

Drug-Induced Oral Reactions

A Reference Guide for Staff



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This resource reflects the current state of knowledge about drug induced oral reactions. Every effort has been taken to ensure the information it contains is accurate and up to date. However, you should be aware that current knowledge regarding could be modified in the future to reflect changes in knowledge.

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Drug Induced Oral Reactions

Introduction

In March 2009 the Minister for Ageing, the Hon Justine Elliot, announced Australia's first Nursing Home Oral and Dental Health Plan (The Plan). The scope of the Plan is designed to strengthen dental and oral health care in aged care homes from the initial ACAT assessment through to oral health care planning and management.

One aspect of the Plan is the *Better Oral Health in Residential Care Training* project which commenced in December 2009 and will continue throughout 2010.

In addition to this increased awareness of oral hygiene issues in the elderly, staff will also benefit from increased awareness of the various types of oral side effects that may occur as a result of medication use in this age group.

This resource is designed to complement the material provided by the Department of Health and Ageing and act as a resource for staff to identify possible medication related causes of oral symptoms in residents.

Every medication can produce untoward consequences even when used appropriately. Adverse drug reactions can involve any organ and system of the body including the mouth and are frequently mistaken for signs of underlying disease.

Pharmacist medication review is a vital component of maintaining oral health in the elderly



Drug-Induced Oral Reactions

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Department of Health & Ageing, Australian Government

Xerostomia (dry mouth)



Signs & Symptoms:-

- ◆ Difficulty eating and swallowing
- ◆ Difficulty speaking
- ◆ Little saliva present in the mouth or may be thick stringy saliva

Antihistamines	<i>Phenergan</i>
Benzodiazepines	<i>Valium, Temaze</i>
Betablockers (Atenolol, Propranolol)	<i>Tenormin, Inderal</i>
Calcium Channel Blockers	<i>Isoptin</i>
Ciprofloxacin	<i>Ciproxin, Ciprol</i>
Clonidine	<i>Catapres</i>
Diuretics (Frusemide, Hydrochlorothiazide)	
Duloxetine	<i>Cymbalta</i>
Ipratropium	<i>Atrovent, Ipratrin</i>
Levodopa	<i>Sinemet</i>
Lithium	
Olanzapine	<i>Zyprexa</i>
Opioids (Morphine, Oxycodone)	
Oxybutynin	<i>Ditropan</i>
Prazosin	<i>Minipress</i>
Pregabalin	<i>Lyrica</i>
Propantheline	<i>Pro-banthine</i>
Proton Pump Inhibitors	<i>Losec, Acimax, Somac, Zoton</i>
Risedronate	<i>Actonel</i>
SSRIs (Sertraline, Paroxetine, Citalopram)	<i>Zoloft, Aropax, Cipramil</i>
Tricyclic antidepressants	<i>Endep</i>
Venlafaxine	<i>Efexor</i>
Tiotropium	<i>Spiriva</i>

Sialorrhoea

(drooling, dribbling)



Signs & Symptoms:-

- ◆ Increased salivary flow
- ◆ Drooling or Dribbling
- ◆ Increased swallowing

Alprazolam	<i>Xanax</i>
Amiodarone	<i>Cordarone, Aratac</i>
Clozapine	<i>Clozaril</i>
Digoxin	<i>Lanoxin</i>
Donepezil	<i>Aricept</i>
Galantamine	<i>Reminyl</i>
Lamotrigine	<i>Lamictal</i>
Levodopa	<i>Sinemet, Kinson</i>
Lithium	
Mianserin	<i>Tolvon, Lumin</i>
Nifedipine	<i>Adalat, Adefin</i>
Nitrazepam	<i>Mogadon, Alodorm</i>
Olanzapine	<i>Zyprexa</i>
Pilocarpine	<i>Pilopt, IsoptoCarpine, PV Carpine</i>
Risperidone	<i>Risperdal, Rixadone</i>
Rivastigmine	<i>Exelon</i>
Venlafaxine	<i>Efexor</i>

Ageusia (loss of taste)



Signs & Symptoms:-

- ◆ Total loss of ability to taste
- ◆ Reduced appetite
- ◆ Weight Loss

Amitriptyline	<i>Endep</i>
Angiotensin II Receptor Blockers	<i>Karvea, Micardis, Avapro, Olmetec.....</i>
Aspirin	
Atorvastatin	<i>Lipitor</i>
Captopril	<i>Capoten</i>
Clopidigral	<i>Plavix</i>
Enalapril	<i>Renitec</i>
Fluoxetine	<i>Prozac, Lovan</i>
Fluvoxamine	<i>Luvox</i>
Indomethacin	<i>Indocid</i>
Phenytoin	<i>Dilantin</i>
Rivastigmine	<i>Exelon</i>
Spirolactone	<i>Aldactone</i>
Venlafaxine	<i>Efexor</i>

Dysgeusia

(taste disturbances)



Signs & Symptoms:-

- ◆ Complaints of metallic taste, impaired salty taste
- ◆ Reduced appetite
- ◆ Weight Loss

ACE Inhibitors	<i>Renitec, Capoten</i>
Alendronate	<i>Fosamax</i>
Allopurinol	<i>Zyloprim</i>
Alprazolam	<i>Xanax</i>
Amiodarone	<i>Aratac, Cordarone</i>
Aspirin	
Atorvastatin	<i>Lipitor</i>
Baclofen	<i>Lioresal</i>
Benzotropine	<i>Cogentin, Benztrop</i>
Diclofenac	<i>Voltaren, Fenac</i>
Diltiazem	<i>Cardizem</i>
Donepezil	<i>Aricept</i>
Doxepin	<i>Sinequan</i>
Esomeprazole	<i>Nexium</i>
Fentanyl	<i>Durogesic</i>
Labetalol	<i>Trandate</i>
Metformin	<i>Diabex</i>
Metoprolol	<i>Betaloc, Minax</i>
Metronidazole	<i>Flagyl</i>
Propranolol	<i>Inderal</i>
Ranitidine	<i>Zantac</i>
Rivastigmine	<i>Exelon</i>
Sertraline	<i>Zoloft</i>
Simvastatin	<i>Zocor, Lipex</i>
Sulphonamides	<i>incl. Frusemide, Indapamide, Celebrex, Sulfasalazine, Hydrochlorothiazide</i>
Tamoxifen	<i>Nolvadex</i>

Oral Candidiasis (thrush)



Signs & Symptoms:-

- ◆ Presence of creamy-white lesions on tongue and/or inner cheeks
- ◆ Pain
- ◆ Slight bleeding if the lesions are rubbed or scraped
- ◆ “Cottony” feeling in the mouth
- ◆ Loss of taste (ageusia)
- ◆ Difficulty swallowing (if infection spreads to throat)

Antibiotics	
Inhaled Steroids	<i>Seretide, Pulmicort, Symbicort</i>
Olanzapine	<i>Zyprexa</i>
Omeprazole	<i>Losec, Acimax</i>

Gingival Hyperplasia

(enlarged gums)



Signs & Symptoms:-

- ♦ Painless swelling and over-growth of gum tissue

Calcium Channel Blockers	<i>Nifedipine(* most common), Verapamil</i>
Cotrimoxazole	<i>Bactrim</i>
Erythromycin	<i>Eryc, EES</i>
Cyclosporin	
Ketoconazole	<i>Nizoral</i>
Lamotrigine	<i>Lamictal</i>
Lithium	
Phenytoin	<i>Dilantin</i>
Sertraline	<i>Zoloft</i>
Sodium Valproate	<i>Epilim, Valpro</i>

Glossitis

(inflammation of the tongue)

Signs & Symptoms:-

- ♦ Swollen intensely painful tongue
- ♦ Tongue may be red and smooth
- ♦ Pain may be referred to the ears
- ♦ Salivation, fever and enlarged lymph nodes may develop if infection is present

Atorvastatin	<i>Lipitor</i>	Metronidazole	<i>Flagyl</i>
Benzodiazepines	<i>Valium, Mogadon, Temaze</i>	Mianserin	<i>Tolvon</i>
Captopril	<i>Capoten</i>	NSAIDs	<i>eg Nurofen, Voltaren</i>
Carbamazepine	<i>Tegretol</i>	Olanzapine	<i>Zyprexa</i>
Cephalosporins (Antibiotic)	<i>eg Keflex, Ceclor plus others</i>	Penicillins (Antibiotic)	<i>eg Augmentin</i>
Clarithromycin (Antibiotic)	<i>eg Klacid</i>	Rivastigmine	<i>Exelon</i>
Corticosteroids	<i>Prednisone</i>	Sertraline	<i>Zoloft</i>
Doxepin	<i>Sinequan</i>	Sulfonamides - <i>incl. Frusemide, Indapamide, Celebrex, Sulfasalazine, Hydrochlorothiazide</i>	
Enalapril	<i>Renitec</i>	Tetracyclines (Antibiotic)	<i>eg Vibramycin</i>
Fluoxetine	<i>Prozac, Lovan</i>	Triamterene	<i>Hydrene</i>
Fluvoxamine	<i>Luvox</i>	Tricyclic Antidepressants	<i>eg Endep</i>
Gabapentin	<i>Neurontin</i>	Venlafaxine	<i>Efexor</i>
Lansoprazole	<i>Zoton</i>	Any medication causing xerostomia (see page 4)	
Methotrexate			

Burning Mouth Syndrome

Signs & Symptoms:-

- ◆ Burning, scalding or tingling feeling on the tongue, lips, throat or palate
- ◆ No specific lesion evident
- ◆ With or without any sign of inflammation
- ◆ Discomfort usually worse at the end of the day

ACE inhibitors (Enalapril, Captopril, Lisinopril)	
Cephalosporins	<i>eg Keflex, Ceclor plus others</i>
Clonazepam	<i>Rivotril</i>
Gabapentin	<i>Neurontin</i>
Penicillins (Antibiotic)	<i>eg Augmentin, Amoxil etc</i>
Tricyclic antidepressants	<i>Endep</i>
Hormone Replacement Therapy	

Oral Ulcers



Signs & Symptoms:-

- ◆ Small round/oval lesions with yellow or grey floor
- ◆ Develop in soft tissues in the mouth and at the base of the gums
- ◆ Sore Mouth
- ◆ Reduced Appetite
- ◆ Difficulty Speaking

Alendronate	<i>Fosamax</i>	Indomethacin	<i>Indocid</i>
Allopurinol	<i>Zyloprim</i>	Lamotrigine	<i>Lamictal</i>
Alprazolam	<i>Xanax</i>	Lithium	
Aspirin		Methotrexate	
Atorvastatin	<i>Lipitor</i>	Metronidazole	<i>Flagyl</i>
Azathioprine	<i>Imuran</i>	Naproxen	<i>Naprosyn</i>
Captopril	<i>Capoten</i>	Nicorandil	<i>Ikorel</i>
Chlorpromazine	<i>Largactil</i>	Olanzapine	<i>Zyprexa</i>
Clonazepam	<i>Rivotril</i>	Penicillins	
Codeine		Phenytoin	<i>Dilantin</i>
Enalapril	<i>Renitec</i>	Promethazine	<i>Phenergan</i>
Erythromycin	<i>Eryc, EES</i>	Propranolol	<i>Inderal</i>
Fluconazole		Propylthiouracil	
Fluoxetine	<i>Prozac, Lovan</i>	Sulfonamides	
Hydralazine	<i>Alphapress</i>	Tetracycline Antibiotics	
Hydroxyurea	<i>Hydrea</i>	Venlafaxine	<i>Efexor</i>
Ibuprofen	<i>Brufen, Nurofen</i>	Warfarin	

Black Hairy Tongue



Signs & Symptoms:-

- ♦ Hairy area on the upper side of the tongue (never on under side)
- ♦ Normally asymptomatic
- ♦ Usually black but may also be brown, white, green or pink
- ♦ May develop secondary fungal infection (oral thrush)

Amitriptyline	<i>Endep</i>
Benztropine	<i>Cogentin</i>
Cephalosporins (Antibiotic)	<i>eg Keflex, Ceclor plus others</i>
Clarithromycin (Antibiotic)	<i>Klacid</i>
Clonazepam	<i>Rivotril</i>
Corticosteroids	<i>Prednisone</i>
Fluoxetine	<i>Prozac, Lovan</i>
Griseofulvin	<i>Grisovin</i>
Lansoprazole	<i>Zoton</i>
Methyldopa	<i>Aldomet</i>
Nortriptyline	<i>Allegron</i>
Olanzapine	<i>Zyprexa</i>
Penicillins (Antibiotic)	<i>eg Augmentin, Amoxil etc</i>
Sulfonamides	<i>incl. Frusemide, Indapamide, Celebrex, Sulfasalazine, Hydrochlorothiazide</i>
Tetracyclines (Antibiotic)	<i>eg Vibramycin, Doxylin, Minomycin</i>

Stomatitis

(inflammation of the mouth)



Signs & Symptoms:-

- ♦ An oral allergic reaction:- painful red, inflamed gums, palate, lips, tongue and buccal mucosa
- ♦ Oral lesions may be erosive & ulcerating
- ♦ Occasional bleeding
- ♦ Breathing difficulties if severe allergic reaction involving tongue

Fixed Drug Eruption	<ul style="list-style-type: none"> - A localised reaction that occurs in the same site each time the causative medication is ingested - Lesions usually occur within 24 hours of ingesting the medication (NB ampicillin reaction may take up to 2 weeks) - Lesions resolve when the causative medication is withdrawn
Ampicillin (Antibiotic)	
NSAIDs	<i>eg Nurofen, Voltaren, Indocid</i>
Sulphonamides	<i>incl. Frusemide, Indapamide, Celebrex, Sulfasalazine, Hydrochlorothiazide</i>
Chlorhexidine	
Salicylates	<i>eg Aspirin</i>
Tetracyclines (Antibiotic)	<i>eg Vibramycin, Doxylin, Minomycin</i>

Oral Contact Allergic Reaction	<ul style="list-style-type: none"> - An intense inflammation of the gums - May or may not also affect the lips and cheek lining - Angular Cheilitis and Glossitis may also be present - May develop from days to years after exposure to the causative agent
Alendronate	<i>Fosamax</i>
Antibiotics	
Antiseptic lozenges	
Food additives	
Mouthwashes	
Topical steroids	
Toothpastes/Denture Cleaners	<i>increased incidence with tartar control toothpastes</i>
Cosmetics	
Dental materials	<i>incl latex</i>

Angular Cheilitis

(sore corners of the mouth)

Signs & Symptoms:-

- ◆ Soreness and cracks at the corners of the mouth

Atorvastatin	<i>Lipitor</i>
Methyldopa	<i>Aldomet</i>
Prochlorperazine	<i>Stemetil</i>
Simvastatin	<i>Zocor</i>
Sulfasalazine	<i>Salazopyrin</i>
Tetracyclines	<i>Vibramycin, Doxylin</i>
Vitamin A	<i>Cod Liver Oil</i>

Effects on Dental Structure

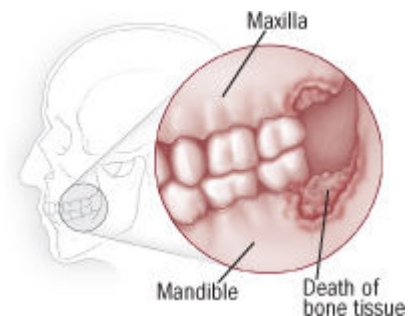


Signs & Symptoms may include:-

- ◆ Dental abscesses
- ◆ Toothaches
- ◆ Denture Sore Spots
- ◆ Osteomyelitis
- ◆ Reduced Oral Intake
- ◆ Weight Loss

Osteonecrosis of the Jaw with Bisphosphonates

- ◆ A serious potential oral complication of treatment with bisphosphonates
- ◆ Most commonly associated with i.v. zoledronic acid but has also been implicated with oral agents
- ◆ Usually triggered by a dental extraction
- ◆ Bone under teeth is exposed
- ◆ **Signs and Symptoms**
 - Swelling and loosening of teeth may be seen
 - Altered local sensation - either increased sensitivity or numbness
 - Facial pain around the upper jaw
 - Toothache, Loose teeth, Denture Sore Spots
 - Exposed bone in the oral cavity
 - Recurrent or persistent soft tissue infection in the oral cavity
 - Marked oral odour
- ◆ **Reducing the risk of developing osteonecrosis of the jaw**
 - Always advise dentist when resident is taking a bisphosphonate (*see table below for examples*)
 - Try and attend to any dental work prior to commencing a bisphosphonate



Agent	Example	Possible Damage
Sugar containing liquid medication		<i>Dental Caries</i>
Anticonvulsants	Phenytoin (<i>Dilantin</i>)	<i>Changes in root size, increased plaque, bone loss</i>
Drugs known to cause xerostomia	<i>See table pp 3</i>	<i>Dental Caries</i>
Drugs with a low pH	Aspirin, anti-asthmatic drugs	<i>Dental Erosion</i>
Drugs that may increase gastro-oesophageal reflux	Anticholinergic drugs, calcium channel blockers	<i>Dental Erosion</i>
Bisphosphonates	Alendronate (<i>Fosamax</i>) Risedronate (<i>Actonel</i>) Zoledronic Acid (<i>Aclasta</i>)	<i>Osteonecrosis of jaws</i>

Oral Motor Disorders



Signs & Symptoms:-

- ♦ Bruxism - Clenching or grinding of the teeth
- ♦ Orofacial Dystonia:-
 - lip retraction, tongue protrusion
 - difficulty opening the mouth (trismus)
 - clenching or grinding of the teeth (bruxism)
 - spasms of jaw opening
 - sideways deviation or protrusion of the jaw
 - lip tightening and pursing
 - drawing back (retraction) of the corners of the mouth
 - deviation or protrusion of the tongue.
 - jaw pain
- ♦ Rhythmic involuntary movements of the mouth, tongue and jaw
- ♦ Resident may describe a headache, tightness in jaw, tongue and facial structures
- ♦ Difficulties eating and drinking
- ♦ Difficulties speaking

Antipsychotics	<i>Serenace</i>
Metoclopramide	<i>Maxolon</i>
Prochlorperazine	<i>Stemetil, Stemizine</i>
Promethazine	<i>Phenergan</i>
SSRIs	<i>Zoloft, Aropax, Cipramil, Prozac, Luvox, Lexapro</i>