EFFECT OF GREY HAIR EVULSION ON THE RESPONSE TO CALCIUM PANTOTHENATE IN PREMATURE GREY HAIRS

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Thrity nine girls between 12 and 31 years in age, having premature grey hairs were treated with calcium pantothenate 200 mg, Basiton Forte (a vitamin B complex formulation), and/or vitamin E 200 mg a day orally, combined with grey hair evulsion which consists of pulling out all the grey hairs along with snipping the converted hairs at the grey-black junction, and checking after 3-5 months, the numbers of hairs regrowing as grey hairs, new grey hairs, new converted hairs and the hairs missed during the previous check-ups. This study revealed that following evulsion of grey hairs, all such hairs do not regrow as grey hairs, the per cent rate of regrowth varied between nil and 88.23% during the first recheck, and almost similar results were obtained during further follow up. Out of 7 patients who have been followed up for almost 3 years, the total numbers of grey hairs had decreased from 109 to 15, 47 to 1, 35 to 7, and 242 to 7 in 4 cases, increased from 31 to 108 and 23 to 41 in 2 cases, and remained almost unchanged from 25 to 33 in the seventh case. This response is considered better than the effect of calcium pantothenate used without grey hair evulsion.

Key words : Grey hairs, Evulsion, Calcium pantothenate, Treatment.

Recent studies[1,2] have shown that in some of the individuals having premature grey hairs, 200 mg calcium pantothenate a day orally, leads to conversion of grey hairs into black. The drug in safe even when taken for several years, and a therapeutic trial for 6 months, generally indicates if the patient is likely to respond. Although, even a poorly effective treatment is welcome for a disease for which there is as yet no better method, an attempt has been made in this study, to improve the therapeutic response by periodically pulling out all the grey hairs detected in the patient. This method (grey hair evulsion)[3] also provides an unequivocal evidence of the progression or otherwise of the process of greying of hairs.

Materials and Methods

Patients having only a limited number of grey hairs and keeping long hairs were included in this study. Each patient was advised to report after shampooing the hair thoroughly and without applying any oil. All the grey hairs were pulled out (evulsed) from their roots, while spontaneously converted hairs were snipped at the grey-black junction. Both these categories of hairs were counted separately. The patients were advised to take 200 mg of calcium pantothenate a day orally, while some patients were given Basiton Forte (thiamine mononitrate 10 mg, riboflavine 10 mg, pyridoxine HCl 3 mg, niacinamide 100 mg, calcium pantothenate 50 mg, cyancobalamine 15 μg, sodium ascorbate 50 mg, and folic acid 1.5 mg) 1 tablet a day and/or vitamin E 200 mg a day orally. After a gap of 3 months or so, the scalp hair were surveyed again to count the numbers of regrown grey hairs, new grey hairs, new converted hairs, missed grey hairs and missed converted hairs, according to the criteria described previously.[3] During this survey, the regrown grey hairs, the new grey hairs and the missed grey hairs were evulsed again, while the new converted hairs and the missed converted hairs was snipped at

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the grey-black junction. As the patient continued the treatment, the subsequent surveys were repeated at approximately 3-month intervals, to check the progress of greying and the response to treatment.

Results

Thirty nine girls between the ages of 12 and 31 years were taken up for this study. The number of grey hairs at the first survey varied between 5 and 713. In 8 patients, the number of grey hairs were between 1 and 10, in 11 the number of grey hairs were between 11 and 25, in 8 patients between 26 and 50, in 2 patients between 51 and 100, while in 10 the grey hairs numbered more than 100.

The percent rates of regrowth of grey hairs on the second and the third follow up surveys are shown in Table I. The maximum rate of regrowth in the second survey was 88.23%, while it was zero in 3 cases. Twenty one of these patients were followed up for the third survey also and the results were almost similar, except that 3 patients had counts of regrown grey hairs higher-than-100 percent meaning that when only 5, 7 and 53 grey hairs were evulsed during the second survey, the counts of regrown grey hairs during the third survey were 6 (120%), 10 (143.1%) and 70 (132%) respectively. The fourth survey and the subsequent surveys also yielded similar patterns.

Seven patients have so far been followed up for nearly 3 years. Four of these patients have shown a significant decrease in the number of grey hairs, two have shown a progressive increase, while the seventh patient has almost the same number of grey hairs as before treatment (Table II). The percent converted hairs and the

Table I. Percent rates of regrowth of hair as grey hairs after evulsion during the previous survey.

Survey	Number of patients having the percent rate of regrown grey hairs						Total
	0-10	10-25	25-50	50-75	75-100	>100	
Second survey	8(20.6%)	11(28.2%)	16(41.0%)	2(5.1%)	2(5.1%)	—	39
Third survey	3(14.3%)	5(23.8%)	5(23.8%)	1(4.8%)	4(19.0%)	3(14.3%)	21

Table II. Total number of grey hairs before treatment and at each subsequent survey in the patients followed up for almost 3 years.

Number	Age and Sex	Total number of grey hairs								
		Before treatment	After treatment at the visit number							
			1	2	3	4	5	6	7	8	9
1.	13F	109 P	78	88	140	156 B	37	55	43	15	—
2.	19F	47 P	27	10	8	8 E	2	3	4	1	—
3.	14F	35 B	38	22	16	17	16 P	7	—	—	—
4.	14F	242 P	99	58	46	66 B, E	22	15	17	12	7
5.	12F	25 P	20	14	4	21 P, B	24	22	33	—	—
6.	18F	31 P	8	35	66 P, B	37	60	102	108	—	—
7.	23F	23 P	27	30	29 P, B, E	43	58	50	41	—	—

P (Calcium pantothenate), B (Basiton Forte), E (vitamin E).

rate of new grey hairs did not show a uniformly consistent trend.

Comments

The conclusions in our study have been based on the following presumptions. Firstly, it was presumed that when a hair is pulled out of the scalp, it starts regrowing almost immediately irrespective of whether it was in the anagen, catagen or the telogen phase of hair cycle.[4-7] This presumption seemed to be correct in a large proportion of the instances, though in some patients, some of the regrown grey hairs were significantly shorter in length than the remaining regrown grey hairs, indicating that these hairs did not start regrowing immediately after evulsion. Another indication of the same phenomenon was higher-than-100 percent rates of regrown grey hairs observed in some patients during the third or the subsequent surveys, which also indicates that some of these regrown grey hairs must be those which did not start regrowing before the second survey even though they were evulsed during the first survey. Such instances however, were exceptions only and not the rule.

The second presumption, that the average rate of growth of hair is approximately 1 cm per month,[8] was also correct except that in a few patients, the length of the regrown grey hairs was more than the expected length indicating that in those patients, the rate of growth of hair must be more than 1 cm/month.

The third presumption was that almost all the hairs that are evulsed would regrow. It was thus presumed that if a grey hair is evulsed, it would regrow either as a (regrown) grey hair or as a black hair. Whereas all the regrown grey hairs would be detected and counted by us, the remaining hairs were presumed to have regrown as black hairs. In case this presumption is correct, the lower-than-100 per cent rates of grey hairs in almost all the patients would indicate that grey hair evulsion is indeed helpful in reducing the numbers of grey hairs in a patient.

The rates of new grey hairs and new converted hairs in our patients showed wide variations. Moreover, since most patients did not report at regular intervals for follow up, it was difficult to decide, if the rate of new grey hairs and the new converted hairs has shown any significant change.

The number of total grey hairs also showed fluctuations, but in 4 of the 7 patients followed up for almost 3 years, the reduction in the number was substantial enough to be considered significant. In the fifth patient where the total number of grey hairs remained almost the same, the treatment can be considered to have checked further progression of greying. The increase of numbers in the remaining two patients was due to the increased rates of new grey hairs and probably represents the natural progression of the process of greying.

Of the 3 treatment regimens used in the 7 patients, 6 were started on 200 mg calcium pantothenate a day of which 2 improved, one remained the same and the other 3 became worse. The seventh patient was given 2 tablets of Basiton Forte a day, which also contain 100 mg calcium pantothenate in addition to other vitamin B complex constituents. This patient also showed adequate improvement. One patient going worse with calcium pantothenate was converted to 1 tablet Basiton Forte and 200 mg vitamin E a day, resulting in a substantial improvement. Another patient improving on calcium pantothenate, and converted to vitamin E 200 mg continued to improve further. The third patient improving on calcium pantothenate and converted to Basiton Forte and 200 mg vitamin E also continued to improve. The patient on Basiton Forte converted to calcium pantothenate also continued to improve. Conversely, 3 patients not improving on calcium pantothenate continued to worsen or remained static even on addition of Basiton Forte alone or with vitamin E.

The number of cases followed up for an adequately long time is yet too small to decide which of the three drugs or drug combinations is better, but it is at least possible to conclude that grey hair evulsion combined with calcium pantothenate, is better than calcium pantothenate alone as used previously.

References

1. Pasricha JS : Successful treatment of grey hairs with high dose calcium pantothenate, Ind J Dermatol Venereol Leprol; 1981; 47 : 311.
2. Pasricha JS : Further studies on calcium pantothenate in grey hairs, Ind J Dermatol Venereol Leprol, 1982; 48 : 185.
3. Pasricha JS : Grey hair evulsion technique for evaluating the effect of drugs for the treatment of premature grey hairs, Ind J Dermatol Venereol Leprol (in press).
4. Hale PA : Local factors affecting rodent hair cycles, in : Hair Research, Editors, Orfanos CE, Montagna W and Stuttgen G : Springer-Verlag, Berlin, 1981; pp 229-234.
5. Silver AF and Chase HB : DNA synthesis in the adult hair germ during dormancy (telogen) and activation (early anagen), Dev Biol, 1970; 21 : 440-451.
6. Silver AF and Chase HB : The incorporation of tritiated uridine in hair germ and dermal papilla during dormancy (telogen) and activation (early anagen), J Invest Dermatol, 1977; 68 : 201-205.
7. Potten CS : Tritiated thymidine incorporation into hair follicle matrix and epidermal basal cells after stimulation, J Invest Dermatol, 1971; 56 : 311-317.
8. Saitoh M, Uzaka M and Sakamota M : Hair growth, in : Advances in Biology of Skin, Vol IX, Editors, Montagna W and Dobson RL : Pergamon Press, New York, 1969; p 183-201.