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RESEARCH ARTICLE
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EFFICACY OF APREMILAST IN DIFFERENT PSORIASIS

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Psoriasis is a chronic immune disorder characterized by hyper pro-liferation of the skin's epidermal layer. There is premature maturation of keratinocytes and dermal inflammatory infiltrates comprising dendritic cells, macrophages and T cells.[1] It is most commonly found on the scalp, elbows, knees, but other parts of the body can be affected as well. The cause can be genetic or environmental triggers. There are different types of psoriasis-[2]

➢ **Plaque Psoriasis/ Psoriasis Vulgaris**
- Appears as raised red patches of skin that are covered by silvery-white scales.
- The patches usually develop in a symmetrical pattern on the body and tend to appear on the scalp, trunk, and limbs, especially the elbows and knees.

➢ **Guttate Psoriasis**
- Usually appears in children or young adults
- Small,red dots,typically on the upper trunk and proximal extremities
- Triggered by an upper respiratory tract infection such as strep. throat.

➢ **Pustular psoriasis**
- Pus-filled bump scalled pustules surrounded by red skin appear.
- Affects the hands and feet,but there is a form that covers most of the body.
- Can be triggered by medications, infections, stress,or certain chemicals.

➢ **Inverse psoriasis**
- Smooth,red patches in folds of skin, such as beneath the breasts or in the groin or armpits.

➢ **Erythro-dermic Psoriasis**
- Rare but severe form
- Characterized by red, scaly skin over most of the body.
- Can be triggered by a bad sunburn or taking certain medications, such as corticosteroids.

- Often develops in people who have a different type of psoriasis that is not well controlled, and it can be very serious.

Management of psoriasis depends on the severity of the disease.[3]
Mild psoriatic plaques are treated topically with corticosteroids, emollients, coal tar preparations, or vitamin D analog
Moderate to severe disease are treated with systemic treatments. Oral therapies such as methotrexate, cyclosporine, and sulfasalazine are used. If patient fails to respond to these drugs then biologic agents are used such as anti-tnfα inhibitor.
But all these drugs have limitations due to severe adverse effects like end-organ toxicities. They are inconvenient to administer and can cause iatrogenic immune suppression.
Apremilast was approved by the US Food and Drug Administration (FDA) on March 21, 2014, for the management of active psoriatic arthritis (PSA) in adults. On September 23, 2014, FDA approved apremilast for treating patients of moderate to severe plaque psoriasis who are candidates for phototherapy or systemic therapy. In 2017 it marketing approval from Drug Controller General of India .[4] It is a phosphor-diesterase 4 (PDE4) inhibitor, which mediates the activity of cyclic adenosine monophosphate (CAMp), a second messenger which causes increase in intracellular CAMp levels and causes suppression of inflammation by decreasing the expression of TNF-α,IL-17,IL-23, and other inflammatory mediators [3].The recommended dose of apremilastin adults for psoriasis and psoriatic arthritis is 30 mg twice daily taken orally. The treatment is started with 10 mg morning dose with a daily increment of 10 mg until day 6 when the recommended dose (30 mg bid) for adults is reached which is continued at the same dose thereafter
Different studies on efficacy of apremilast has been carried out all over world (Table1). Psoriasis and Severity Index (PASI). -use to measure efficacy. The PASI assesses psoriatic disease by assigning an ascending score to plaques of increasing severity (thickness, redness, and scaling) and the extent of the plaque spread.[3]studies investigating the efficacy and safety of apremilast in a variety of conditions

Table 1: Different studies on efficacy of Apremilast

S No.	STUDY	DIAGNOSIS	TRIAL PHASE	DRUGS GIVEN AND DOSES	EFFICACY (Attaining PASI 75)	Adverse events
1	Papp k et al[5]	Mild to severe psoriasis	Phase 2b	Ap 10mg/20 mg/ 30 mg BD vs Placebo	11% / 29 % / 41% vs 6%	No severe adverse effects
2	Ohtuski et al6	Mild-moderate psoriasis	Phase 2b	Ap 20 mg BD/ 30 mg BD/ placebo	23.5% / 28.5% / 7.5%	No severe adverse effects
3	Papp k et al[7]	Plaque psoriasis	Phase 2	Ap 20mg S.D/20mgB.D/ placebo	30.3% /52.1% / 17.4%	Mild to moderate
4	Schettv et al 8	Psoriatic arthritis	Phase 2	Ap 20 mg B.D/ 40 mgB.D/ placebo	43.5%/35.8%/ 11.8%	Severe adverse effects
5	Gottileb	Psoriasis	Phase 2	20 mg S.D	7.07%	Mild
6	Merola et al 10	Genital psoriasis		30 mgB.D/ placebo	39.6% / 19.5%	Diarrhoea,Headache
7	Keating[11]	Plaque Psoriasis and	Phase3	30 mg BD/ placebo	>20% efficient as compared	Well tolerated

		PSA			to placebo	
8	Fiorello[12]	Paediatric psoriasis	Phase3	20-30mg BD (Based on weight) / placebo	52.0 % / 32.1%	Severe in some cases
9	Edward[13]	PSA	Phase2	20mg BD/ 30 mg BD/ placebo	28%/41%/18%	Mild to moderate
10	Kavanaugh 14	PSA	Phase3	20mg BD/ 30 mg D/ placebo	30.4% / 38.1% / 19.0% (at week 24) 63.0% / 54.6% /- (at 52 weeks)	Mild

- It can be seen that approved dose of apremilast is 30mg BD with maximum efficacy in most of the studies. On comparing 20mg OD vs BD,twice daily dose has more efficacy[7].In somestudies [6]2o mg BD dose equally effective as 30 mg BD.
- Therefore, it can be commented that a lower dosage of apremilast, such as 20 mg twice daily or 30 mg once daily can be used as long-term maintenance therapy in psoriasis. And since it has better safety profile, lacks organ toxicity, and there is reduced need for laboratory monitoring, it can be preferred drug for long term maintenance therapy.

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