Dear Readers of Oral Health

March 1, 2015
by Dr. Peter Nkansah

Re: Articaine and paresthesia in dental anaesthesia: neurotoxicity or procedural trauma? (Toma et al., February 2015)

It may seem odd for me to write a letter to you about an article that I recommended for publication, but that's what I'm doing in order to provide some "sober second thoughts" to some of the assertions made in the above-mentioned article. First off, let me thank Dr. Toma and her team for their original article. Their commitment to the continued learning of the profession is important and greatly appreciated.

The topic of paraesthesia and its possible connection to one or several local anaesthetics is a contentious one. It ranks somewhere below religion and politics, but above which hit songs are any good. The question of physical trauma versus chemical trauma is debatable largely because of the rare incidence of paraesthesia, which makes finding scientific proof very difficult. Add in the fact that a "proper", double-blind, randomized control study where the only variable (i.e. treatment) was the administration of local anaesthetic would not be ethical, and we are left with what are essentially opinions. I agree with much of what Dr. Toma wrote but there are some statements that bear scrutiny and that I would like to propose alternatives for.

First, consider that the issue in the literature may not be with articaine per se but with local anaesthetic preparations that have higher (4%) concentrations. Were there a 4% version of lidocaine, the conversation would have to include it also.

Second, consider that articaine was not available in the United States until 2000, and suddenly there is new context for some of the data referenced from the US. There is no doubt that procedural trauma can cause nerve damage and paraesthesias. At issue is the fact that procedural trauma does not account for all cases of paraesthesia. Still, the US data included in this article points to an issue with 4% solutions.

Third, mentioning a discrepancy in reported paraesthesias between Health Canada and the articles by Gaffen & Haas (2009) and Haas & Lennon (1995) seems to be a red herring. That there is a difference in reported incidence may raise some questions, but they would not include whether or not articaine or any other local anaesthetic could cause paraesthesias. The problem is not "negligible" as Dr. Toma states. Unfortunately, the data from Europe, with its discussions on warning labels and third molar removal, falls under the same umbrella of not being relevant to the central tenet of the article.

Fourth, Toma notes that the article by Malamed et al. from JADA (2001) represents the only "proper", unbiased study regarding the safety of articaine. Actually, the article was a report

generated from 1325 patients receiving dental treatment in 27 different centres and was conducted as part of the approval process for the introduction of articaine into the United States. The adverse events included much more than paraesthesias. While the study is valuable, it does not enjoy some sort of scientific advantage over the other reports, which Toma labels as biased. Toma also leans heavily on an article by Diaz (2010) which is a review/opinion article that asserts that articaine is safe to use in dentistry. Again, overall safety is not the issue on the table and therefore muddies the waters for examining the issue of the incidence and causes of paraesthesias.

Finally, I would like to again thank Dr. Toma for her article. I would also caution the readers of her article to not confuse association with causation. Even Toma's piece quotes numerous articles where the observed incidence of paraesthesias is higher when 4% solutions are used than solutions with lower concentrations are used and trauma has been corrected for. For her to then say that these articles are all unsuitable for use in the promotion of ("strong") recommendations because they are "retrospective, biased in data recruitment, and of low level of evidence" is itself a very biased statement that takes a side on an argument that no one is having. Someone (maybe Mark Twain) once said, "Never let facts get in the way of a good story".

Look, articaine is still available in Canada, and so it should be. I use it on some of my patients with confidence that I am not exposing them to some increased risk of paraesthesia. But like every other drug that I use, I make sure there is an indication for its use and then I use it in the way that I think mitigates whatever risks may be present; no drug is risk-free. For me, that means no standard mandibular (IAN) blocks – works for me, but I'm happy to consider any and all points of view and pieces of information.

Respectfully,
Peter Nkansah

P.S. My editorial credits me as an Assistant Professor at Western University (Canada) and Sunnybrook Health Sciences Centre. In fact, I am a Course Director with Western's Department of Continuing Dental Education; at Sunnybrook, I am a Course Director for Advanced Cardiac Life Support.