Reviewer’s report

Title: A comparative study of the debridement efficacy and apical extrusion of dynamic and passive root canal irrigation systems

Version: 1
Date: 18 December 2013

Reviewer: Celso Luiz Caldeira

Reviewer’s report:

Introduction:
1. Please, The authors should remove or insert in Discussion: “A study by Fukumoto et al [13] found that the negative pressure system had less extrusion of irrigant than needle irrigation (positive pressure) when both were placed 2 mm from the working length”
2. The authors should put more details on the importance of apical extrusion of organic and inorganic substances and irrigants.

Materials and Methods:
1. The actual volume of irrigant reaching the WL appears to be a major factor in cleanliness. Why was used only 1ml of hypochlorite in each channel? Explain.

In this article: “Effect of apical preparation size and preparation taper on irrigant volume delivered by using negative pressure irrigation system. J Endod 2010;36:721–4. Brunson M, Heilborn C, Johnson DJ, Cohenca N. , the authors measured the amount of irrigant that reaches WL in canals prepared to size 40 with .04 taper. With the EndoVac, had 1.37 mL of irrigant reach WL per 30 seconds and using the Max-i-Probe, the goal is “needle deep” irrigation, where the total volume of irrigant is delivered within 1 mm of WL

2. In “The percentage of debris on the entire surface area was measured using the software to analyse the particles”, the authors should explain better as was the method of analysis by ImageJ software.

3. The increases of 20x and 200x are sufficient to ensure that the software properly parse the specimens? Explain.


4. In: “The amount of extruded irrigating solution was then measured by subtracting the post-instrumentation weight from the
pre-instrumentation weight using an electronic balance”, the authors should explain better that the mold is that was weighed in balance before and after instrumentation and not the teeth tested.

Discussion:

1. Insert information about the Endo Vac efficacy on the dissolution of simulated pulp into the lateral canals.

2. Discuss this information: “In addition, the orifices of the microcannula provide a portal of exit for canal debris in closed end canal systems”
See this article: Parente JM, Loushine RJ, Susin L, et al. Root canal debridement using manual dy”namic agitation or the EndoVac for final irrigation in a closed system and an open system. Int Endod J 2010;43:1001–12”.

3. See these articles and discuss:
Apical Extrusion of Sodium Hypochlorite Using Different Root Canal Irrigation Systems
Journal of Endodontics, Volume 37, Issue 12, December 2011, Pages 1677-1681
Ross P. Mitchell, J. Craig Baumgartner, Christine M. Sedgley
Efficacy and Safety of Various Active Irrigation Devices When Used with Either Positive or Negative Pressure: An In Vitro Study
Journal of Endodontics, Volume 38, Issue 12, December 2012, Pages 1622-1626
Augusto Malentacca, Umberto Uccioli, Dario Zangari, Carlo Lajolo, Cristiano Fabiani
Comparison of Debris Removal with Three Different Irrigation Techniques
Journal of Endodontics, Volume 37, Issue 9, September 2011, Pages 1301-1305
Richard K. Howard, Timothy C. Kirkpatrick, Richard E. Rutledge, John M. Yaccino

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
'I declare that I have no competing interests’