



# Medical management of dental and oral pain

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## Summary

**Patients may consult medical practitioners because of painful dental or oral conditions. Medical practitioners need to be aware of common dental and oral diseases in order to manage the patient's pain, but it is even more important to encourage the patient to see a dentist. Typically there is an underlying disease that must be managed by dental or surgical means rather than medication alone. Pain-relieving drugs are considered to be an adjunct to dental treatment rather than a 'first-line' approach. When drugs are needed, anti-inflammatory drugs are appropriate as most dental pain is caused by inflammation. Antibiotics are not necessary in many cases.**

Key words: antibiotics, anti-inflammatory drugs, dental pain, infection, inflammation.

*(Aust Prescr 2007;30:77–9)*

## Introduction

Patients will sometimes present to medical practitioners for the management of pain or other dental and oral problems.<sup>1,2</sup> There are several reasons why patients may seek medical assistance rather than going to a dentist. These reasons include:

- the lack of timely access to a dentist – especially in rural and remote areas
- dentists are not always available, particularly for 'after-hours' emergencies
- the cost of dental treatment
- a fear of pain associated with dental treatment
- trauma to the face, mouth, teeth
- ignorance or a lack of knowledge about the role of dentists and the scope of dental practice – especially regarding the management of soft tissue problems and infections
- not realising their problem has a dental or oral origin
- drug dependent patients seeking opioids.

The majority of medical practitioners have little, or no, formal training in the diagnosis and management of dental and oral diseases, but they are likely to feel obligated to assist a patient

in pain. They can prescribe drugs to relieve the pain or to reduce the effect of swellings or other problems. Medical practitioners should advise patients with dental and oral problems to seek dental assessment and management as soon as possible. If a patient is suffering from intense pain, then analgesics may be indicated, but antibiotics should only be prescribed when there are definite signs of an active and spreading infection. In some cases, drug treatment may mask the signs and symptoms which then complicates, or even prevents, the dentist's task of diagnosing the disease. This may delay appropriate treatment.

## Dental diseases

There are many dental and oral diseases that cause pain, swelling or other acute symptoms. Some general principles can assist medical practitioners to understand the common dental disorders, but more detailed information is available in other publications.<sup>1,2</sup>

The common dental conditions are inflammatory in nature rather than being infections. Although they are caused by the presence of bacteria in or on the tooth, the bacteria are not necessarily causing all the problems that would be seen when other tissues of the body become infected. Infections do occur in some cases and these may manifest in the form of abscesses (periapical or periodontal) or facial cellulitis.

## Dental caries

The most common dental disease is dental caries or tooth decay. It can be painless, but can cause pain ranging from mild to severe pain with swelling and spreading infection. Dental caries is essentially a bacterial disease process which breaks down tooth structure. Once the tooth's outer protective layer of enamel has been breached, the bacteria can progress through the underlying dentine via its network of many tubules. Eventually, the pulp becomes inflamed and if left untreated, it will necrose as the bacteria spread further down into the tooth root. Infection of the root canal system then occurs and this leads to apical periodontitis, an inflammatory response within the periodontal ligament that surrounds the tooth root. Acute apical periodontitis is typically a very painful condition that is likely to lead a patient to seek medical or dental assistance.

## Gum disease

The second most common oral condition that can lead to pain and symptoms is periodontal disease. There are various forms

of periodontal disease and they are generally the result of the build-up of plaque and calculus on teeth. Plaque is a biofilm of bacteria and this causes inflammatory changes within the gingival tissues and the periodontal ligaments that support the teeth. Most of these conditions are chronic and usually do not cause pain, but some patients will develop acute conditions as a result of certain bacteria or other predisposing factors.

### **Other conditions**

Pain can arise from aphthous ulcers, mucosal diseases (for example lichen planus, pemphigoid), trauma to the teeth or oral tissues, impacted teeth, occlusal (bite) problems, temporomandibular disorders, inflammation of the muscles of mastication, tumours and cysts. Some of these conditions are uncommon and difficult to identify. They generally do not require any emergency or urgent treatment by a medical practitioner unless the patient has severe pain. These conditions should always be assessed and managed by a dentist.

### **Managing dental pain**

The most effective way to manage pain of dental or oral origin is to remove the cause of the pain.<sup>3</sup> This requires an accurate diagnosis otherwise the treatment may be inappropriate. It must be emphasised that the common conditions that cause dental pain should not be treated by using drugs alone. Drugs only give symptomatic relief at best leaving the underlying problem *in situ* so that it will progress and become more severe over time. There are likely to be subsequent periods of pain or discomfort as the condition fluctuates between chronic and acute stages until it reaches the point where the patient is unable to tolerate the pain and will seek appropriate treatment. Dental diseases should be considered as being continuously progressive until they have been halted by the appropriate dental management.

The '3-D principle' is used by dentists to manage dental pain. In order, this is **d**agnosis, **d**ental treatment, and then **d**rugs if required.<sup>3</sup> The emphasis is on making a correct diagnosis so the appropriate dental treatment can be provided. If this is done, then drugs are rarely necessary. Typical dental treatments to reduce pain include removal of the caries and placement of a sedative dressing in the tooth, root canal therapy, periodontal treatment, and extraction. The exact nature of treatment provided depends on the presenting problem.

If any drugs are required, then they should only be considered as an adjunct to the dental treatment. Their duration of use can be minimised since they are only required to help resolve any pain that remains after dental treatment while the tissues are recovering. At that stage the pain will be inflammatory and not due to infection.<sup>3</sup> The most effective drug in this situation will therefore be an anti-inflammatory drug such as a non-steroidal

anti-inflammatory drug (NSAID). Analgesics such as paracetamol (with or without codeine) can be used, but their effectiveness is limited to blocking pain in the central nervous system rather than peripherally at the site of inflammation. The NSAIDs are far more effective pain relievers as they reduce inflammation at the site of injury.<sup>3</sup>

### **Managing infections**

Some dental or oral pain arises from infections that require antibiotic therapy. In some cases the treatment will be urgent in order to prevent life-threatening conditions such as Ludwig's angina and other deep, spreading infections of the head and neck.<sup>4</sup> Infections resulting from dental or oral diseases are usually readily identified as infections and distinguished from inflammatory conditions due to the presence of swelling, severe pain, generalised malaise, cervical lymph node involvement and fever. If the signs and symptoms have developed rapidly, then urgent treatment is essential to avoid further spread.<sup>4</sup> These patients should ideally be rapidly referred to a dentist or oral surgeon, but if this is not possible then immediate administration of antibiotics is required. These severe cases require intramuscular or intravenous antibiotics rather than oral tablets or capsules.<sup>4</sup> Most odontogenic infections will respond rapidly to penicillin although in more severe cases it may be necessary to combine the penicillin with metronidazole to broaden the spectrum of antibacterial action.<sup>4,5,6,7</sup>

In the absence of signs and symptoms of infection, medical practitioners should refrain from prescribing antibiotics as a means of relieving pain.<sup>5</sup> In some cases, the antibiotics may provide symptomatic relief which may last for some time (several months or even a year or more), but it is inevitable and quite predictable that the problem will return in the future as the underlying cause of the pain has not been removed or managed. In these circumstances, the medical practitioner may actually be providing a disservice to the patient in the long term unless referral to a dentist is also advised. Even with referral, it is still preferable to desist from prescribing antibiotics since this may complicate the dentist's diagnostic processes which may in turn mean that the appropriate treatment is not provided expediently.

### **Conclusion**

The most effective way to manage dental and oral pain is to diagnose the condition and then to provide the appropriate dental treatment. This implies referral to a dentist. Medical practitioners should avoid the temptation to prescribe antibiotics to manage dental or oral pain except when there are signs of severe or life-threatening infections and a dentist is not immediately available. Drugs are rarely required and should only be used as an adjunct to dental treatment since they may complicate further dental management.

## References

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## Further reading

Therapeutic Guidelines: Oral and dental. Version 1. Melbourne: Therapeutic Guidelines Limited; 2007.

*Conflict of interest: none declared*

## Self-test questions

*The following statements are either true or false (answers on page 83)*

7. Most dental pain is caused by tooth infection.
8. Most of the bacteria causing dental infections are resistant to penicillin.

# Patient support organisation

## The Australian Lung Foundation

The Australian Lung Foundation promotes understanding, management and relief of lung disease. It has over 100 patient support groups in metropolitan and regional areas of all the states and territories. For patients and carers the Foundation produces a range of fact sheets and illustrations, written in non-scientific language, about respiratory diseases and lung health. These fact sheets can be ordered or downloaded from

the website, which also contains lists of pulmonary rehabilitation programs, internet support groups, links to further information, and materials for healthcare professionals.

## Contacts

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# New drugs

Some of the views expressed in the following notes on newly approved products should be regarded as tentative, as there may have been little experience in Australia of their safety or efficacy. However, the Editorial Executive Committee believes that comments made in good faith at an early stage may still be of value. As a result of fuller experience, initial comments may need to be modified. The Committee is prepared to do this. Before new drugs are prescribed, the Committee believes it is important that full information is obtained either from the manufacturer's approved product information, a drug information centre or some other appropriate source.

## Darunavir

Prezista (Janssen-Cilag)

300 mg tablet

Approved indication: HIV infection

Australian Medicines Handbook section 5.4.3

Darunavir is a new protease inhibitor that can be used in combination with other antiretroviral drugs to treat patients infected with HIV.<sup>1</sup> It works by selectively inhibiting the cleavage of viral polyproteins in infected cells, which prevents the formation of mature virus.

Darunavir is extensively metabolised by CYP3A. Ritonavir inhibits this enzyme and, when co-administered, increases the

bioavailability of darunavir 14-fold. After an oral dose of 600 mg darunavir with 100 mg ritonavir, peak plasma concentrations are reached within 2.5–4 hours. The terminal half-life is around 15 hours and most of the drug is excreted in the faeces. This drug should be taken with ritonavir and food to increase its bioavailability.

The efficacy of darunavir (with ritonavir 100 mg) has been compared to other protease inhibitors in a phase II dose-finding trial. The 318 patients who were enrolled had previously been treated with antiretroviral drugs and many of them had HIV that was resistant to commercially available protease inhibitors. Before the patients were allocated to a treatment group, they were prescribed an optimised background regimen of two