



A family based trial of a coconut derived emulsion (CDE) shampoo for head lice control

Downs AMR¹, Connolly M², Stafford K³, Kennedy CTC², Coles GC³

¹ Department of Dermatology, Royal Devon and Exeter Hospital Trust

² Department of Dermatology, United Bristol Hospital Trust,

³ Department of Clinical Veterinary Science, University of Bristol (*gerald.c.coles@bristol.ac.uk*)

Introduction

The high prevalence of head lice infestations in primary school children is reflected in the rise in the national sales of pediculocides. With reports of widespread resistance to both pyrethroids and malathion there is an urgent need for new effective treatments. Results from a recently conducted trial of a coconut derived emulsion shampoo (CDE shampoo) in schools (unpublished) were encouraging enough to merit whole family trials of the product for use by parents.

Materials and methods

Children were combed for the presence of head lice and those found to be positive were given a pack describing in detail the study protocol. The research staff, which included a dermatology nurse from the Bristol Royal Hospital Trust, visited those parents agreeing to take part and all family members were checked for the presence of lice and suitability for participation.

Families were randomly allocated to one of 3 groups:

- **Group 1** were asked to apply the shampoo as recommended by the manufacturers. This involved a liberal application of the product to the dry scalp being left for 20 mins with a massage after 15 mins. This treatment was undertaken 3 times over a two-week interval after which time families were asked to keep a visual check on their offspring for the presence of lice.
- **Group 2** subjects followed the same protocol as Group 1 but following the third treatment they were asked to continue using the product as a normal cosmetic shampoo a minimum of twice per week for the remainder of the trial.
- **Group 3** were asked to use the product as a cosmetic shampoo for the full 10 weeks of the trial.

Staff or parents under staff supervision checked family members at the end of week 2 and 10, except those in Group 1 who had opted out due to re-infestation by week 10.

A total of 22 families with 56 children were recruited for the study and the results are given in table 1. They show that the CDE has a very high efficacy if used as three 20 min treatments within a two-week period. The product was also efficacious when used as normal cosmetic shampoo. It also kept children effectively free from lice if used regularly.

From the outset none of the adults were infested with lice. Three of the families that were in Group 1 observed the return of lice within 2 weeks of finishing the final treatment and were provided with more product to control the re-infestation.

Table 1: Number of infested children treated with CDE shampoo

GROUP 1				
Family number	Number of children	Number infested		
		Day 0	Day 14	Day 70
1	3	3	0	Infested by day 28
2	3	3	0	0
3	2	2	0	Infested by day 28
4	3	2	1	Infested by day 21
5	3	2	0	2
6	3	1	0	Withdraw
7	3	2	0	2
8	2	1	0	0
Mean	2.8	2	0.125	
% Clear			94	

GROUP 2				
Family number	No. of children	Number infested		
		Day 0	Day 14	Day 70
1	3	3	0	0
2	2	2	0	0
3	2	1	0	0
4	3	2	0	0
5	3	3	0	0
6	3	1	0	1
Mean	2.7	2	0	0.17
% Clear			100	92

Two of the children in family eight of Group 3 were transitory only visiting the household where treatment was given at weekends. Although lice were present at both day 14 and 70 the guardian observed a reduction in the numbers of lice present throughout the ten-week period.

None of the families reported any adverse reaction to the product and all participants expressed pleasure with its efficacy.

GROUP 3				
Family number	No. of children	Number infested		
		Day 0	Day 14	Day 70
1	2	1	0	0
2	3	3	0	0
3	2	1	0	0
4	2	1	0	0
5	3	2	1	2
6	1	1	0	0
7	2	1	0	0
8	3	3	2	2
Mean	2.3	1.6	0.38	0.5
% Clear			76	69

Discussion

The most conclusive test for any head lice product is its success when used in the home environment. Most published clinical trials on head lice have looked at short-term observational results over a two-week period. When drug resistance was not apparent, impressive results were seen for malathion (100% clearance in 1990) and permethrin (99% clearance in 1986). In the UK, because of drug resistance, permethrin is not reliably effective and malathion is of variable efficacy (78-36% clearance). This long-term study is much more representative of how CDE will perform within the community and the results are impressive.

The use of the CDE shampoo as a cosmetic shampoo also proved effective in the majority of children but our impression was that it was less effective where children had heavy infestations. The continued use of the shampoo following the prescribed three treatments could effectively

keep children lice free. If the product was used on a community basis it may be possible to break the cycle of transmission.

CDE shampoo does not possess insecticidal activity in the conventional sense of the word. The presence of newly hatched louse nymphs observed after shampoo application also proves it does not have activity against louse eggs. Work is ongoing to investigate the product's mode of action.

The addition of regular combing with louse detector combs, where louse loads are heavy, should improve the clearance rates in this sub-group of patients. CDE or the insecticide, carbaryl (available on prescription only in the UK), should be regarded as the most effective products currently available — based on all published clinical trials. We therefore conclude that CDE should be considered as first line treatment for head lice because it is an over-the-counter product.