



PRACTICE ALERT

Paraesthesia Following Local Anaesthetic Injection

Paraesthesia following the administration of local anaesthetic for routine non-surgical dental care is a rare occurrence. So rare, in fact, that dentists are not legally required to warn patients of the possibility of temporary or permanent paraesthesia as part of the informed consent discussion that they have with their patients prior to treatment¹.

Having said that, however, the College is aware of the existence of U.S. civil proceedings against manufacturers and dentists wherein patients, through their lawyers, are asserting, among other things, that there is a duty to warn patients respecting the use of certain solutions because of the enhanced risk.

A number of studies have shown a higher incidence, although still very low, of these paraesthesias when 4% solutions, namely articaine and prilocaine, are used in mandibular block injections.

What the Dental Literature Has to Say on the Subject

In the last 10 years, a number of papers have been written on the subject of paraesthesia following local anaesthetic injection. Some of these include:

- A 1995 paper by Haas and Lennon² entitled “A 21 year Retrospective Study of Reports of Paraesthesia following Local Anaesthetic Administration” showed that paraesthesia following the injection of local anaesthetic for non-surgical dental treatment is significantly more likely to occur if either articaine or prilocaine is used.
- In 2001, Malamed et al³ published a

paper entitled “Articaine Hydrochloride: a Study of the Safety of a New Amide Local Anaesthetic” in which the authors concluded that articaine was a well-tolerated, safe and effective local anaesthetic for use in clinical dentistry. They did note, however, that paraesthesia (0.9%) was the most frequently reported adverse event.

- Another paper by Haas⁴ published in 2002 entitled “An Update on Local Anaesthetics in Dentistry” concluded that articaine and prilocaine were reported as more likely than other anaesthetics to be associated with paraesthesia, and that this difference was statistically significant when their distribution of use was considered. Haas went on to state that such reactions have most commonly affected the lingual nerve.
- A 2003 article by Dower⁵ entitled “A Review of Paraesthesia in Association with the Administration of Local Anaesthesia” suggested a rate of paraesthesia as high as 2% to 4%, when using articaine for lingual or mandibular block injections. This is a very much higher rate than, for example, a 2% solution of lidocaine. Dower went on to state that the paraesthesia rates listed in his paper for articaine, and to a lesser extent for prilocaine, raise questions regarding the use of these local anaesthetics.

PLP Perspective

The incidence data used in the 1995 Haas and Lennon study came from information provided by the RCDSO Professional Liability Program (PLP).

Based on the PLP claims information, it would appear that the vast majority of temporary or permanent paraesthesias following the use of local anaesthetic for non-surgical dental procedures continue to be associated with the use of 4% solutions of articaine or prilocaine. That anecdotal information also indicates that the lingual nerve is commonly affected in these reported incidents as was found in the 2002 Haas paper.

Risk Management Advice

Until more research is done, it is the College’s view that prudent practitioners may wish to consider the scientific literature before determining whether to use 4% local anaesthetic solutions for mandibular block injections.

Questions?

If you have any questions, please contact:

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References

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- ³Malamed SF, Gagnon S, Leblanc D. Articaine hydrochloride: a study of the safety of a new amide local anaesthetic. *J Am Dent Assoc*. 2001 Feb; 132(2):177-85.
- ⁴Haas DA. An update on local anaesthetics in dentistry. *J Can Dent Assoc* 2002;68(9):546-51.
- ⁵Dower JS. A review of paraesthesia in association with administration of local anaesthesia. *Dentistry Today* February 2003.