ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

Immuno-Modulators in Oral Lesions.

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ABSTRACT

Immunology plays a very important role in homeostasis but it possesses two edge sword actions. Either decrease or increase can cause systemic diseases which will manifest in the oral cavity. Immunomodulatory drugs are the agents which modulate the body immunity according to the need. There are natural and synthetic immunomodulatory agents, this article focusses on the various immunomodulatory drugs available in the market and their indications in various oral conditions.

Keywords: Immunomodulatory drugs, oral diseases, adverse effects, therapeutic action.

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ISSN: 0975-8585

INTRODUCTION

Immunomodulatory drugs modify the response of the immune system by increasing immunostimulators or decreasing (immunosuppressives) the production of serum antibodies. Immunomodulatory drugs have changed the treatment protocols of many diseases where immune functions play a central role, such as rheumatic diseases. Their effect on oral health has not been systematically investigated, however these target specific drugs appear to have less drug interactions than earlier immunomodulation medicines but have nevertheless potential side effects such as activating latent infections [1].

Topical immunomodulating preparations have utility in inflammatory/immune-mediated oral mucosal disease resistant to topical steroids, in immunologically mediated systemic disease with primary oral involvement or more severe lesions primarily involving the oral mucosa. There are a number of immunological diseases affecting the oral cavity those have involute pathogenesis. In these cases, steroid is the mainstay, but steroid has their own deleterious side effect when utilized for longer time and even sometime steroid is not enough alone to remedy disease due to involute pathogenic factors and some disease can be steroid resistant [2]. In these cases, immunomodulatory drugs should be administered.

Immuno refers to immune response, immune system, and modulation is the act of modifying or adjusting according to due measure and proportion. Thus, immunomodulators are natural or synthetic substances that help to regulate or normalize the immune system. Immunomodulators modulate the immune reaction and decrement inflammatory replication. The benefits of immunomodulators stem from their ability to stimulate natural and adaptive defense mechanisms, such as cytokines, which enables the body to help itself. The natural immunomodulators act to strengthen weak immune systems andto moderate immune systems that are overactive [3]. An immunomodulators should be given along with a steroid to spare side effect and speed the rejuvenating process. For these reasons these drugs come under the category of —steroid sparing drugs.

Classification of Immunomodulators [4]:

Immunomodulators can be broadly classified as immunosuppressant drugs and immunostimulant drugs. Immunostimulants are drugs which enhance immune responses, and can be used for the prevention or cure of some infective conditions, and also in the management of cancer.1Immunosuppresant drugs are drugs which inhibit cellular/humoral or both immune response and have their major use in organ transplantation and autoimmune diseases.

1. Calcineurin inhibitors (specific T-cell inhibitors)
    a. Cyclosporine (ciclosporin), Tacrolimus
2. Anti- proliferative drugs (cytotoxic drugs)
    a. Azathioprine
    b. Cyclophosphamide
    c. Methotrexate
    d. Chlorambucil
    e. Mycophenolate mofetil (MMF)
3. Glucocorticoids
    a. Prednisolone and others
4. Antibodies
    a. Muromonab CD3
    b. Antithymocyte globulin
    c. Rho (D) immunoglobulin

Immunomodulators can be used in following oral lesions [5]

Oral lesions	IMMUNOMODULATORS USED
Oral Lichen Planus (Erosive Variant)	1% Pimecrolimus 0.5% Clobetasol gel intralesional Corticosteroid, 10 mg/kg,

	0.1% Tacrolimus ointment Methotrexate 2.5 to 12.5 mg/wk Thalidomide
Pemphigus Vulgaris	Mycophenolate Mofetil Corticosteroids Cyclophosphamide Azathioprine
Behcet's Syndrome	Prednisolone Methotrexate MAB Azathioprine Interferons
Bullous Pemphigoid	Methotrexate Azathioprine Mycophenolate mofetil corticosteroids
Mucous Membrane Pemphigoid	Cyclophosphamide Corticosteroids
Linear IgA disease	Corticosteroids
Recurrent Apthous Stomatitis	Corticosteroids Azathioprine Thalidiomide Levamisole
Erythema Multiforme	Azathioprine Thalidiomide Mycophenolate mofetil
Leukoplakia	Interferons
OSMF Oral lesions	Interferons Immunomodulators used
Herpes simplex Virus	Levamisole
Cancer	Vaccines

CONCLUSION

Immunology is probably one of the most rapidly developing areas of medical research and has great promises with regard to the prevention and treatment of a wide range of disorders of the oral cavity. Immunomodulators are going to be a core part of the next generation clinical medicine. Helping the body help itself by optimizing the immune system is of central importance in a society so stressed, unhealthily nourished and exposed to toxins that most of us are likely to have compromised immune systems. Topical immunomodulators may be useful as second line treatment in several oral diseases, particularly oral lichen planus and recurrent aphthous stomatitis. Topical therapies may allow increased concentration of medication for management of local oral disease with no or limited systemic effects.

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