Review Form 1.6

Journal Name:	**Journal of Pharmaceutical Research International**
Manuscript Number:	**Ms_JPRI_80630**
Title of the Manuscript:	**"The comparison of Trichoscopic findings in female pattern hair loss (FPHL) and chronic telogen effluvium (CTE) in female patients"**
Type of the Article	**Original Research Article**

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(https://www.journaljpri.com/index.php/JPRI/editorial-policy)

Review Form 1.6

PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments	1.- For **correct English** some **major** changes need to be made. I would rephrase some sentences and paragraphs as follows (bold words and sentences are the changes proposed to the authors in order to improve grammar and sentence coherence. Most of these changes need to be made in order to have an academically correct English article): "It is **sometimes** difficult to differentiate between female pattern hair loss (FPHL) and chronic telogen effluvium (CTE) in female patients. Trichoscopy is **a non-invasive** technique…" "**Adult female patients with ages ranging from 30 to 60 years old**…". "Group A and B included patients with FPHL and CTE respectively" "Trichoscan (SIF hair analysis system) was **performed…**" **"**Hair loss can be damaging for the self-image and well-being. Diffuse non scarring hair loss is a common problem in women **and a major reason** for consultation for hair related disorders. **Adult women can have a varying degree of hair fall which can be subdivided into acute or chronic onset diffuse hair loss. This is considered to be a multifactorial problem ranging from CTE to FPHL. Acute telogen effluvium (ATE) is the most common cause of diffuse hair loss followed by chronic telogen effluvium(CTE) and female pattern hair loss (FPHL).**" "In early stage, female pattern hair loss and chronic telogen effluvium **can present** in similar ways. **Chronic telogen effluvium** has to be differentiated from female pattern hair loss as the management approach is different **between both conditions**. Trichoscopy is a reliable, **non-invasive technique** that allows visualization of hair density, hair diameter, and epidermal portion of hair follicle, vellus hairs, and yellow dots and to study the surface of the scalp. It can be helpful in **the** diagnosis of female pattern hair loss and chronic telogen effluvium without **requiring** a biopsy" **"Material and Methods:** It was a prospective **cross-sectional** comparative study carried out in the department of Dermatology, Acharya Vinoba Bhave Rural Hospital, afflicted to Jawaharlal Nehru Medical College, Wardha, Maharashtra. Institutional ethical committee clearance was **approved** before **the** start of the study. Informed written consent was taken from each patient before enrolling in the study. **Study was carried out in female patients ranging between 25 to 60 years old**. Female patients with acute telogen effluvium, alopecia areata, cicatricial alopecia, **trichotillomania** and traction alopecia were excluded from the study. Patients were randomly selected and enrolled in the study. Patients were distributed in A and B groups. In group A, clinically diagnosed cases of female pattern hair loss were enrolled while in group B, clinically diagnosed cases of chronic telogen effluvium were enrolled. Female patients with thinning of the **interparietal part of the scalp** (Christmas tree pattern) with bitemporal recession were clinically diagnosed as female pattern hair loss and included into the Group A. Diffuse hair loss for more than 6 months without any obvious cause with no **interparietal thinning** or bitemporal recession were clinically considered as chronic telogen effluvium. Detailed history regarding onset, duration **and** severity was taken. Detailed history was taken to rule out other causes of hair loss in women.	

	Trichoscan used in present study was SIF hair analysis system which allows visualization of hair shaft thickness, hair density, percentage of vellus hairs, follicular units per unit area, yellow dots. Frontal region of the scalp **was** examined in each patient. Magnification ranging from 50x to 300x was used to visualize details of hair shaft and scalp epidermis. Result was analyzed using unpaired T test with significant level of P value < 0.05." "Variability in hair diameter **of** more than 20% **was** seen in 90% of patients **with** female pattern hair loss (FPHL) which **was** statistically significant as compared to chronic telogen effluvium in **which more than 20% variability of hair diameter was only seen in 22%** of the CTE patients. [Table 1] [Figure 1]. Mean diameter of hair shaft in FPHL was 0.045 ± 0.006 (**UNITS NEEDED**) while in chronic telogen effluvium mean it was 0.059 ± 0.008 (**UNITS NEEDED**) with a **statistically** significant difference **(p<0.002).** [Table 1] Density of hair follicular units per unit area (**NEED TO SPECYFY UNIT OF AREA**) were significantly reduced in FPHL (32.54 ± 12.24) as compared to chronic telogen effluvium (60.66±18.12). [Figure 2] Percentage of vellus hairs were 22.4±14.3 in FPHL as compared to 12.73 ± 6.71 in CTE with a **statistically** significant difference **(p<0.001)**. Percentage of single hair follicular units were higher in FPHL (65.03 ± 17.08) as compared to chronic telogen effluvium (39.35 ± 11.08) with with a **statistically** significant difference **(p<0.003)**. [Table 1][Figure 3] Yellow dots per field of vision (**need to specify actual unit of area)** were significantly more in FPHL (4.66 ± 1.72) as compared to chronic telogen effluvium (1.33 ± 0.58). [Table 1] [Figure 4]" "Acute Telogen effluvium is characterized by diffuse sudden onset, rapid shedding of club hairs mostly **usually preceded** by triggering events **such as** febrile illness, accidental trauma, major surgery, emotional trauma, drug intake, **postpartum** and poor diet.(3) It is a **self-limited** condition and lasts only for 3 to 6 months which also can be improved with treatment of underlying condition. As described by David Whitings, chronic telogen effluvium is an idiopathic, chronic diffuse hair loss without **central loss of density** in **middle-aged** women lasting for more than 6 months duration with normal histology. (4) It becomes **clinically evident** when more than 25% volume of hairs is reduced. (5) Pathogenesis of chronic telogen effluvium is unknown and the diagnosis **is** made only after exclusion of other causes of hair loss including thyroid disorder, other systemic disorders, anemia, chronic illness, emotional trigger **and** by clinical and laboratory examinations.(6)" Female pattern hair loss is diffuse, slowly progressive, **with a** gradual onset **and** predominantly affecting the frontoparietal region of scalp leading **to a loss of interparietal hair density**. FPHL is characterized by miniaturization of hair follicles with normal anagen to telogen hair ratio with marked variation in hair diameter affecting frontal, central and parietal **regions** of the scalp. (7) (8) Female pattern hair loss is considered to be a major hair problem faced by mainly middle-aged women and **it is also** challenging for **dermatologists** to treat this condition. Prevalence of female pattern hair loss is not known in **India. Various** studies done in China and Korea have mentioned **a** prevalence of about 5-6 % in middle aged women. (9) (10) The prevalence of female pattern hair loss increases with age with higher prevalence in postmenopausal women of more than 60 years age and it shows inconsistent response to treatment.(11)" "The **main differential** diagnosis of female pattern hair loss is chronic telogen effluvium in an early stage of the disease. They are difficult to differentiate as **both disorders** present with similar complaints of diffuse and episodic hair loss.(12) Distinction between these two conditions **is important** as natural history, pathogenesis, prognosis and management differs. (13) (14) **Chronic telogen** effluvium is a **self-limited** condition **with overall good prognosis**, while FPHL **is a progressive disease**, causing significant **decrease in hair density which may lead to cosmetically unacceptable baldness**. Biopsy **can help differentiate** between them as CTE shows classical **histopathological** findings and FPHL showed miniaturization of terminal hair with lower terminal to vellus hair ratio. Biopsy is an invasive procedure which **should not be practiced as a routine examination for this kind of patients.** Trichoscopy can be used to differentiate between these two conditions as it is **non-invasive**, easily available, **and allows us to visualize and assess scalp and hair characteristic**. (15) It can give valuable clue to diagnosis, predict the course of the disease and **avoid unnecessary biopsies**. (16) (17)"	

	"Variability in hair diameter (anisotrichosis) **is a definitive sign** of FPHL. **In our study**, about **90% of female pattern hair loss patients showed anisotrichosis, while it was present only in 22% of the patients in the chronic telogen effluvium group**. The findings of our study **are** in concordance with **findings reported** by Bhamla et al. [18] **Although thin hairs can be seen in CTE, they are more characteristically seen in FPHL according to our results**." **"Hair density** in FPHL was significantly lower as compared to CTE patients. Similar **findings were noted by Hatice et al**. [19] The percentage of vellus hairs was significantly higher in FPHL as compared to CTE. **22% of the hairs per unit area of trichoscopy were vellus hairs in FPHL patients, while only 7.73 % were vellus hairs in the CTE group. The number of single hair units was higher (statistically significant) in FPHL as compared to CTE**. **Though yellow dots are not a specific trichoscopic finding in FPHL, the percentage of yellow dots per area unit was significantly higher as compared to the CTE group**. Similar findings on trichoscopy were found in Rakowska et al study.[20]" **"Rakowska et al devised trichoscopic criteria** for the diagnosis of female pattern hair loss (FPHL). Lower mean hair thickness, more than 10% thin hairs in frontal area and more than 4 yellow dots per unit area are considered major criteria to diagnose FPHL. **Trichoscopic** findings are more pronounced in fontal area as compared to occipital area. **This criterion is said to have a specificity of 98% for the diagnosis of FPHL**. No specific trichoscopic findings are observed in CTE other than short hairs with sharp end. [20]" "Miniaturization of terminal hairs into **vellus-like** hairs is the main pathogenic mechanism in FPHL with lower terminal to vellus hair ratio. **These vellus-like** follicles have shortened anagen cycle leading to production of fine, nonpigmented short hair shaft.[21] **Pathophysiologic mechanisms of FPHL are considered to be multifactorial, including genetics, androgens and microinflammation**.[21]" "Trichoscopy can establish the diagnosis of FPHL based on various features without the help of **an invasive biopsy technique**. **Early diagnosis of FPHL is possible with the help of trichoscopy. It also can help in monitoring treatment response in patients of female pattern hair loss**." [2] **"Conclusion:** **Trichoscopy allows us to evaluate characteristics like hair density, variability in hair shaft diameters, percentage of vellus hair, percentage of single hair units and yellow dots per unit area. This can help us diagnose FPHL and distinguish it from chronic telogen effluvium which pose diagnostic dilemma in clinical practice**." **2.- Table 1 needs to mention measurement units for hair diameter, density and yellow dots (dots per area unit, etc)**	
Minor REVISION comments		
Optional/General comments	Written English needs to improve. The trichoscopic findings of both entities are generally well known, but nevertheless, it is an interesting and well performed work.	

Review Form 1.6

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Miguel Dominguez-Santas**
Department, University & Country	**Hospital Universitario Ramon y Cajal, Spain**