Computer Imaging to Diminish Alopecia Distress

Grant Number: R44CA099873-03

Abbreviated Abstract

The goal of this research is to develop a low-cost, user-friendly, computer-based imaging system for use by women to reduce anxiety and distress relating to alopecia (hair loss) prior to or following chemotherapy. It has been reported that 47% to 58% of women with cancer cite the likelihood of alopecia as the most disturbing anticipated aspect of receiving chemotherapy; 8% stated that they seriously considered refusing treatment due to this possibility. Utilizing advanced graphical processing techniques, the "Help for Alopecia through Image Representations" (HAIR) system will permit cancer patients of all races and ethnicities and their families to interactively visualize (using the patient's own image) the process of hair loss, accessorization options (e.g., wigs, head scarves, hats, etc.), and the corresponding stages of hair regrowth. "Scripting" (i.e., rehearsing) the side effects of chemotherapy and potential patient responses will significantly reduce the anxiety caused by the prospect of alopecia. This will serve to desensitize women to alopecia, allow them to make better-informed treatment decisions, and facilitate coping when it occurs.

Primary Investigator

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Dr. Parker has Ph.D. and M.E. degrees in Biomedical Engineering from the University of Virginia, awarded in 1988 and 1981 respectively, and both a B.S.E. in Engineering Analysis and Design (Electrical Engineering) and a B.A. in Mathematics, awarded by the University of North Carolina-Charlotte in 1978.

Research Team & Affiliations

Brian R. Clark, Research Scientist, Barron Associates, Inc.
Elizabeth L. McGarvey, EdD, University of Virginia
Scott T. Acton, PhD, Consultant
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Total Budget
$750,198.00

Research Objectives
Aim 1: Refinement of the imaging processing to "commercial quality"
Aim 2: Supplement the library or hair templates with which the subject can replace her current hair
Aim 3: Incorporate all of the ease-of-use paradigms necessary for the HAIR system to be usable by non-technical persons
Aim 4: Construct a Phase II prototype
Aim 5: Evaluate the Phase II prototype on cancer patients

Theory/Hypothesis
Women with cancer who participate in the HAIR computer imaging intervention compared to those who participate in standard care will report less distress associated with hair loss.

Experimental Design
The experimental design is a randomized control group repeated measures design using validated psychological assessment instruments.

Final Sample Size & Study Demographics
100 White and African American or other race/ethnic women will participate in the clinical trial. The inclusion criteria are: age 18-74 years, breast cancer diagnosis, and chemotherapy choice that predicts alopecia. Recruitment and testing is currently underway.

Data Collection Methods
Data collection will consist of the following questionnaires: The Stanford Acute Stress Reaction Questionnaire (SASRQ), the Functional Analysis of Cancer Therapy (FACT), the Importance of Hair Questionnaire, and the Brief Symptom Inventory.

Participants will be assessed upon on enrollment and following hair regrowth (or at the end of the study period, whichever occurs first). Additionally, patients will be assessed at two intermediate time points: (1) after the intervention; and (2) within one month of hair loss. The intermediate assessments are to maintain regular meaningful contact with the participants and to provide additional information on the variability of distress during this time period, but will not be used in the outcome analysis.

Outcome Measures
The outcome measures are level of distress, success in coping with hair loss, self-esteem, and quality of life.

Evaluation Methods

All statistical analyses will be accomplished using SPSS.

- Analytic strategy: General Linear Model, Repeated Measures
- Dependent variable: Scores the questionnaires
- Within-Subject Factor: Time (2 times: enrollment, exit)
- Between-Subject Factorial Design: 2 (control vs. intervention) by 2 (white vs. nonwhite)
- Multivariate statistic: Pillai's trace

Research Results

Recruitment is underway.

Barriers & Solutions

None to date.

Product(s) Developed from This Research

Hair Studios