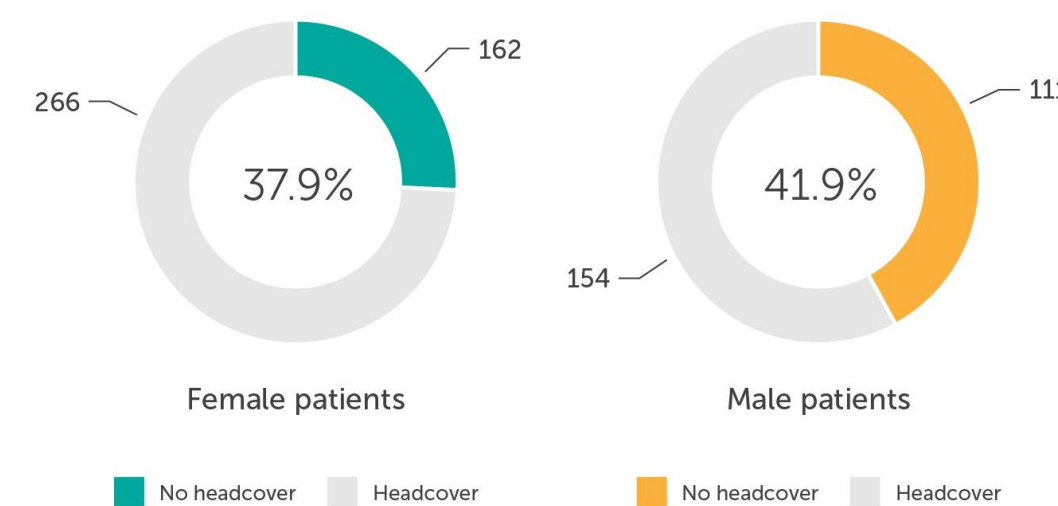
IMPLICATIONS FOR PRACTICE

Medical personnel involved in patient care need to be aware that males are also eligible for and benefit from scalp cooling. In addition, comprehensive standardized registration with more extensive outcome evaluation of hair loss and recovery is essential for long-term international protocol optimization and revealing the true determinants of SC efficacy to accelerate advances for individual patient care.

A Use of a Headcover



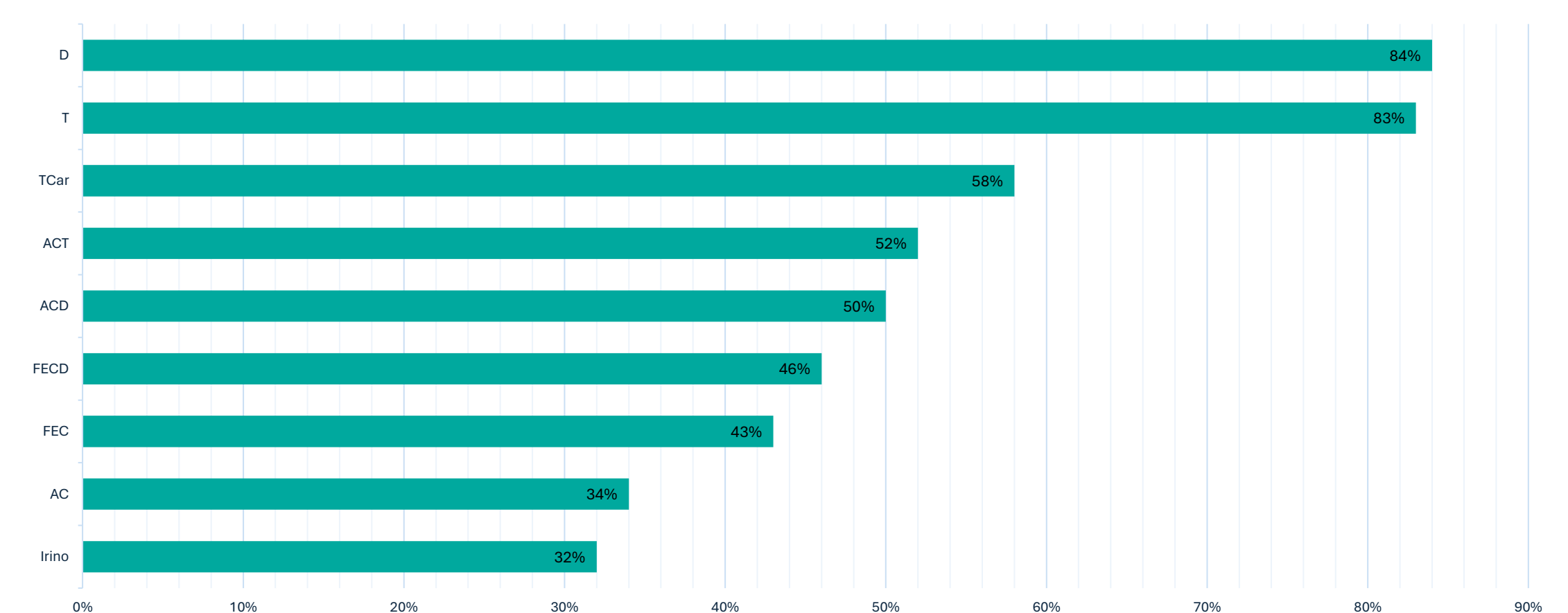
B Premature Cessation of Scalp Cooling^b



C Severity of Hair Loss^a



D Percentage No Headcover Use by Chemotherapy Regimen for All Cancer Types



anthracyclines
40%
anthracycline/taxane

taxanes
45%
no headcover use

78%
no headcover use

57%
No headcover use

53%
Good hair retention

NO

universal determinants
for scalp cooling efficacy^c

^c Independent multivariate analysis (MVA) was completed for each of the largest treatment categories (FEC, AC, D and T) to determine the relative drug-specific relationship between the variables and identify predictors of SC efficacy. Variables used as predictors included: Clinical location, cancer type, dose, gender, treatment setting, age group, ethnic hair type, hair length, hair density, chemical manipulation, previous chemotherapy, infusion time group, PICT group, dampening, number of cooling sessions, HC use and WHO score. Outcomes were based on binary responses; HC (yes vs. no) and binary-WHO.

Abbreviations HC: Head cover; A: doxorubicin (Adriamycin); Car: carboplatin; Cis: cisplatin; D: docetaxel (Taxotere); E: epirubicin; Eto: etoposide; Gem: gemcitabine; IriNo: irinotecan (Campto); T: paclitaxel (Taxol); Vio: vinorelbine. A, B, C: Cancer types: Lung (n=192), oesophageal (n=55), pancreas (11), sarcoma (n=12), skin (n=8), stomach/colorectal (n=314), urothelial cell/bladder (n=7) and other (n=86). Treatment regimens: A6D (n=13), Car/CisEto (n=22), D70-90 (n=146), D(75) in combination (n=33), D100 (n=28), E (n=4), Gem in combination (n=24), Irino90-200 (n=39), Irino210-300 (n=29), Irino300 (n=215), T50-70 (n=4), T75-90 (n=39), T50Car (n=38), T70-100Car (n=32), T175Car (n=23), Vio25-30 (n=8); dosages in mg/m². a World Health Organisation (WHO) score for alopecia (0: none, 1: minimal, 2: severe and 3: total alopecia). 22 patients (11F, 11M) were omitted due to incomplete data. b Positive results for premature cessation included reasons of tolerability, hair loss/baldness & other. Stop chemotherapy/disease progression was deemed a negative result. For non-gender-specific cancer types, 81% (n=693/856) of the patients received comparable treatment regimens. Gender played no statistically significant role in the preference to wear a HC (p=0.912), nor the WHO score (p=0.393), nor an individual's decision to prematurely cease SC (p=0.329).