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Assessment of depression and anxiety in trichodynia patients of *Telogen effluvium* and *Alopecia areata*

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ABSTRACT

Trichodynia has been defined as discomfort, pain or paresthesia of the scalp related to complaint of hair loss. It is a very common, relatively new and usually under diagnosed entity frequently related with diseases of hair loss. 300 subjects were taken for study, after taking written informed consent, including 100 cases of Telogen Effluvium, Alopecia Areata and control each. First each group was analyzed for the presence of Trichodynia then the patients with Trichodynia were evaluated for anxiety and depression by applying Hamilton Rating Scale for Anxiety (HAM-A) and Hamilton Rating Scale for Depression (HAM-D). Trichodynia was found in significantly higher in patients of Telogen Effluvium and Alopecia Areata when compared with control. Trichodynia was significantly higher in Telogen Effluvium group when compared with Alopecia Areata. Anxiety was significantly higher in patients with Telogen Effluvium with Trichodynia and Alopecia Areata with Trichodynia when compared with Telogen Effluvium without Trichodynia and Alopecia Areata without Trichodynia respectively, while no statistically significant difference was found in terms of depression. Trichodynia is a very common problem in patients of Telogen Effluvium and Alopecia Areata and Anxiety is frequently associated with Trichodynia.

INTRODUCTION

Trichodynia has been defined as discomfort, pain or paresthesia of the scalp related to complaint of hair loss [1].It is also known as “hair pain” or “Burning scalp syndrome”[1,3].Probably first described by Sulzberger et al.[2] in 1960 as diffuse or localized tenderness with itching, burning, crawling and awareness of scalp usually uncomfortable, in patients with Telogen Effluvium. The term Trichodynia was coined by C. Delforno in 1995[1]. Burning is the most severe symptoms and Rebora reported the use of ice cubes by one of his patient for relieving the burning sensation [4].Patient usually do not report this symptoms by their own because of awkwardness associated with it, this is the reason behind why it is needed to be asked for. Pain in Trichodynia is mainly spontaneous in nature but can also be provoked by simple activities like combing, massaging, washing, hat wearing and even binding hairs[7].

The Exact pathogenesis is not known but few suggested it to be a manifestation of psychiatric disorders like anxiety and depression [8] while others hypothesized the role of substance P [4,11], while few others has emphasized on the role of central and peripheral sensitization [7].Women are more affected with Trichodynia or in other words women tends to report it more. Trichodynia seems to be more related to hair loss, infact Baldari et al.[5] found Trichodynia in 33% of the patients with hair loss, Grimalt et al.[6] in 14.3% of578 patients with androgenetic alopecia (AGA), TE, or Alopecia Areata.

Trichodynia is a relatively new entity with very limited studies, despite of being non life threatening it can be a cause of serious stress in patients suffering from it. So there is need to explore all aspects of Trichodynia for better understanding of its pathogenesis and management options.

MATERIALS AND METHODS

This study was conducted at out-patients Dermatology department of tertiary health center. It was a cross sectional, hospital based study. Sample size consisted 100 cases of Telogen Effluvium, 100 cases of Alopecia Areata and 100 healthy control without hairloss. Patients of 15 to 45 years of age, of both sex were selected for study. Patients below 15 and above 45 years of age, known cases mental disorders or substance dependence excluding tobacco and caffeine and any other disorder of scalp were excluded from study.

Telogen Effluvium and Alopecia Areata cases were diagnosed by a dermatologist. The diagnosis of Trichodynia was made on basis of clinical presentation as well astrichological examination. Patient was questioned about the presence of altered sensation, pain, stinging, burning, tenderness, hair discomfort, crawling and uncomfortable awareness of scalp. Pruritus was not considered as a symptom of Trichodynia. Few patients had spontaneously reported their symptoms while in others it was specifically asked.

After obtaining research ethics committee approval, Telogen Effluvium, Alopecia Areata and healthy control patients who were willing to give written informed consent were recruited for study. Samples were collected by purposive sampling. The patients with Trichodynia were evaluated for anxiety and depression by applying Hamilton Rating Scale for Anxiety (HAM-A) and Hamilton Rating Scale for Depression (HAM-D) by psychiatrist author.

The HAM-A probe 14 parameters (items) and takes 15-20 minutes to complete the interview and score the results. Each parameter (item) defined by a series of symptoms and measures both psychic anxiety and somatic anxiety. Each item is rated on 5-point scale 0-4. Total score: 0-56, Normal is <17 and score ≥18 is considered as cases of anxiety.[17]The HAM-D form lists 21 items, the scoring is based on the first 17. Ten items are scored on a 5-point scale, ranging from 0 = not present to 4 = severe. Eleven items are scored from 0-2. Total score ranges from 0-62; scores of less than 7 considered normal; and scores of ≥8 is considered as cases of depression. It generally takes 15-20 minutes to complete the interview and score the results. It is the most commonly used measure of depression [18].

Fisher's exact and chi-square tests were used for statistical analysis using SPSS version 22.

RESULTS

The data gathered were consolidated, coded and subjected to appropriate statistical analysis. The demographic profile of Telogen Effluvium patients was: 56% patients were of 15 to 30 years and 44% were of 31 to 50 years; 65% were females; majority were educated more than 12^{th} standard (60%); hindu (65%) and of lower socioeconomic status (51%). This profile was statistically similar to control group except in sex where females were 40% in control group (p=0.00) (Table 1). Among Alopecia Areata patients 54% were of 15 to 30 years and 46% were of 31 to 50 years of age; 52 % patients were female; majority were educated more than 12^{th}standard(63%); hindu (66%) and of lower socioeconomic status (45%). Controls were statistically similar to Alopecia Areata group in demographic profile. (Table 2). There was no statistically significant difference among Telogen Effluvium and Alopecia Areata groups in terms of socio-demographic profile. (Table: 1,2,3)

Trichodynia was found in 33% patient of Telogen Effluvium among which 78.8% were females, 19% of Alopecia Areata among which 68.4% were females and 5% among controls. Among Telogen Effluvium group Trichodynia was found significantly higher in comparison to control (p=0.00). Similarly in Alopecia Areata group Trichodynia was found significantly more in comparison to control (p=0.00). when comparing the Telogen Effluvium with Alopecia Areata group, statistically significant difference was found, with higher number of Trichodynia patients in Telogen Effluvium group.(p=0.02).(Table:4)

TABLE 1- Showing socio-demographic profile of Telogen Effluvium patients

Variables		Patients with Telogen Effluvium N=100 n (%)	Control N=100 n (%)	χ2 /fisher's exact test	df	P value
Age	15-30years	56 (56%)	48(48%)	1.28	1	0.26
	31-50years	44 (44%)	52(52%)			
Sex	Male	35 (35%)	60(60%)	12.53	1	**0.00****
	Female	65 (65%)	40(40%)			
Education	≤12th	40 (40%)	51(51%)	2.44	1	0.12
	> 12th	60 (60%)	49(49%)			
Religion	Hindu	65 (65%)	67(67%)	0.09	1	0.77
	Others	35(35%)	33(33%)			
Socio-economic status	Higher	15(15%)	21(21%)	1.27	2	0.53
	Middle	34 (34%)	33(33%)			
	Lower	51 (51%)	46(46%)			
Trichodynia	Present	33(33%)	5(5%)	25.47	1	**0.00****
	Absent	67(67%)	95(95%)			

**indicates p <.05 **indicates p<.01*

TABLE 2- Showing socio-demographic profile of Alopecia Areata patients

Variables		Patients with Alopecia Areata N=100 n (%)	Controls N=100 n (%)	χ2 /fisher's exact test	df	P value
Age	15-30years	54(54%)	48(48%)	0.72	1	0.40
	31-50years	46(46%)	52(52%)			
Sex	Male	48(48%)	60(60%)	2.90	1	0.89
	Female	52(52%)	40(40%)			
Education	≤12th	37(37%)	51(51%)	3.98	1	0.05
	> 12th	63(63%)	49(49%)			
Religion	Hindu	66(66%)	67(67%)	0.02	1	0.88
	Others	34(34%)	33(33%)			
Socio-economic status	Higher	16(16%)	21(21%)	1.19	2	0.55
	Middle	39(39%)	33(33%)			
	Lower	45(45%)	46(46%)			
Trichodynia	Present	19(19%)	5(5%)	9.28	1	**0.00****
	Absent	81(81%)	95(95%)			

**indicates p <.05 **indicates p<.01*

TABLE 3- Comparing socio-demographic profile of Telogen Effluvium with AlopeciaAreata patients

Variables		Patients with Telogen Effluvium N=100 n (%)	Patients with Alopecia Areata N=100 n (%)	χ2 /fisher's exact test	df	P value
Age	15-30years	56 (56%)	54(54%)	0.08	1	0.78
	31-50years	44 (44%)	46(46%)			
Sex	Male	35 (35%)	48(48%)	3.48	1	0.06
	Female	65 (65%)	52(52%)			
Education	≤12th	40 (40%)	37(37%)	0.20	1	0.66
	> 12th	60 (60%)	63(63%)			
Religion	Hindu	65 (65%)	66(66%)	0.02	1	0.86
	Others	35(35%)	34(34%)			
Socio-economic status	Higher	15(15%)	16(16%)	0.75	2	0.69
	Middle	34 (34%)	39(39%)			
	Lower	51 (51%)	45(45%)			
Trichodynia	Present	33(33%)	19(19%)	5.10	1	**0.02***
	Absent	67(67%)	81(81%)			

**indicates p <.05 **indicates p<.01*

Those 33 patients of Telogen Effluvium having Trichodynia were compared with 33 patients of Telogen Effluvium without Trichodynia and we found that on applying HAM-A scale, 60% patients of Telogen Effluvium with Trichodynia and 27% cases of Telogen Effluvium without Trichodynia were having anxiety and this difference was statistically significant(p=0.01). similarly after applying HAM-D scale, 14 patients of Telogen Effluvium with

Trichodynia and 8 cases of Telogen Effluvium without Trichodynia were having depression but this difference was not statistically significant(p=0.12).(Table:4)

Table 4- Comparing Anxiety and Depression in Patients of Telogen Effluvium with Trichodynia and without Tricodynia

Variables		Patients of Telogen Effluvium with Trichodynia N=33 n (%)	Patients of Telogen Effluvium without Trichodynia N=33 n (%)	$\chi 2$ /fisher's exact test	df	P value
Anxiety	Present	20	9	7.44	1	**0.01****
	Absent	13	24			
Depression	Present	14	8	2.45	1	0.12
	Absent	19	25			

**indicates p <.05 **indicates p<.01*

Fischer's exact test was applied, where cell count was less than 5.

Those 19 patients of Alopecia Areatahaving Trichodynia were compared with 19 patients of Alopecia Areata without Trichodynia and it is found that on applying HAM-A scale, 10 patients of Alopecia Areata with Trichodynia and 4 cases of Alopecia Areata without Trichodynia were having anxiety and this difference was statistically significant(p=0.04). similarly after applying HAM-D scale, 6 patients of Alopecia Areata with Trichodynia and 3 cases of Telogen Effluvium without Trichodynia were having depression and this difference was not statistically significant(p=0.25).(Table: 5)

Table 5- Comparing Anxiety and Depression in Patients of with Alopecia Areata with Trichodynia and without Tricodynia

Variables		Patients of Alopecia Areata with Trichodynia N=19 n (%)	Patients of Alopecia Areata without Trichodynia N=19 n (%)	$\chi 2$ /fisher's exact test	df	P value
Anxiety	Present	10	4	4.07	1	**0.04***
	Absent	9	15			
Depression	Present	6	3	1.31	1	0.25
	Absent	13	16			

**indicates p <.05 **indicates p<.01*

Fischer's exact test was applied, where cell count was less than 5.

DISCUSSION

Trichodynia is a relatively new entity but is a very common problem with hair loss. Since hair loss is one of the most common dermatological disorder, it is important to study various aspects of Trichodynia. Trichodynia frequently associated with hair loss disorders like Telogen Effluvium and androgenic alopecia. Rebora[1] found Trichodynia in 34.2 % of patients with hair loss, Baldari et al.[5] found it in 33% of patients with hair loss. The author observed the relation between intensity of Trichodynia and hairfall with higher symptomatic persons reporting more hair fall. Williman and Trüeb[3] have also observed that the intensity of Trichodynia symptoms is correlated with severity of shedding but Delfrin and Murie[7] have not observed any such association.

We also found previously reported female predominance in Trichodynia patients with 78.8% and 68.4% females in Telogen Effluvium and Alopecia Areata group respectively. Williman and Trüeb[3] found women predominance with 20% of women affected in comparison to 9% men in total of 403 hair fall patients. There are numerous probable reasons of women predominance, they usually have long hairs which add weight to the shaft hence the hair is more likely to be painful [4].Gender related difference in pain perception could also be the cause behind higher prevalence of Trichodyniain females [3,15]. It may cause more distress in women and they are more likely to get reported [16].

In current study Trichodynia was present in 33% of the patients with Telogen Effluvium which is in concordance with Kivanc–Altunay[9]study where Trichodynia was present in 40.5 % of Telogen Effluvium patients. Baldari et al.[5] reported the prevalence of 94.4% Trichodynia in patients with Telogen Effluvium or Telogen Effluvium with androgenic alopecia. Durusoy et al.[10] also reported the prevalence of 73.6% in patients with TelogenEffluvium. We found that 19% of total Alopecia Areata patients have Trichodynia. Author did not found any other study of Trichodynia prevalence in Alopecia Areata although Trichodynia is the well reported symptom of Alopecia Areata[4,6] and is mainly attributed to inflammatory pathogenesis of Alopecia Areata [13].

On comparing the Telogen Effluvium with Alopecia Areata, we found that Trichodynia was more prevalent in Telogen Effluvium group (p=0.02). Kivancaltunay[9] in his study found Trichodynia prevalence was statistically more significant than in Telogen Effluvium group when compared with Androgenic alopecia group[9].Author did not found any other study comparing the Trichodynia prevalence in Telogen Effluvium versus Alopecia Areata.

While comparing the Patients of Telogen Effluvium with Trichodynia, with those of Telogen Effluvium without Trichodynia we found significant difference in anxiety with higher prevalence in patients of Telogen Effluvium with Trichodynia while no difference was found in terms of depression. In similar way on comparing the patients of Alopecia Areata with Trichodynia with those of Alopecia Areata without Trichodynia, significant difference was found in terms of anxiety with higher prevalence in patients of Alopecia Areata with Trichodynia but no difference was found in terms of depression. Based on these findings we can state that anxiety is the predominant feature of patients suffering from Trichodynia i.e. Trichodynia itself significantly contribute to the anxiety of the person irrespective of the disease he is suffering.

KivancAltunay[9] also found psychiatric morbidity in 76.5% of patients with Telogen Effluvium with Trichodynia and that include anxiety, depression and obsessive compulsive disorder.[9] Williman reported increase in anxiety due to Trichodynia as many patients believe that Trichodynia can aggravate their hairloss[3].So it is not clear whether anxiety leads to Trichodynia or Trichodynia leads to anxiety but it is pretty clear that both are associated with each other. Trüeb[12] have found the association between Trichodynia and anxiety. Durusoy et al.[10] concluded that anxiety, depression and somatoform disorder can play a role in etiology of Trichodynia. Our findings are inconsistent with Ozturk et al.[14] who found no significant difference in anxiety scores of Trichodynia patients with and without Telogen Effluvium.

We conclude that Trichodynia is a very common problem among patient with diffuse hair loss and psychiatric disorders like anxiety is significantly associated with it. Although there is no randomized controlled trial for the management of this common disorder but low dose antidepressant and psychotherapy can be tried[3,8,9].Patient should be counseled that Trichodynia does not show hair loss activity which can ease the anxiety and can provide the relief from symptoms to some extent . Further case control studies are needed to elucidate the exact pathogenesis, association, and its management.

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