

THE USE OF BOTULINUM TOXIN IN THE TREATMENT OF MALE PATTERN BALDNESS

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MB004 Before



MB004 After (6 months post-treatment)



RD005 Before



RD005 After (1 year post-treatment)



AF037 Before



AF037 After (6 months post-treatment)



HT 051 Before



HT051 After (1 year post treatment)

Purpose: To determine if peripheral scalp injections of Botulinum toxin-A (BTX-A) will reduce hair loss or stimulate hair growth in balding men.

Methods: 50 male subjects aged between 19 and 57 years with Norwood/Hamilton ratings of II to IV participated. This 60 week study started with 12 weeks of run-in followed by two 24 week treatment cycles. Subjects were injected with 150 units (5 units per 0.1 ml saline) BTX-A into the muscles surrounding the scalp (frontalis, temporalis, peri-auricular, and occipitalis muscles) in equally divided doses over 30 injection sites. The primary outcome measure was a change in hair count in a fixed 2-cm area using a method described by Canfield. Secondary outcome measures included hair loss, measured by having subjects collect loose hair from their pillow with a sticky lint roller, and subjective efficacy using a validated questionnaire.

Results: 40 subjects completed the study with a response rate of 75 percent. Mean hair counts for the entire group showed a statistically significant ($p < 0.0001$) increase of 18% between baseline and week 48, similar to the results reported with Propecia^R. Hair re-growth was objectively visible in serial photographs of some subjects. Hair loss was reduced by 39% ($p < 0.01$). The reduction in hair loss and increase in hair count did not show a statistically significant correlation suggesting hair retention did not account for the increase in hair count. Peripheral placement of the injections suggests decompression of the perforating blood vessels through relaxation of the investing musculature with concomitant increase in oxygen delivery to the coronal and frontal areas of the scalp. A secondary effect would be a reduction in the concentration of dihydrotestosterone (DHT) which is implicated as a primary factor in androgenic alopecia. The conversion of testosterone to DHT is favoured in low oxygen environments.

Conclusions: This study suggests that strategically placed BTX-A injections appear able to indirectly modify scalp physiology, resulting in reduced hair loss and new hair growth in some men with androgenetic alopecia.

Summary of Mean Study Data

	Time (wks)						
	-12 (Run-in)	0 (First Injection)	4	24 (Second Injection)	28	36	48 (Completion)
Subjects	50	43	43	43	43	43	40
Hair count (group mean)	234	235		254			276 (+18%)*
Hair loss (group mean)	144		96		88 (-39%)†		
Subjective evaluation (Kaufman)	20		21			19‡	19

*Statistically significant increase ($p < 0.0001$).

†Statistically significant decrease ($p < 0.01$).

‡Statistically significant change ($p < 0.04$).