VERIFIABLE CPD PAPER

IN BRIEF

- Bacteria are responsible for the most commonly encountered dental diseases including pulpal pathology.
- The success rate of endodontics relies on the root canal system being rendered bacteria free.
- Conventional chemo-mechanical canal preparation techniques are unable to disinfect the canals predictably and consistently.
- PAD offers potential to eliminate bacteria from the root canals especially where conventional techniques have failed to do so.

Microbiological evaluation of photo-activated disinfection in endodontics (An *in vivo* study)

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Objective To determine the microbiological effect of photoactivated disinfection (PAD) as an adjunct to normal root canal disinfection *in vivo*.
Design A randomised trial carried out in general dental practice.
Subjects and methods Patients presenting with symptoms of irreversible pulpitis or periradicular periodontitis requiring endodontic therapy were selected at random. A microbiological sample of the canal was taken on accessing the canal, after conventional endodontic therapy, and finally after the PAD process (photosensitiser and light) had been carried out on the prepared canal. All three samples from each canal were plated within 30 minutes of sampling and cultured anaerobically for five days. Growth of viable bacteria was recorded for each sample to determine bacterial load.
Results Thirty of the 32 canals were included in the results. Cultures from the remaining two did not reach the laboratory within the target time during which viability was sustained. Of the remaining 30, 10 canals were negative to culture. These were either one of the canals in multi rooted teeth where the others were infected or where a pre-treatment with a poly-antibiotic paste had been applied to hyperaemic vital tissue. Sixteen of the remainder were negative to culture after conventional endodontic therapy. Three of the four which had remained infected cultured negative after the PAD process. In the one canal where culturable bacteria were still present, a review of the light delivery system showed a fracture in the fibre reducing the effective light output by 90%.
Conclusions The PAD system offers a means of destroying bacteria remaining after using conventional irrigants in endodontic therapy.