

Evaluation of Pre Mature Gray Hair Among Females Age 18-25: Case Study from Tamil Nadu, India

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Abstract: Graying hair that begins before the age of 20 is known as premature graying of the hair (PMGH). Having gray hair does not indicate that one is getting older. The physiological changes taking place in people's bodies are the primary reason for the prevalence of PMGH. The etiology of gray hair is mostly caused by a decrease in melanogenically active melanocytes in the hair bulb of gray anagen hair follicles, with loss of hair colour. Stress is another factor in the early onset of gray hair. The study was conducted at Sree Ramakrishna Medical College of Naturopathy and Yogic Sciences and Hospital, Kulasekharam, Tamil Nadu, India, and was distributed as a questionnaire to females in the 18 to 25 age group. The females were given verbal consent after being informed of the study's goal. There were 30 respondents in total for this survey. There are 30 questions in the survey. The questionnaire's parameters covered nutritional deficiencies, genetic issues, drugs, stress, and hair loss. Female volunteers who were uncooperative or unwilling were not included in the study.

Keywords:- Sleeplessness, Stress, Gray hair, Hair loss.

I. INTRODUCTION

Graying hair that begins before the age of 20 is known as premature graying of the hair (PMGH). One of the more obvious indications of aging is silvery threads. PMGH was found to be 27.3% prevalent. Having gray hair does not indicate that one is getting older. The physiological changes taking place in people's bodies are the primary reason for the prevalence of PMGH. The etiology of gray hair is mostly caused by a decrease in melanogenically active melanocytes in the hair bulb of gray anagen hair follicles, with loss of hair colour. Stress is another factor in the early onset of gray hair. The sympathetic nervous system is overactivated by stress, which also results in an increase in noradrenaline release. The color of the hair can vary from normal to white and can be visible on individual hair as well as from hair to hair. It is thought that the mixing of pigmented and white hair results in the appearance of gray.

II. PATHOPHYSIOLOGY

The physiological changes taking place in people's bodies are the primary reason for the prevalence of PMGH. The etiology of gray hair is mostly caused by a decrease in melanogenically active melanocytes in the hair bulb of gray anagen hair follicles, with loss of hair colour. Melanin incontinence and faulty melanosomal transfers to cortical keratinocytes are both results of melanocyte degeneration. The white coloration of the hair is an optical illusion that hides the natural pale yellow hue of hair keratin by reflecting incident light. The colour of the hair can vary from normal to white and can be visible on individual hair as well as from hair to hair. It is thought that the mixing of pigmented and white hair results in the appearance of gray. Although spontaneous repigmentation of gray hair has been seen on occasion, premature graying of the hair is typically progressive and permanent. Oxidative stress is produced as a result of endogenous obstacles, including radiation, inflammation, or psychoemotional stress, as well as a variety of environmental factors. The sympathetic nervous system becomes overactive as a result of stress, and the sympathetic nervous system also releases more noradrenaline into the hair follicles. Thus, the melanocyte stem cells are diminished as a result of this excessive production. Additionally, it hastens the aging process. Gray hair is a sign of aging as well.

High levels of oxidative stress are produced by the ongoing melanin synthesis in the anagen stage of hair follicle growth. Therefore, we speculate that melanocytes in hair bulbs are particularly vulnerable to aging brought on by free radicals. We performed an organ culture, macroscopic, and immunohistomorphometric investigation on human scalp skin anagen hair follicles from graying individuals in order to evaluate this idea. We observed enhanced oxidative stress and melanocyte death in the pigmentary unit of graying hair follicles. A common marker deletion for accumulated oxidative stress damage is a deletion of mitochondrial DNA, which most frequently occurs in hair follicle graying. Unpigmented hair follicles from the same

donors that were cultured grew more effectively than pigmented follicles. Last but not least, melanocyte death was elevated in cultured pigmented hair follicles exposed to exogenous oxidative stress (hydroquinone). We infer that melanocytes in hair follicles experience high levels of oxidative stress, which causes them to selectively age prematurely and undergo apoptosis.

III. MATERIALS AND METHOD

The study was conducted at Sree Ramakrishna Medical College of Naturopathy and Yogic Sciences and Hospital, Kulasekharam, Tamil Nadu, India, and was distributed as a questionnaire to females in the 18 to 25 age group. The females were given verbal consent after being informed of the study's goal. There were 30 respondents in total for this survey. There are 30 questions in the survey. The questionnaire's parameters covered nutritional deficiencies, genetic issues, drugs, stress, and hair loss. Female volunteers who were uncooperative or unwilling were not included in the study.

IV. RESULT

The respondents who identified as female fell into the 18–25 age range. There are 30 women in total. Table 1 indicates that 30% of people have any symptoms of itching on the scalp, while 70% do not. Frequent hair dye use 6.66%. 36.66% of people do not have increased hair loss, compared to 63.33% of people who do. 40% of people use shampoo and soap excessively, while 60% don't have this practice.

Table: 1 shows the changes in scalp

S.NO	CONTENT	YES(%)	NO(%)
1	Do you have itching on head	30	70
2	Do you use hair dyes	6.66	93.34
3	Do you have increased hair fall	63.33	36.66
4	Do you over use any shampoo or soaps	40	60
5	Do you have habit of using any hair mask	16.66	83.34
6	Do you use any electrical items for hair styling	13.33	86.66
7	Do you have Dandruff	53.33	46.66
8	Is there changes seen in your scalp	16.66	83.34
9	Is your hair roots weak	60	40

According to Table 2, 40% of causes are genetic and 60% are non-genetic. 23.33% of people have anemia symptoms. 3.33% have thyroid issues. 30% of people have a skin condition, and 70% do not.

Table: 2 shows the disease conditions that cause gray hair

S.NO	CONTENT	YES(%)	NO(%)
1	Any genetic cause	40	60
2	Are you anemic	23.33	76.66
3	Do you have thyroid complaint	3.33	96.66
4	Do you have any skin problems	30	70
5	Do you have constipation	10	90
6	Do you have a heat body	83.33	16.66
7	Are you very often stressed	73.33	26.66
8	Do you have good sleep	60	40

Having constipation as a symptom 10% and 90% of people do not experience constipation. Body temperature 83.33% and lack of symptoms 16.66%. Regularly under stress, 73.33%, and not frequently under stress. 60% of people have good sleep, and 40% do not.

According to Table 3, 10% of people consume fruits daily, while 90% do not. 6.66% of people say they usually eat green leafy vegetables, while 93.34% say they don't. 3.33% of people have a balanced diet, whereas 96.66% do not.

Table: 3 shows the food habits

S.NO	CONTENT	YES(%)	NO(%)
1	Do you intake fruits daily	10	90
2	Do you consume green leafy vegetables regularly	6.66	93.34
3	Are you eating a balanced diet	3.33	96.66
4	Do you intake more junk foods	53.33	46.66
5	Do you intake nuts regularly	13.33	86.66
6	Do you have any weight loss symptoms	23.33	76.66

Eat more processed meals, 53.33%. 13.33% of people report routinely eating nuts, compared to 86.66% who do not. Have any signs of weight loss 23.33% and 76.66% do not have any signs of weight loss.

Table 4 displays, have a smoking habit 6.66% and don't have a smoking habit 93.34%. 80% have daily baths. 36.66% of people have the habit of changing their shampoo frequently, compared to 63.34% who don't.

Table: 4 shows the other habits

S.NO	CONTENT	YES(%)	NO(%)
1	Do you have the habit of smoking	6.66	93.34
2	Do you take bath daily	80	20
3	Is your hair dry often	63.33	36.66
4	Do you have the habit of frequent changes of shampoo	36.66	63.34

As seen in Table 5, 20% of people take any medicine, while 80% do not. 30% of the population is exposed to pollution, whereas 70% are not. Radiation exposure was 6.66%.

Table: 5 shows the exposures of various environments

S.NO	CONTENT	YES(%)	NO(%)
1	Are you undergoing any medication	20	80
2	Are you often exposed to pollution	30	70
3	Very often exposed to radiation	6.66	93.34

V. DISCUSSION

A smaller percentage of females 30% have itchy head symptoms, 6.6% frequently colour their hair, 40% overuse shampoo and soap, and 60% don't have the habit. Few 86.66% women regularly use electrical hairstyling tools, the majority of females have dandruff 53.33% and weak hair roots 60% and are affected by genetic factors 40%. Having anemia symptoms 23.33%, having any skin conditions 30%, and 10% of people reporting constipation as a symptom. Fewer women consume green leafy vegetables consistently 6.66% and are frequently stressed 73.33%. Have decent sleep habits 60% and a balanced diet 3.33%. The majority of females consume more junk food 53.33%, show no signs of weight loss 23.33%, and take the majority of daily showers 80%. Changing shampoo frequently as a habit 36.66%, being exposed to pollutants 30%, and radiation exposure were 6.66%.

VI. CONCLUSION

It has been determined that the majority of women experience interrupted sleep, loss of interest, fatigue, sadness, and irritation at work. Their normal everyday routines are subpar. Females should therefore be more conscious of the value of proper nutrition, hair care, and sleep. To enhance the general health and wellbeing of the young ladies, future therapies should concentrate on these areas.

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