

# Analgesia for anticoagulated patients requires substituting gabapentin for ibuprofen

Arthur H Friedlander<sup>1</sup>, Ida k Friedlander<sup>2</sup>, Soraya de Azambuja Berti-Couto<sup>3</sup> , Paulo Couto-Souza<sup>3\*</sup> 

<sup>1</sup> Professor-in-Residence Oral and Maxillofacial Surgery, UCLA Dental School, Los Angeles California, USA.

<sup>2</sup> Public Health Nurse (retired) County of Los Angeles Department of Health, USA

<sup>3</sup> Associate Professor, Department of Dentistry, School of Medicine and Life Sciences, Pontifical Catholic University of Paraná, Curitiba, Brazil.

## Corresponding author:

Paulo Couto-Souza  
Department of Dentistry, School of Medicine and Life Sciences, Pontifical Catholic University of Paraná, Curitiba, Brazil.  
Email: couto.s@pucpr.br

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## To the Editor

Older Brazilians with various cardiovascular disorders (e.g., atrial fibrillation, venous thrombosis, pulmonary embolia) are often provided long-term treatment with a vitamin K antagonist (i.e., warfarin) or direct acting oral anticoagulants (DAOAs) such as dabigatran, apixaban<sup>1</sup>. Many members of this patient cohort often require complex dental implant procedures with anticipated moderate to severe post-operative pain. This scenario heralds a number of clinical dilemmas. Non-steroidal anti-inflammatory medications (NSAIDs) and specifically ibuprofen are most commonly prescribed for their analgesic effects but may not provide adequate pain relief<sup>2,3</sup>. Secondly, NSAIDs adversely effect platelet function and when concurrently administrated with an anti-coagulant medication be it a vitamin K antagonist or a DAOA there are enhanced risks of significantly bleeding. Thirdly, there are both societal concerns regarding the addictive properties and diversion of opioid medications as well as the need for Brazilian dentists to adhere to a set of stringent recommendations as to how the medications are to be administered as well as legal regulations (Regulamento Técnico sobre substâncias e medicamentos sujeitos a controle especial) set in place limiting their prescribing<sup>4,6</sup>.



Thus, our interest was peaked when coming upon two prospective, double-blinded, placebo-controlled studies. The first demonstrating that an orally administered pre-operative dose of gabapentin (600mg.) significantly ( $p=0.004$ ) decreased the need for post-operative "narcotic rescue" pain medication administration among patients undergoing rhinoplasty and endoscopic sinus surgery<sup>7</sup>. The second demonstrating that the perioperative administration of gabapentin (1,200mg. preoperatively and 600 mg. 3 times a day postoperatively) to patients having total hip arthroplasty increased by 24% (H.R. 1.24; 95% CI, 1.20-1.54) the rate of opioid cessation after surgery<sup>8</sup>.

Gabapentin's perioperative anti-inflammatory effects result from its ability to reduce pro-inflammatory mediators (e.g., TNF- $\alpha$ , IL  $\beta$ , and IL-6) and up-regulate anti-inflammatory cytokine IL-10). Its acute (nociceptive) pain analgesic effect, by binding to calcium channels thereby inhibiting the influx of calcium into nerve endings thus decreasing excitatory neurotransmitter release in the central and peripheral nervous systems. Concomitantly, analgesia is also believed garnered from gabapentin's activation of the descending noradrenergic pain inhibitory system<sup>9,10</sup>.

In summary, our review of the medical literature suggests that patients concurrently receiving anticoagulant medications and presenting for dental implant surgery be administered oral gabapentin 600mg. one hour prior to surgery in order to decrease the inflammatory (painful) surgical insult (i.e., pre-emptive analgesic effect) and that the post-operative regimen consist of gabapentin 600mg combined with acetaminophen 500mg. every 6 hours as needed for pain control.

The institution of our suggested regimen however should be held in abeyance until consultation with the patient's physician for patients having renal impairment or those having chronic obstructive pulmonary disease (COPD). These admonitions specifically because gabapentin is not metabolized in the body and is eliminated solely by renal clearance, therefore, toxic levels may arise in those with chronic kidney disease and because respiratory depression may arise in those with COPD because gabapentin acts centrally. Furthermore, patients need to be advised that gabapentin administration has been associated with somnolence resulting in impaired driving capabilities as well as dizziness increasing the propensity of falling.

## Conflict of Interest

No potential conflict of interest relevant to this article was reported.

## Data Availability

Datasets related to this article will be available upon request from the corresponding author.

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