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XEROSTOMIA – A Review

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Abstract

This article reviews the main features of Xerostomia and the various drugs that produce it and the drugs that can be used to control salivary flow.

Keywords – xerostomia, drugs ,dryness of mouth, antisialogogue,

INTRODUCTION

Xerostomia is the subjective feeling of oral dryness, which is often (but not always) associated with hypofunction of the salivary Glands [1]. Mostly present in the older age group and can also be seen in people with the habit of mouth breathing.There are other causes such as

prolonged duration of radiation involving the salivary glands .The term subjective xerostomia is sometimes used to describe the symptom in the absence of any detectable abnormality or cause. [2].Patients with true Xerostomia may present with Dental caries mostly due to radiation[3], Thirst and sores at the angles of the mouth[1],opportunistic infections such as candidiasis[3], ropy saliva [3], dysgeusia[4], Fissured tongue with atrophy of the filiform papillae and a lobulated, erythematous appearance of the tongue[3 -4]There are various causes of Xerostomia namely , Salivary Gland pathology, Cystic Fibrosis,Hepatitis C,HIV,Dehydration,and Sjogren Syndrome.

DRUGS INDUCING XEROSTOMIA

The various drugs that produce Xerostomia are TCAs(Tricyclic Antidepressants), Antihypertensives, Antihistamines, Skeletal muscle relaxants, Retinoids, Cytotoxic drugs, Diuretics,AntiPsychotic Drugs and Bronchodilators.

TRICYCLIC ANTIDEPRESSANTS

Tricyclic antidepressants are usually given to patients with mood disorders such as Schizophrenia, Bulemia and Anorexia Nervosa,ADHD(Attention Deficit Hyperactivity Disorder). The main mechanism of TCAs are to Serotonin-Norepinephrine Reuptake Inhibitors(SNRIs), which results in increased concentration of the neurotransmitters thereby aiding in the above conditions.

The major side effects include Dryness of the mouth (Xerostomia),weight gain,constipation and dizziness. A study was done in which stimulated parotid saliva was studied from normal controls and patients on amitriptyline, dothiepin (dosulepine) (TCAs), as well as fluoxetine and paroxetine (selective serotonin re-uptake inhibitors; SSRI), showed TCAs to produce a significant reduction in flow and decrease in [Na+] and increase in [K+] but the SSRIs produced no such significant changes [5]. TCAs have been until recently the dominating group used in the treatment of depression. Treatment with a TCA caused more ADRs including dry mouth than did placebo [6].

ANTI PSYCHOTIC DRUGS

Long-term drug treatment of schizophrenia with conventional phenothiazine antipsychotics is commonly associated with symptoms including dry mouth, movement disorders, sleep problems and weight gain.

Clozapine is one atypical antipsychotic drug, claimed to have superior efficacy and to cause fewer motor adverse effects than typical antipsychotics for people with treatment-resistant schizophrenic patients. Clozapine carries a significant risk of serious blood disorders, and patients experience more hypersalivation than those given conventional neuroleptics, but fewer motor side effects and less dry mouth [7]. Increased salivation was reported significantly more often amongst clozapine-treated patients, whereas dry mouth was reported more often amongst olanzapine-treated

patients [8].Symptoms of dry mouth and dizziness have been shown to be more prevalent in the quetiapine treated group than placebo[9]

A comparison between Tiapride and Clorpromazine was done and there were decreased incidences of drowsiness, extrapyramidal symptoms, and dry mouth[10]. Pipamperone dihydrochloride, another atypical neuroleptic, can also produce dry mouth [11]

DIURETICS

Diuretic agents and psychotropics were the most commonly used xerostomatic medications in one study of elderly patients, and were almost equally potent in reducing mean salivary flow rate[12]. Thiazides may cause dry mouth [13],but there appear to be few reports showing a relationship between diuretic use and dry mouth.

Xerostomia is present 10 times more frequently after ingestion of furosemide than placebo [14]

BRONCHODILATORS

One of the most commonly associated symptoms of bronchodilators are dryness of mouth with a substantial increase in the incidence of dental caries [15]One particular drug , Tiotropium showed a 9.3% incidence rate of xerostomia in comparison to the 1.6% in placebo[16]

CYTOTOXIC DRUGS

Xerostomia is a consequence of intake of cytotoxic drugs such as 5-FU (5-FluoroUracil) [17].

RETINOIDS

Dryness of the mouth can well be appreciated in patients with intake of retinoids such as Etretinate[18]and 13 cis-Retinoic acid. [19]

ANTIHYPERTENSIVES

Centrally acting antihypertensive drugs, or sympatholytics, (reserpine, methyldopa and clonidine) are now little used because of prominent ADRs including dry mouth, sedation, dizziness and oedema.

Treatment with non-selective and beta 1-selective adrenoceptor antagonists compared with placebo showed that salivary composition but not saliva flow rates were affected by the beta-adrenoceptor antagonists, and the most pronounced effects were observed for total protein composition and amylase activity, both being significantly decreased [20].There has been an increase in the salivary outflow after withdrawal of the drug. Rilmenidine is an imidazoline derivative that appears to lower blood pressure (BP) and also It is well tolerated, can be taken in combination for greater efficacy, and with low sedation and dry mouth[21].

MANAGEMENT OF DRUG INDUCED XEROSTOMIA

There have been several attempts in restoring normal salivary flow rate in xerostomic patients by using salivary stimulants. A particular drug known as Yohimbine which is an alpha-2 *adrenergic antagonist appears to be very effective in patients under antipsychotic drugs[22]*.

SUMMARY

It has been shown that drugs which have an anticholinergic effect seem to produce decreased salivation resulting in dental caries and other probable opportunistic oral infections. It has been shown from a study that Yohimbine is effective in patients under antipsychotic drugs but not in other cases. So, newer drugs are being formulated to meet the needs of increasing salivary outflow production.

REFERENCES

[1] Tyldesley, Anne Field, Lesley Longman in collaboration with William R. (2003). Tyldesley's Oral medicine (5th ed.). Oxford: Oxford University Press. pp. 19, 90–93. ISBN 0192631470.

[2] Furness, S; Worthington, HV; Bryan, G; Birchenough, S; McMillan, R (Dec 7, 2011). "Interventions for the management of dry mouth: topical therapies". In Furness, Susan. Cochrane database of systematic reviews (Online) (12): CD008934. doi:10.1002/14651858.CD008934.pub2. PMID 22161442.

[3] Bouquot, Brad W. Neville , Douglas D. Damm, Carl M. Allen, Jerry E. (2002). Oral & maxillofacial pathology (2. ed.). Philadelphia: W.B. Saunders. pp. 398–399. ISBN 0721690033.

[4]Scully, Crispian (2008). Oral and maxillofacial medicine : the basis of diagnosis and treatment (2nd ed.). Edinburgh: Churchill Livingstone. pp. 17, 31, 41, 79–85. ISBN 9780443068188.

[5]Hunter KD, Wilson WS (1995). The effects of antidepressant drugs on salivary flow and content of sodium and potassium ions in human parotid saliva. Arch Oral Biol 40: 983–989

[6]Hazell P, O'Connell D, Heathcote D, Henry D (2002). Tricyclic drugs for depression in children and adolescents (Cochrane Review). Cochrane Database Syst Rev CD002317.

[7]Wahlbeck K, Cheine M, Essali MA (2000). Clozapine versus typical neuroleptic medication for schizophrenia. Cochrane Database Syst Rev CD000059.

[8]Tollefson GD, Birkett MA, Kiesler GM, Wood AJ (2001). Double-blind comparison of olanzapine versus clozapine in schizophrenic patients clinically eligible for treatment with clozapine. Biol Psychiatry 49: 52–63.

[9] Srisurapanont M, Disayavanish C, Taimkaew K (2000). Quetiapine for schizophrenia. Cochrane Database Syst Rev CD000967

[10] Roger M, Gerard D, Leger JM (1998). Value of tiapride for agitation in the elderly. Review of published studies. Encephale 24: 462–468.

[11].Potgieter GE, Groenewoud G, Jordaan PJ, Hundt HK, Schall R, Kummer M, Sewarte-Ross G (2002). Pharmacokinetics of pipamperone from three different tablet formulations. Arzneimittelforschung 52: 430–434.

[12]Persson RE, Izutsu KT, Treulove EL, Persson R (1991). Differences in salivary flow rates in elderly subjects using xerostomatic medications. Oral Surg Oral Med Oral Pathol 72: 42–46.

[13]McCarron DA (1984). Step-one antihypertensive therapy: a comparison of a

centrally acting agent and a diuretic. J Cardiovasc Pharmacol 6 (Suppl. 5): S853–S858.

[14] Atkinson JC, Shiroky JB, Macynski A, Fox PC (1989). Effects of furosemide on the oral cavity. Gerodontology 8: 23–26.

[15]Thomson WM, Spencer AJ, Slade GD, Chalmers JM (2002). Is medication a risk factor for dental caries among older people? Community Dent Oral Epidemiol 30: 224–232.

[16]Casaburi R, Briggs DD Jr, Donohue JF, Serby CW, Menjoge, SS, Witek TJ Jr (2000). The spirometric efficacy of once-daily dosing with tiotropium in stable COPD: a 13-week multicenter trial. The US Tiotropium Study Group. Chest 118: 1294–1302.

[17] McCarthy GM, Awde JD, Ghandi H, Vincent M, Kocha WI (1998). Risk factors associated with mucositis in cancer patients receiving 5-fluorouracil. Oral Oncol 34: 484–490.

[18] Wishart JM, Hodge JL, Greig DE (1981). Systemic treatment of psoriasis with an oral retinoic acid derivative (Ro-10–9359). Tigason NZ Med J 94: 307–308.

[19]Hennes R, Mack A, Schell H, Vogt HJ (1984). 13-cis-retinoic acid in conglobate acne. A follow-up study of 14 trial centers. Arch Dermatol Res 276: 209–215.

[20]Nederfors T (1996). Xerostomia: prevalence and pharmacotherapy. With special reference to beta-adrenoceptor antagonists. Swed Dent J Suppl 116: 1–70.

[21] Reid JL (2001). Update on rilmenidine: clinical benefits. Am J Hypertens 14: 322S–324S.

[22] Bagheri H, Schmitt L, Berlan M, Montastruc JL (1997). A comparative study of the effects of yohimbine and anetholtrithione on salivary secretion in depressed patients treated with psychotropic drugs. Eur J Clin Pharmacol 52: 339–342.