

## Corticosteroids in oral diseases

Vijayavel T<sup>1\*</sup>, Ponnivijayavel<sup>2</sup>, Praveena NM<sup>3</sup> and Priya ramani<sup>4</sup>

<sup>\*1</sup>Department of Oral Medicine and Radiology, Madha Dental college, Kundrathur, Chennai - 69

<sup>2-4</sup>Department of Oral Medicine and Radiology, Thai Moogambikai Dental College and Hospital, Maduravoyal, Chennai, Tamil Nadu.

vijayavel@gmail.com<sup>1\*</sup>; ponniacademic@gmail.com<sup>2</sup>

### Abstract

This article aims to bring out the versatility of steroids as life saving drugs along with their potential adverse effects, especially in the management of Oral diseases. As a dentist, we should weigh the benefits against its harmful effects while prescribing these drugs.

**Key words:** Steroid, Oral lesions management

### 1. Introduction

The adrenal gland is the source of a diverse group of hormones essential to metabolic control, regulation of water and electrolyte balance, and regulation of body's response to stress. Using cholesterol as a substrate, the adrenal cortex produces a large number of substances collectively known as corticosteroids. The two major types of adrenocortical hormones are the mineralocorticoids and the glucocorticoids (Guyton & Hall, 1996); Wilson *et al.*, 1980). Corticosteroids and their synthetic analogues are commonly used for their potent anti-inflammatory and immunosuppressive property in the management of diverse conditions associated with chronic inflammation and immune phenomenon (Kalkarf *et al.*, 1982). Considering the side effects of withdrawal, the decision to institute Corticosteroids therapy always requires a careful attention (Schimmer & Parker, 2001).

#### 1.1 Classification of glucocorticoids

##### 1.1.1 Short acting ( $t_{1/2} < 12$ hr)

- Hydrocortisone
- Cortisone

##### 1.1.2 Intermediate acting: ( $t_{1/2}$ 12 – 36 hr)

- Prednisole
- Methyl prednisole
- Triamcinolone

##### 1.1.3 Long acting: ( $t_{1/2} > 36$ hrs)

- Paramethasone
- Dexamethasone
- Betamethasone

### 1.2 Applications of steroids in oral diseases

#### 1.2.1 Steroids in Oral Mucosal Lesions

##### Lichen Planus :

Initially topical - Kenolog in Orabase (Triamcinolone acetonide 0.1%) is applied to the affected sites as a thin film, four times daily ie, after every meal and before sleep for atleast 3 weeks and during the same period the lesions are injected with Methyl Prednisolone once a week for 1- 3 weeks as per severity of lesion and response of the tissues; Systemic – Prednisone is administered systemically as 30 mg/day - 1st week and gradually tapered to 15 mg/day – 2nd week and then 5 mg/day – 3rd & 4th week (Zegarelli, 1983).

##### Oral Submucous Fibrosis :

Local injections consisting of a combination of Dexamethasone, Hyaluronidase and Chymotrypsin biweekly for 2-3 weeks is used depending on the severity of the condition. Usually the combination are: Biweekly submucosal injections of a combination of dexamethasone (4mg/ml) and two parts of hyaluronidase diluted in 1.0 ml of 2% xylocaine by means of a 27 gauge needle, not more

than 0.2ml solution per site, for a period of 20 weeks or Injections of triamcinolone 10mg/ml diluted in 1 ml of 2% lidocaine with hyaluronidase 1500 IU, biweekly for 4 weeks (Gupta & Sharma, 1988).

**Systemic:** Prednisone is administered systemically as 30 -40mg/day for 2-4 weeks and gradually tapered. Significant relief of burning sensation and improvement of trismus is seen in most patients

#### **Pemphigus vulgaris:**

The protocol for the initial / induction phase of treatment consist of systemic Deflazacort, an oxazolidine derivative of Prednisolone (120 mg daily in single morning dose) and topical corticosteroids. The initial dose of Deflazacort is maintained for 2-4 weeks especially in patients with severe disease. In addition in unresponsive cases patients an adjunctive systemic medication, which includes azathioprine (50-100 mg daily) or cyclophosphamide (50 mg daily) is used. For Gingival, lesions Clobetasol .05% in custom-made applicator trays is used (Mignogna *et al.*, 2000)

#### **Pemphigoid :**

To stop new bullae formation, Prednisolone is given as 30-80 mg /day for 2-3 weeks and tapered by 20% every 2-3 weeks until the dose of 10 mg is reached and then dose maintained on alternate days and reduced by 5 mg every 2 weeks, then stopped.

#### **Apthous Stomatitis:**

0.05% Clobetasol propionate (topical) is applied on adhesive denture paste which reduces the healing time in most patients.

#### **Erythema multiforme:**

The use of systemic steroids for Erythema multiforme remains controversial. However, a course of 40 mg Prednisolone daily for 1-4 weeks is given and reduced over the next few weeks. To reduce the side effects of prednisolone, Azathioprine is added in 25mg daily and then tapered to 5mg.

### **1.2.2 Steroids in Neuralgias**

#### **Post Herpetic Neuralgia:**

The role of Steroids in the management of Post Herpetic Neuralgia is effective, Prednisone 60 mg per day for 1st 7 days; 30 mg for next 7 days and 15 mg per day for last 7 days along with Acyclovir 800 mg - 5 times daily for 21 days is used. It is found that combined acyclovir and prednisone therapy can improve quality of life in older age group patients who are immunocompetent.

#### **Occipital neuralgia:**

A 25-gauge needle is used for the nerve block .The nerve is identified at the superior nuchal line and 6 mg betamethasone (1 ml) is drawn into a syringe containing 1 ml 2 % lidocaine, 0.6 ml is injected; the needle is then withdrawn to just under the skin and redirected about 5 degrees laterally and then again medially, to deposit about 0.6 ml into each site to ensure a successful block.

#### **Ramsay Hunt Syndrome**

It is a syndrome involving the geniculate ganglion with facial nerve paralysis. Oral Prednisone (60 mg daily for 3-5 days) along with a 7-10 day course of Famciclovir (500 mg thrice daily) or Acyclovir (800 mg - 5 times daily) is used. It is found that they improved the outcome of recovery from Facial palsy.

### **1.2.3 Steroids in Temperomandibular Joint Disorders**

#### **Temperomandibular Joint Pain and Dysfunction:**

A mixture of 0.5 ml betamethasone in a suspension of 6 mg per ml and equal volume of lidocaine chloride anhydrate (xylocaine 10 mg per ml) is injected into the superior compartment of the TMJ three times with an interval of 1 week between treatment.

### **1.2.4 Steroids in Granulomatous Infection**

#### **Meischer's Granulomatous Cheilitis**

Submucosal injections of 0.5 ml (3 mg/ml) of Betamethasone once a week followed by 2 injections every 4 months which results in almost complete disappearance (Hernandez *et al.*, 1986).

### **1.2.5 Steroids in salivary gland disease**

#### **Mucocele:**

Topical 0.05% clobetasol propionate 3 times a day for 4 weeks in a mucosal adhesive base and Intralesional injections have also been tried.

#### **Miculicz's disease:**

It is given as 30-40mg prednisolone/day for 3 months.

### **1.2.6 Miscellaneous**

#### **Bell's palsy:**

A significant improvement is seen when Prednisolone is started within 72 hours of symptom onset .Dose is 1 mg/kg body weight (maximum 70 mg) in divided doses for six days, and the dose was then reduced gradually over the next four days.

## 2. Conclusion

Steroids are considered as the drug of choice to treat various disorders affecting the oral mucosa. Hence, a thorough knowledge about the actions, uses and adverse effect of steroids is of utmost importance to render efficacious care for the patients in need.

## 3. Reference

- 1• Guyton AC and Hall JE (1996) Endocrinology and Reproduction. Textbook of medical physiology 9<sup>th</sup> ed. pp:808-936
- 2• Wilson A, Schild HO and Modell W (1980) Endocrinology. In: Applied Physiology. Mosby year Book: 13<sup>th</sup> ed. 1980:527-541.
- 3• Kalkarf KL, Hinrichs JE and Shaw DH (1982) Management of the dental patients receiving corticoid medications. *Oral surg.* 54(4), 396-400.
- 4• Schimmer BP and Parker KL (2001) Adrenocorticotropic Hormone. In:Hurdman JG, Limbirl LE. Goodman and Gillman: The Pharmacological basis of therapeutics.MC Gruehill- NY, 2001:1459-1485.
- 5• Zegarelli DJ (1983) Multimodality steroid therapy of erosive and ulcerative Oral Lichen Planus. *J.Oral. Med.* 38(3), 127-130.
- 6• Gupta D and Sharma SC (1988) Oral submucous Fibrosis - a new treatment regimen. *J. Oral maxillofac. Surg.* 46, 830-833.
- 7• Mignogna MD, Muzio LL, Mignogna RE et al. (2000) Oral pemphigus: long term behaviour and clinical response to treatment with Deflazacort in 16<sup>th</sup> case. *J. Oral Pathol. Med.* 29, 145-52.
- 8• Hernandez G, Hernandez F and Lucas M (1986) Meischer's granulomatous cheilitis: Literature review and report of a case. *J. Oral Maxillofac. Surg.* 44, 474-478.