

Role of Oral Tranexamic Acid in Treating Patients of Melasma in A Charity Hospital of Lahore

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ABSTRACT

Objective: To evaluate the efficacy and safety of oral tranexamic acid (TA) in the treatment of melasma

Method: This was a descriptive, cross sectional study which was performed in department of dermatology in Akhtar Saeed Trust Hospital, Lahore from April till December 2019. 70 patients of moderate to severe melasma were enrolled regardless of gender, > 18 years of age. 250 mg oral TA was given BD for 3 months along with broad spectrum topical sunscreen. Follow up done on monthly basis, 2 months after stopping the treatment. Photographs were taken at first visit & MASI (melasma area severity index) scoring done at start & after 3 months of treatment. Side effects were noted down if present. Results were recorded & analysed using SPSS.

Results: A total of 70 patients were enrolled, 44 females and 26 males. Mean age of patients was 30.7. There was a significant decrease mean 3.4 in MASI scoring at 12 wks of treatment. 25 patients had good, 22 had fair, 7 had fair response to TA. No serious side effects were noted at end of treatment. No reversal of melasma was recorded at 2 months after stopping treatment.

Conclusion: Oral tranexamic acid is a quick & effective treatment of patients of melasma.

Key words: Melasma, tranexamic acid, treatment.

INTRODUCTION

Tranexamic acid is a plasmin inhibitor, a derivative of amino acid lysine, that is used to stop excessive bleeding. It is (trans-4-(Aminomethyl) cyclohexane-carboxylic acid. It acts by competitively inhibiting the activation with its plasminogen activator through reversible interactions with its lysine binding sites.^{1,2,3} It blocks interaction between melanocytes and keratinocytes. So by using either oral or topical tranexamic acid can decrease and reverse any melasma-related dermal changes, like reduction of redness and number of vessels.⁴

Melasma is a common disorder which is more common in females as compared to males, which is only 10% of total cases. Melasma is a pigmentary disorder in which macules and patches of light to dark brown colour involve the photoexposed areas of face and neck. There are many causes of melasma, some are known but some are still not known yet. The known causes are sunexposure, genetic predisposition, pregnancy, use of oral contraceptive pills, thyroid disorder and certain drugs.^{2,5,6} Some factors influence the function of melanocytes, so they can contribute to the UV-induced pigmentation, such as factors include photo-induced hormones, growth factors, chemical and inflammatory mediators.^{2,6}

Different treatment modalities like use of sunscreen, hypopigmenting agents, and laser therapy are used. Usually, bleaching agents are prescribed in combination with other therapies, such as tretinoin, topical corticosteroids, or superficial peeling agents.^{6,7,8,9} In recent times, some researchers found that tranexamic acid (TA), has hypo pigmentary effect on melasma lesions and prevents UV-induced pigmentation.^{5,6,10,11,12,13}

Although TA has emerged as a potential treatment for melasma, it has not been approved by food and drug administration of the United States for melasma and treatment remains controversial.^{14,15,16,17} Consequently, in this study, we conducted a systematic review to evaluate the therapeutic effect of TA for treating melasma.¹⁴

MATERIALS AND METHODS

This was a descriptive, cross-sectional study which was performed on 70 patients of melasma in Akhtar Saeed Trust Hospital, Lahore from April till December 2019. After taking permission from ethical committee of the institute, an informed written consent was taken from all enrolled patients. The inclusion criteria included both male and female patients with moderate to severe melasma with ages ranging above 18 years. Patients with age < 18 years, pregnant & lactating females, patients with chronic medical disorder (bleeding diathesis, heart disease, hypertension), presence of menstrual irregularities, patients taking anticoagulants and on oral contraceptive pills were excluded from the study.

All the patients who were enrolled, their detailed history was taken, the typing of melasma was noted with help of wood's lamp (epidermal, mixed, dermal) on examination. Required tests like platelet count, bleeding and clotting time were conducted. Those patients who had abnormalities in their tests were excluded.

Patients were prescribed oral tranexamic acid 250 mg twice a day for 3 months. Only topical broad-spectrum sunscreen was prescribed along with it. For patient satisfaction evaluation results were rated as excellent if > 90% improvement, good if > 70%, fair > 40% & 0 - 20% poor or no improvement.

Any side-effects were noted down on each follow up visits, gastrointestinal symptoms like abdominal cramps, oligomenorrhea. All the findings were recorded & analysed using SPSS.

RESULTS

A total of 70 patients were included in the study out of which females were 44 (62.9%) and males were 26 (37.1%). In table 1, it shows the baseline characteristics of these patients like gender of patient, type, and pattern of melasma. Mean age of patients was 30.7 years. The duration of melasma ranges from 3 months to 12 years. Regarding type of melasma epidermal (71.4%) was the commonest, followed by dermal in 11 (15.7%) and mixed in 9 (12.9%) of patients. Mixed pattern of melasma was present in (45.7%) 32 patients, malar type was in 28 (40%), centrofacial 8 (11.4%) and mandibular in 2 (2.9%) of patients.

MASI scoring 1 was done on 1st visit and then after 3 months MASI scoring 2 was done. There was significant decrease in it from baseline at end of 12 wks, mean 3.4 as shown in table 2.

Table 1: Demographic Variables of Enrolled Patients

Gender		
	Male	26 (37.1%)
	Female	44 (62.9%)
Pattern of melasma		
	Malar	40 (28%)
	Mixed	32 (45.7%)
	Centrofacial	8 (11.4)
	Mandibular	2 (2.9%)
Type of melasma		
	Epidermal	50 (71.4%)
	Dermal	11 (15.7%)
	Mixed	9 (12.9%)

Table 2: MASI Score

Week	MASI Score	P Value
0 weeks	18.5	
12 th week	15.1	0.002



Fig. 1: At start of treatment



Fig. 2: After 12 weeks of treatment

Figure 3:

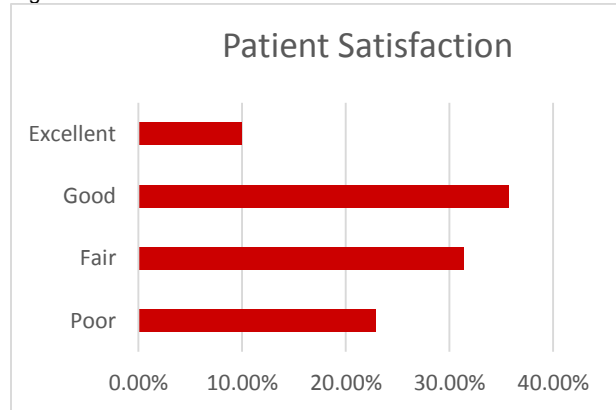


Figure 1 and 2 shows picture of patient at start of treatment and after 12 wks of treatment. No patient suffered from worsening of melasma.

Regarding patient satisfaction good response was in (35.7%) 25 patients, fair in (31.4%) 22, poor in (22.9%) 16 and excellent in (10%) 7 patients as shown in figure 3. Further follow up was done for 2 months, it didn't show any reversal of improvement in melasma.

Oral tranexamic acid in low dose was found to be relatively safe for patients. No side effects were noted in 64 (91.4%) of patients, abdominal cramps in 3 (4.3%) and oligomenorrhea in 3 (4.3%) of patients.

DISCUSSION

Melasma is a common benign acquired skin disorder, consisting of hyperpigmented macules and patches, common on face in symmetrical distribution.^{1,15} Different studies have shown that topical treatments show some efficacy in epidermal type, but not in dermal or mixed type of melasma.^{5,16,17} Various treatment modalities are in use for melasma nowadays. Tranexamic acid is also being used for it.

In this study the patients were given oral tranexamic acid in a dose of 250 mg twice a day for 3 months which is

like the dose given in study done in Nepal by Karn D et al.¹⁷

Regarding the type of melasma, the commonest type was epidermal which was present in 50 patients (71.4%). This is almost like the study done by Nader et al in Iran¹, epidermal melasma was 63.4%. This difference may be due to less sun exposure on face as most of the population in Iran wears hijab.

In our study, the reduction in MASI score was from 18.5 ± 1.1 at start of therapy to 15.1 ± 1.19 after 12 weeks which is almost like the reduction in MASI score from 11.08 to 7.84 recorded in the study done in Nepal by Karn D et al.¹⁷

The patient satisfaction score according to Likert scale was found to be fair in 22 patients (31.4%), good in 25 (35.7%), excellent in 7 (10%) and poor in 16 (22.9%) in our study in charity hospital which is comparable to the score achieved in study done in Nepal by Karn D et al¹⁷ like it was fair in 40%, good in 32.3%, excellent in 8.50% and poor in 19.30% of patients. Such response may be because of our geographical location and skin type.

Our study showed very few side effects with low dose of tranexamic acid like abdominal cramps, oligomenorrhoea in 3 patients each and rest of the patients had no side effects which are almost similar to the study done in Lahore by Safoora et al² and some other studies^{18,19,20}. So, the results of our study are somewhat similar to the results attained in other studies.

As oral tranexamic acid in low dose has good result as skin lightening agent and has low side effect profile. So, it can be recommended as a routine treatment of melasma.

The limitations of this study are the small number of participants and shorter duration of study and follow-up should be done for a longer duration to look for recurrences.

CONCLUSION

It can be concluded from our study that oral tranexamic acid can be used as an alternative treatment of melasma or can be used as an adjuvant to other treatments already being used in its treatment.

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