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Original Research Article

Efficacy of apremilast in psoriasis: a cross sectional study

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ABSTRACT

Background: This study was done to evaluate the efficacy of apremilast in patients with psoriasis.
Methods: A total of 20 patients clinically diagnosed with different forms of psoriasis were prescribed apremilast 30 mg twice a day. A psoriasis area severity index (PASI) scoring was done every 4 weeks with a final score taken at the end of 12 weeks.
Results: Of the 20 (eight female and 12 male) patients prescribed apremilast 30 mg, 8 patients achieved 75% and more PASI reduction, 10 patients achieved 50% and more PASI reduction at the end of 12 weeks. One patient did not show any significant PASI reduction, while another patient dropped out from the study after 3 weeks of apremilast due to intolerable vomiting and diarrhoea.
Conclusions: Apremilast, a relatively safe drug, has no effect on the haematological, renal, hepatic systems as well as no major immunological effects like other drugs used in the treatment of psoriasis, making monitoring of laboratory parameters inconsequential. It is also well tolerated with very few side effects in comparison, making it a welcome drug in the long run.

Keywords: Apremilast, Phosphodiesterase-4 inhibitor, Psoriasis, Efficacious

INTRODUCTION

Apremilast, a phosphodiesterase-4 inhibitor, prevents the conversion of cyclic adenosine monophosphate (cAMP) to adenosine monophosphate.[1] The resultant increase in cAMP levels modulates the production of pro-inflammatory and anti-inflammatory mediators.[1] There is a decrease in the pro-inflammatory mediators like tumour necrosis factor alpha (TNF-α), interleukin-12 and 23, interferon gamma(IFN-γ) and nitric oxide synthase as well as upregulation of anti-inflammatory mediators such as interleukin-10.1.

Studies on apremilast showed few adverse effects which were usually self-limiting in the first few weeks of therapy.[2] The adverse effects include nausea, vomiting, headache, fatigue, upper respiratory tract infections, musculoskeletal pain, weight loss, mood swings and suicidal tendencies.

Apremilast is a relatively new drug, formulated specifically for the treatment of psoriasis and psoriatic arthritis.[3]

Psoriasis is a multi-factorial, inflammatory disorder of the skin with epidermal hyperplasia and increased epidermal cell turnover. The etiopathogenesis is not well understood and cannot be attributed to one single factor but inflammatory cytokines like interleukin-12 and 23, TNF-α and IFN-γ play an important role.[4]

METHODS

Study design: Cross sectional study.

Study area: Skin Outpatient Department at Sree Balaji Medical College and Hospital

Study population: All patients over 18 years of age attending skin OPD, clinically diagnosed with psoriasis and suitable for apremilast.

Study method: Observational study.

Sample size: 20

Exclusion criteria

Exclusion criteria were not consenting for the study; not suitable for apremilast; patients less than 18 years of age; other uncontrollable significant disease; use of biologics within 12-24 weeks of the study.

Inclusion criteria

Those consenting to the study.

The recruited patients were subjected to the following,

- Full history taking
- Thorough general dermatological examination.
- Serial photographs.
- PASI scoring

All twenty patients were initially prescribed 30 mg of apremilast twice a day (BD). They underwent a Psoriasis Area Severity Index (PASI) scoring, which is a quantitative rating score for measuring the severity of psoriasis based on the body surface area and plaque appearance. The PASI score was done every 4 weeks with a final scoring done at the end of 12 weeks.

Prior to the start of the study, each patient was given a written informed consent and the study was approved by the ethical and research committee.

RESULTS

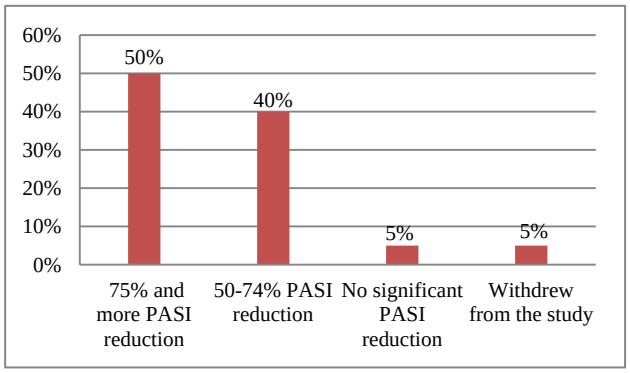

Figure 1: PASI reduction at the end of 12 weeks.

Of the 20 (eight female and 12 male) patients with different forms of psoriasis prescribed apremilast 30 mg, 8 patients achieved 75% and more PASI reduction, and 10 patients achieved 50% and more PASI reduction at the end of 12 weeks. One patient did not show any significant PASI reduction, while another patient dropped out from the study after 3 weeks of apremilast due to intolerable vomiting and diarrhoea (Figure 1).

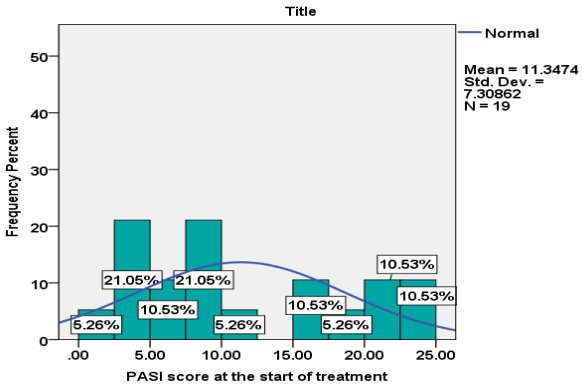

Figure 2: Percentage of patients and PASI score range at the start of treatment.

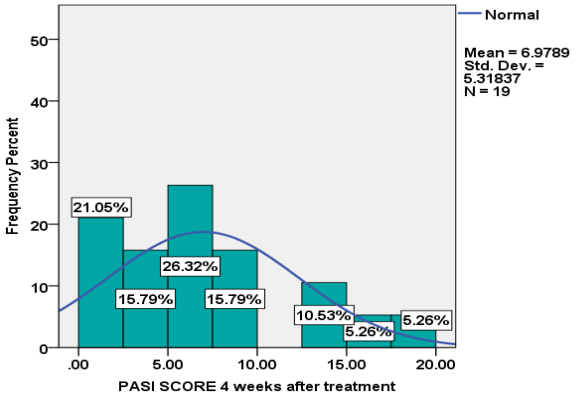

Figure 3: Percentage of patients and PASI score range 4 weeks after treatment.

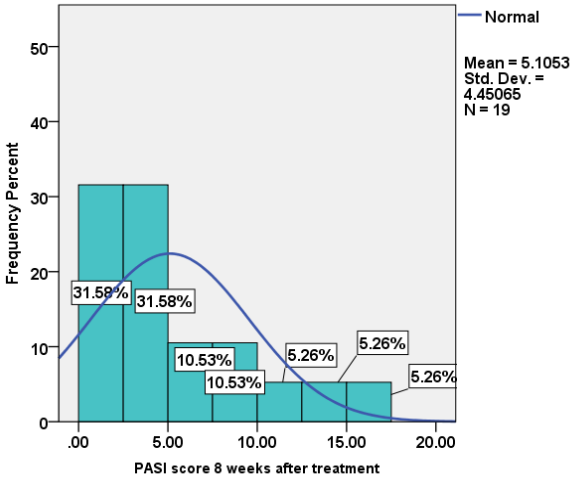

Figure 4: Percentage of patients and PASI score range 8 weeks after treatment.

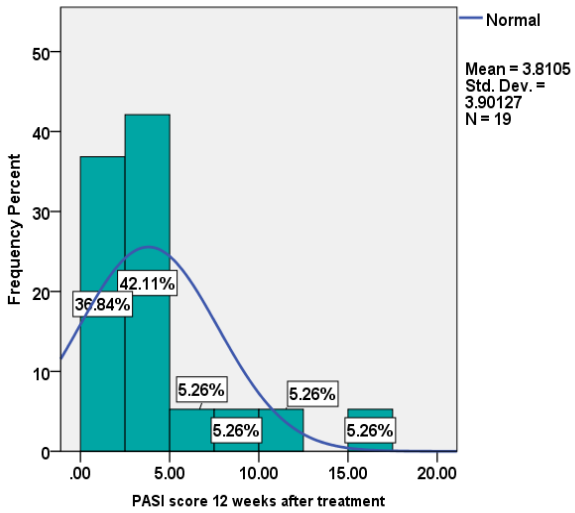

Figure 5: Percentage of patients and PASI score range 12 weeks after treatment.

Figures 2-5 show the fall in PASI through weeks 4, 8 and 12 weeks after treatment.

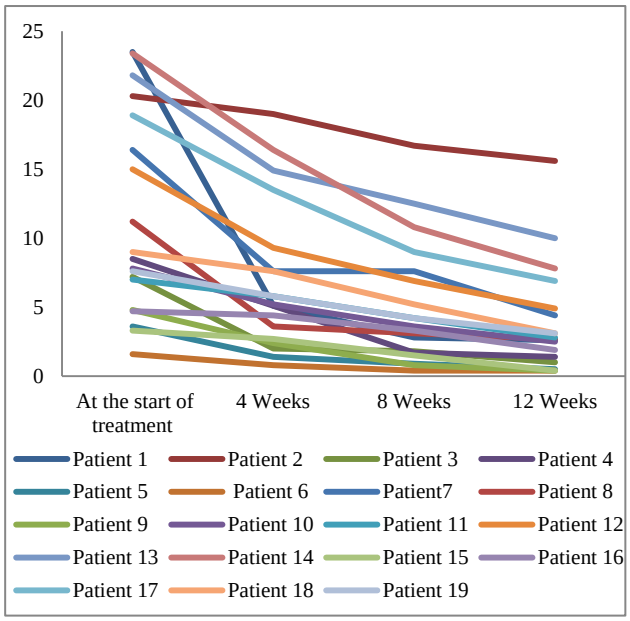

Figure 6: Graph showing the fall in PASI over 12 weeks.

The graph in Figure 6 shows the fall in PASI over 12 weeks in 19 patients.

Of the 20 patients, 4 patients were prescribed apremilast 30mg once a day due to adverse effects like vomiting and lack of sleep, with one patient being a case of chronic renal failure who responded well to apremilast.

9 of the 20 patients were on concomitant oral Methotrexate 7.5mg once a week, which was stopped 4 weeks after the start of apremilast. This didn't have much of a bearing to our study, as patients still showed considerable improvement even after the discontinuation of methotrexate. The one patient who didn't show any significant PASI reduction was also on Methotrexate which wasn't discontinued after 1 month.

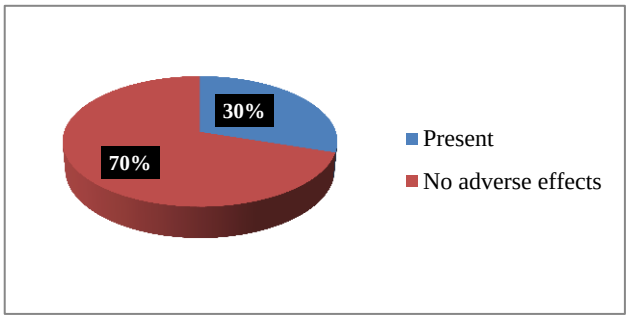

Figure 7: Presence of adverse effects.

6 of the 20 patients developed adverse effects, which were mild, tolerable and spontaneously resolved within the first 2 weeks in 1 patient, dose reduction to 30 mg OD (once a day) resulted in the adverse effects subsiding in 4 patients while one patient discontinued treatment after 3 weeks due to intolerable vomiting and diarrhoea which didn't subside on dose reduction or symptomatic therapy (Figure 7).

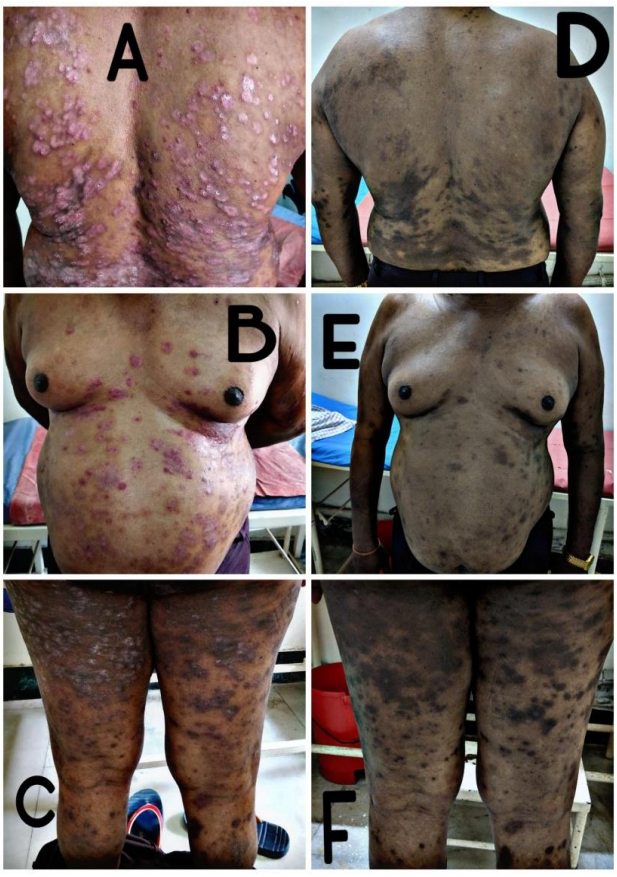

Figure 8: Clinical images of a patient with pictures A-C taken prior to the start of treatment and pictures D-F taken 12 weeks after treatment.

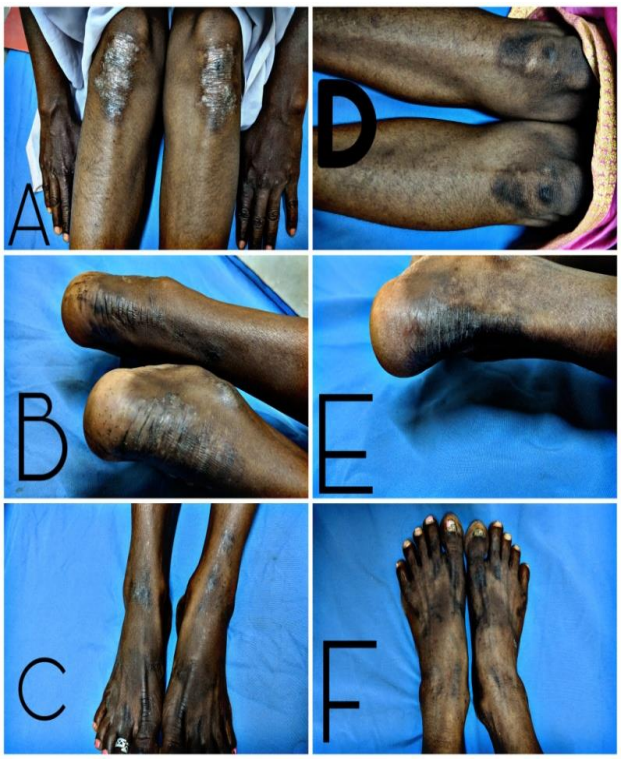

Figure 9: Clinical images of a patient with pictures A-C taken prior to the start of treatment and pictures D-F taken 12 weeks after treatment.

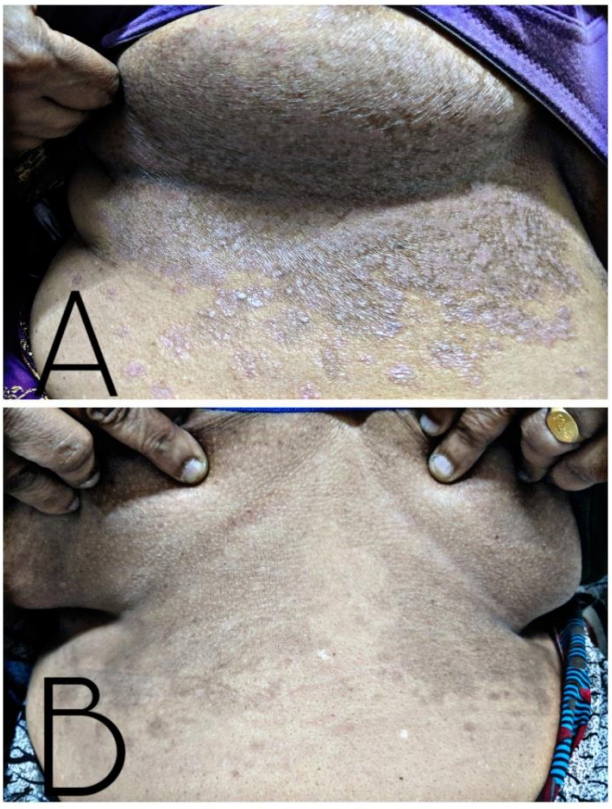

Figure 10: Clinical images of a patient with flexural psoriasis, picture A taken at the start of treatment and picture B taken 12 weeks after treatment.

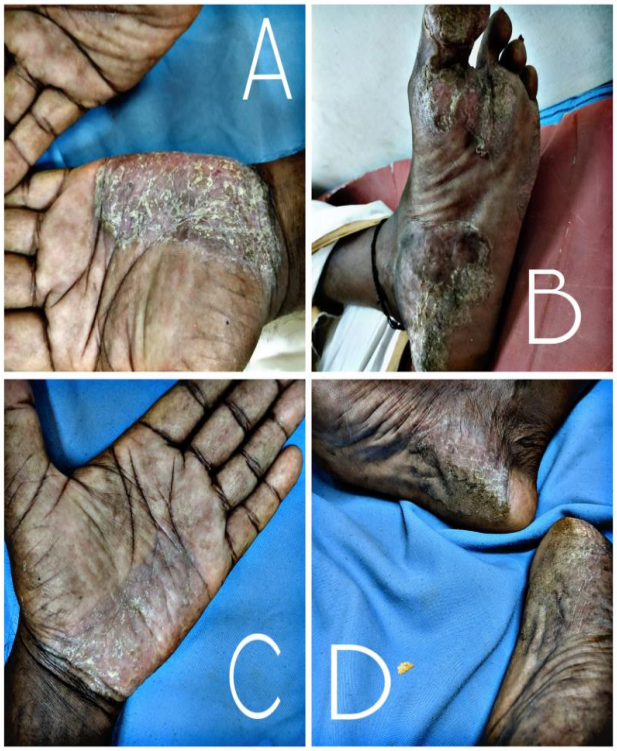

Figure 11: Clinical images of a patient with palmoplantar psoriasis, pictures A and B taken prior to treatment and pictures C and D taken 12 weeks after treatment.

DISCUSSION

Studies with randomised control trials have shown the efficacy of apremilast in psoriasis with 75% reduction in PASI by the end of 16 weeks albeit with mild to moderate adverse effects.[5]

Our study in comparison is a small and short cross sectional study with 20 patients studied over 12 weeks. Of the 20 patients, 10 patients achieved between 50-74% PASI reduction with a majority of them attaining more than 50% PASI reduction at the end of 8 weeks. 8 patients achieved 75% and more PASI reduction at the end of 12 weeks with one patient showing 91% PASI reduction. One patient did not show any significant PASI reduction inspite of concomitant Methotrexate therapy during the entire course of treatment. Another patient discontinued the drug 3 weeks into the study, due to uncontrollable vomiting and diarrhoea.

Apremilast can also be given in patients with chronic renal failure depending on the glomerular filtration rate.[6] If the patient is in severe renal failure i.e. glomerular filtration rate less than 30 ml/min, the dosage of apremilast should be reduced to 30mg once a day. In cases of mild to moderate renal failure, the normal dose of apremilast, 30 mg twice a day can be prescribed. One patient in our study received 30 mg once a day due to

severe renal failure and showed considerable improvement.

In previous studies on the safety profile of apremilast, the drug was found to be safe with well tolerated mild to moderate adverse effects, the commonest being gastrointestinal effects like nausea, vomiting and diarrhoea.[7] The other less common adverse effects reported include headache, upper respiratory tract infections, weight loss, depression and suicidal tendencies. Apremilast didn't have any effect on the haematological, hepatic and renal systems.

Comparatively, in our study there were very few adverse effects reported, commonly nausea, vomiting and diarrhoea, which were well tolerated and subsided within the first 2 weeks of treatment. A patient reported lack of sleep which subsided on tapering apremilast to 30 mg once a day. This may be an incidental finding.

CONCLUSION

Apremilast, a relatively safe drug, has no effect on the haematological, renal, hepatic systems as well as no major immunological effects like other drugs used in the treatment of psoriasis, making monitoring of laboratory parameters inconsequential. It is also well tolerated with very few adverse effects in comparison, making it a welcome drug in the long run.

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Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

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