REVIEW ARTICLE

A novel therapy of mycophenolate mofetil in the treatment of severe lichen planus: A review of literature
Keerthi Irugu, Tejavathi Nagaraj, Lakshmi Balraj, R. Shruthi, C. K. Sumana
Department of Oral Medicine and Radiology, Sri Rajiv Gandhi Dental College of Science & Hospital, Bengaluru, Karnataka, India

Abstract
Lichen planus (LP) is a mucocutaneous disease with varied clinical appearances. Although the exact etiology is unknown, activated T cells are mainly involved in the etiopathogenesis of LP. It is often a debilitating disease, and the treatment is aimed at palliation rather than cure. Similar histologic features are seen in both LP and graft versus host disease. Since etiological and histological features are similar in these diseases, mycophenolate mofetil has been tried to treat both these disorders.

Keywords:
Debilitating, graft versus host disease, lichen planus, mycophenolate mofetil

Introduction
OLP is a common chronic inflammatory and immunological mucocutaneous disorder that varies in appearance from keratotic (reticular or plaque like) to erythematous and ulcerative clinical forms. Sometimes, ulcerated mucocutaneous lesions show discomfort and disability.

Systemic immunosuppression is considered as the treatment of choice for these patients. However, it has its own marked adverse effects. Therefore, to overcome these side effects and to improve patients tolerance, newer immunosuppressive drugs are introduced.

Recently, a new immunosuppressive drug, mycophenolate mofetil (MMF) was tried in the treatment of graft versus host disease and LP. This drug specifically and reversibly inhibits the proliferation of activated T cells.

Various topical and systemic therapies are available for the treatment of LP, but available literature shows no proper randomized controlled trials with definitive results to support it.

Current therapy for LP includes topical and systemic corticosteroids, systemic retinoids, antimalarials, photochemotherapy, immunomodulator such as dapsone, and immunosuppressants such as cyclosporine and azathioprine.

Recent therapy with topical application of tacrolimus has been proven to beneficial therapy for oral LP. MMF has been used in dermatology for the treatment of acquired bullous autoimmune diseases, atopic eczema, and psoriasis.

Mechanism of Action
MMF is an antimetabolite used for the treatment and prevention of organ rejection in transplantation patients. The mode of action is that specifically and reversibly inhibits the enzyme inositol monophosphate dehydrogenase (IMPDH). As T lymphocytes are purely dependent on nucleotide synthesis for proliferation and IMPDH which are enzymes required

Table 1: Possible side effects

<table>
<thead>
<tr>
<th>Side effects</th>
<th>Get emergency medical help if you have any of these signs of an allergic reaction:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hives</td>
</tr>
<tr>
<td></td>
<td>Difficult breathing</td>
</tr>
<tr>
<td></td>
<td>Swelling of your face, lips, tongue, or throat</td>
</tr>
<tr>
<td>Serious side effect</td>
<td>Stop using this medicine and call your doctor at once if you have: Fever, chills, body aches, flu symptoms; pale skin, easy bruising, or bleeding, unusual weakness, trouble breathing, fast heart rate; bloody, black, or tarry stools; coughing up blood or vomit that looks like coffee grounds; painful or difficult urination</td>
</tr>
</tbody>
</table>
for purine synthesis, it selectively targets on activated T lymphocytes.

Monotherapy with currently available drugs such as topical or intralesional corticosteroids and topical tacrolimus is not highly beneficial. Many affected individuals need oral immunosuppression.\[8\] Hence, antimalarials such as hydroxychloroquine are used most commonly nowadays, but it is also not so beneficial.\[4,5\] Treatment options are few for those patients who do not respond to antimalarials also. Immunosuppressive drug such as cyclosporine can be useful, but it has its own side effects.\[3\] Acitretin has been used for LP on glabrous skin but that is poorly tolerated by affected individuals already suffering from alopecia.\[6\] Due to limitations of each and every drug used before, there is necessity for a therapy that arrests LP in those patients without any relief from available therapies. As compared to other medications such as oral corticosteroids, tacrolimus, azathioprine, and cyclosporine, the side effects of MMF seem to be less.

There is a requirement for many clinical trials to evaluate the effectiveness of MMF in the therapy of erosive and disseminated LP as compared to other therapies.

**How to take?**

This medication has to be taken orally as prescribed by your doctor, 1 h before or 2 h after food, twice daily on an empty stomach. Swallow the medicine completely, it should neither crushed nor chewed.

If the capsule comes apart, precautions such as avoid inhaling the powder and avoid direct contact with the skin or eyes have to be taken. If contact occurs, wash the affected area well with soap and water or rinse your eyes with plain water. Depending on medical problem and response to treatment, the dosage will be prescribed. It is also based on body size in children.

A few drug interactions are observed and they interfere with absorption of mycophenolate if they are taken at the same time. Drug interactions occur with aluminum and/or magnesium-containing antacids or calcium-free phosphate binders.

**Dosage**

Brand name: CellCept

CellCept is available for:

<table>
<thead>
<tr>
<th>Dosage</th>
<th>Inactive ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>CellCept 250 mg capsules</td>
<td>Croscarmellose sodium, magnesium stearate, povidone (K90), and pregelatinized starch. The capsule shells contain black iron oxide, FD and C blue #2, gelatin, red iron oxide, silicon dioxide, sodium lauryl sulfate, titanium dioxide, and yellow iron oxide</td>
</tr>
<tr>
<td>CellCept 500 mg tablets</td>
<td>Black iron oxide, croscarmellose sodium, FD and C blue #2 aluminum lake, hydroxypropyl cellulose, hydroxypropyl methylcellulose, magnesium stearate, microcrystalline cellulose, polyethylene glycol 400, povidone (K90), red iron oxide, talc, and titanium dioxide; it may also contain ammonium hydroxide, ethyl alcohol, methyl alcohol, n-butyl alcohol, propylene glycol, and shellac</td>
</tr>
<tr>
<td>CellCept oral suspension</td>
<td>Aspartame, citric acid anhydrous, colloidal silicon dioxides, methylparaben, mixed fruit flavor, sodium citrate dihydrate, sorbitol, soybean lecithin, and xanthan gum</td>
</tr>
</tbody>
</table>

Oral administration: Capsules containing 250 mg of MMF

Tablets containing 500 mg of MMF, and

As a powder for oral suspension, which when constituted contains 200 mg/mL MMF.

The possible side effects of CellCept [Table 1].

**Precautions**

Before intake of this, any allergic reactions to it or mycophenolic acid have to be told to your doctor because this may comprise of inactive ingredients, which will cause the same.

Inactive ingredients of each are mentioned in Table 2.

Before using this medication, your medical history in particular any renal disease, hepatic disease such as hepatitis B or C, any type of malignancy, stomach/intestinal problems such as ulcers, current/past infections such as herpes, shingles, and rare genetic disorders like Lesch-Nyhan syndrome has to be told to your doctor.

**Conclusion**

The newer therapeutic modality with MMF may be considered beneficial in the treatment of severe and refractory mucocutaneous LP. It can also be an alternative therapy specially for those affected patients who did not respond to conventional therapy or those with severe refractory disease.

**References**
