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A Randomized Trial of Oral Tranexamic Acid With Fluocinolone-Based Triple Cream Versus Fluocinolone Based Triple Cream Alone for the Treatment of Melasma

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INTRODUCTION

Oral tranexamic acid (TXA) is a relatively new treatment option for melasma. It is thought to reduce hyperpigmentation through inhibition of the plasminogen/plasmin pathway with resulting decreases in epidermal melanocyte tyrosinase activity, inflammatory mediators, dermal neovascularization, and mast cell numbers.[1,2] In general, combination therapy is more effective than monotherapy in melasma patients. Two prior studies investigated whether the combination of oral TXA and fluocinolone-based triple combination cream (TCC) is superior to fluocinolone-based TCC alone in the treatment of melasma. Both studies showed better short-term results with combination treatment. The largest treatment arm consisted of 20 patients and thus, larger-scale trials are still needed for further confirmation.[3,4] This need is addressed through the current study, which occurred in a larger and new study population.

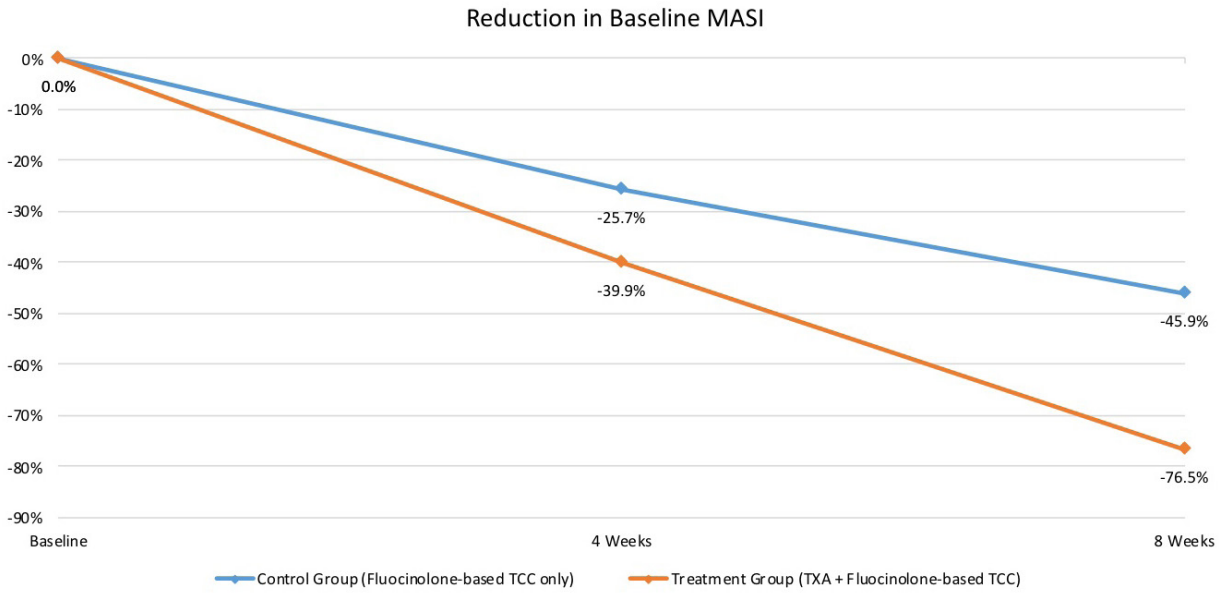
A single-center, randomized control trial was performed between June and December 2019 at the Benazir Bhutto hospital in Rawalpindi, Pakistan. Sixty patients (56 females, 4 males) of skin types III, IV, and V who were between the ages of 18 and 45 years old with an established diagnosis of melasma were included. Thirty patients were randomly assigned to the treatment group and received a combination of oral TXA 250mg bid along with fluocinolone-based TCC. The other thirty patients were randomly assigned to the control group and received only fluocinolone-based TCC. Patients were instructed to apply the cream topically each night and to wash their faces the next morning. All patients were advised to apply broad-spectrum sunscreen daily. Patients were excluded if they had other concurrent skin disorders such as systemic lupus erythematosus discoid lupus, were pregnant or lactating, had taken oral contraceptive pills or received other melasma treatment in the past 6 months, had bleeding or clotting disorders (prothrombin time>25 sec, activated partial thromboplastin time>15 sec), or had a history of psychiatric illness.

The severity of patients' melasma was assessed by the Melasma Area and Severity Index (MASI). The primary endpoint of the study was the reduction in baseline MASI score at 8 weeks. MASI was recorded at baseline, 4 weeks follow-up, and 8 weeks follow-up (Figure 1). The groups did not differ in age, gender, or baseline MASI scores. After 4 weeks of treatment, the MASI score decreased by an average of 39.9% in the treatment group compared to an average of 25.7% in the control group (P= 1.27x10-5). Then after 8 weeks of treatment, the MASI score decreased by an average of 76.5% in the treatment group compared to an average decrease of 45.9% in the control group (P= 2.12x10-12; Figure 2). All patients completed the study and no significant adverse effects were reported.

FIGURE 1. Clinical photographs of patients from the treatment group at baseline (A, C) and 8 weeks (B, D) after initiation of oral tranexamic acid and fluocinolone-based triple combination cream.

This randomized control trial showed that oral TXA provides a therapeutic benefit when used as an adjuvant to fluocinolone-based TCC, a standard melasma treatment. These benefits were seen within 4 weeks and maintained throughout the 8-week

FIGURE 2. Reduction of baseline MASI score at 4 and 8 weeks shown for the treatment group receiving both oral tranexamic acid and fluocinolone-based triple combination cream (orange line) and the control group receiving fluocinolone-based triple combination cream alone (blue line).



study. Both the treatment and control groups displayed further reductions in MASI score as treatment duration continued. Additional studies are needed to evaluate whether melasma recurs once oral TXA is discontinued, or how long maintenance therapy should be continued if needed.

DISCLOSURES

There are no conflicts of interest to disclose.

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