Are Cox-2 Inhibitors A Solution To Problems Associated With Current Oral Analgesics? A Revisit With A Perspective Of Local Need.

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ABSTRACT

The primary obligation and ultimate responsibility of a dental surgeon is not only to restore aesthetic and function, but also to relieve pain which originates from dental pathology or surgical procedures performed. Post operative dental pain is mainly of inflammatory origin. Common traditional oral analgesics, namely salicylates, paracetamol and non-steroidal anti-inflammatory drugs have been the drugs of choice, but are increasingly being superseded by newer designer analgesics, the cyclooxygenase-2 (COX-2) inhibitors. This article reviews the advantages and disadvantages of prescribing common traditional oral analgesics as well as exploring the potential use of COX-2 inhibitors as an alternative to these analgesics for the control of post operative pain in dentistry.

Key words
pain, analgesic, NSAIDs, COX-2 inhibitor

INTRODUCTION

Pain can originate from dental pathology or as an outcome of traumatic or surgical procedures performed on patients. Postoperative dental pain is mainly of inflammatory origin and is caused mainly by increased prostaglandin (PG) synthesis. Pain studies showed that majority of patients suffered their highest pain level on the day of operation, especially within the first 3 to 5 hours postoperation. This happens irrespective of their age, operating time, who the operator is, types of implant and presence or absence of pericoronitis during the previous 3 weeks. It was suggested that pain was however, influenced by the gender of the patients.

Analgesics most commonly prescribed in dentistry for acute minor oral surgical pain relief include salicylates, the non-steroidal anti-inflammatory drugs (NSAIDs), paracetamol and various opioid-containing analgesic combinations. As these oral analgesics have been used for a long time and have well proven track records, the authors wish to group them as "common traditional oral analgesics". Paracetamol and the NSAIDs such as mefenamic acid and ibuprofen, are examples of analgesics commonly prescribed for minor oral surgical procedures in Malaysia. These NSAIDs (salicylates included) and presumably paracetamol act by inhibiting enzyme cyclooxygenase responsible for the formation of PGs that promote pain and inflammation.

Although NSAIDs are effective analgesics for mild to moderate pain, they are associated with potentially serious side effects, including gastrointestinal (GI) haemorrhage and ulceration and alteration of platelet function. These happen because NSAIDs inhibit both the constitutive (COX-1) and inducible (COX-2) isomers of cyclooxygenase (COX).

The induction of COX-2 after inflammatory stimuli has led to the hypothesis that COX-2 inhibition primarily accounts for the therapeutic properties of NSAIDs. COX-2 inhibitors now constitute a new group of NSAIDs which, at recommended doses, block the production of PG by COX-2, but not COX-1. Two COX-2 inhibitors are currently available in Malaysia – celecoxib (Celebrex®, Pfizer), which is taken twice daily, and etoricoxib (Arcoxia®, MSD Merck), which is taken once daily. Celecoxib and etoricoxib show significantly lower incidences of gastrotoxicity than non-selective NSAIDs but at the same time show potent analgesic property. Moreover, in comparison with conventional NSAIDs, celecoxib and etoricoxib generally have a longer duration of action; 12 hours and 22 hours respectively.

This article reviews the advantages and disadvantages of prescribing common traditional oral analgesics as well as exploring the potential use of COX-2 inhibitors as an alternative to these analgesics for the control of post operative pain in dentistry.