Impact of Three Radiographic Methods in the Outcome of Nonsurgical Endodontic Treatment: A Five-Year Follow-up

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Aim
- To determine whether the radiographic method used to evaluate RCT impacts the outcome.
- To determine which prognostic factors played a significant role in the outcome of RCT.

Materials & Methods
- 132 teeth (208 roots) from 102 patients who received RCT by Post-Graduate students were included in this study.
- Radiographic evaluation was performed using 3 different methods:
  a- Regular periapical film  b- Digital periapical radiograph  c- CBCT
- 17 prognostic factors were categorized and evaluated for each root.
- Cases were followed up for 5 yrs.
- PAI was used to determine the periapical health.
- All the images were independently evaluated by 2 endodontists and 1 oral radiologist.
- Statistical analysis was performed to compare between the outcome of the 3 radiographic methods.

Results
- Only 60 patients were available for evaluation (58.8%).
- CBCT detected a higher no. of PAR (18.7%), followed by Digital (7.7%) and regular films (5.7%).
- Correlation between digital radiograph & CBCT was 84.1%.
- Correlation between regular film & CBCT was 82.69%.
- 4 prognostic factors significantly influenced the success of treatment:
  1 - Root canal curvature  2- Disinfection of gutta-percha
  3- Missed canals  4- Quality of coronal restoration

Conclusion
- The outcome after 5 yrs. varied with each radiographic method:
  Regular periapical film = 94.3%
  Digital periapical radiograph = 92.3%
  CBCT = 81.3%
- CBCT is more sensitive than digital and non-digital PA radiographs in visualizing PAR.
- Root canal curvature, the non-disinfection of gutta-percha, missed canals, and the inadequate coronal restoration were prognostic factors that negatively influenced the outcomes.

Authors
Rafael Fernandez, Diego Cadavid, Sandra Zapata, Luis Alvarez & Felipe Restrepo

By: Dr. Lydwien Kuijk
Post-Graduate Program – ACTA