#No.

Irrigation additive reduces aerosolisation from ultrasonic scalers

Cervinskyte G, Allison JR, Holliday R.

INTRODUCTION

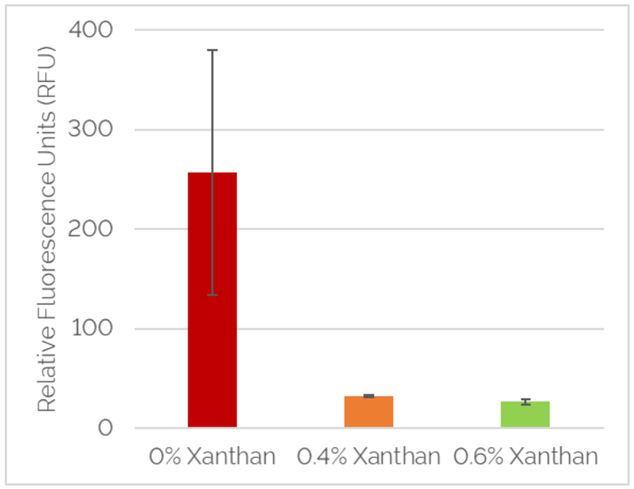
- Ultrasonic scaling produces aerosols potentially contaminated with oral pathogens.
- This study aimed to evaluate irrigation solutions containing the thickening agent, xanthan gum, to reduce aerosolisation.

METHODS

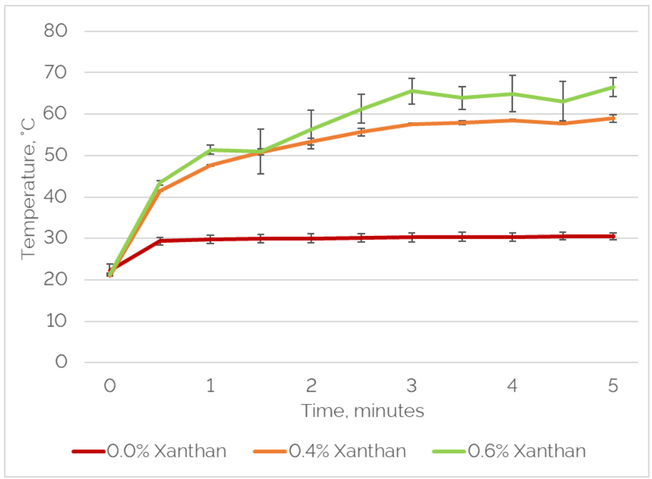
- Three irrigation solutions were tested. Each contained fluorescein sodium as a tracer (2.65 mmol L^{-1}) and either 0%, 0.4% or 0.6% xanthan gum.
- A magnetostrictive ultrasonic scaler was positioned in the centre of an open plan clinic with ventilation rate of 7.14 air changes per hour and operated for 5 minutes at the highest setting.
- Aerosol production was evaluated using: (1) an optical particle counter to detect all aerosol; (2) a liquid cyclone air sampler to detect aerosolised fluorescein; (3) spectrofluorometric analysis of droplets captured on filter papers.
- Temperature of the irrigation solution was measured using a thermocouple placed 1 mm under the scaler tip.

RESULTS

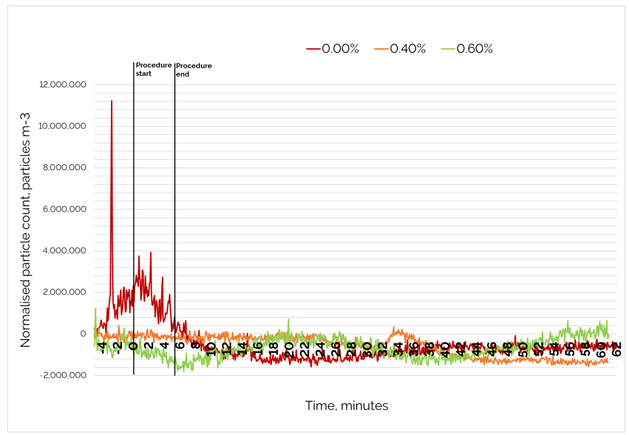
Cyclone air-sampler data



Temperature data



Optical particle counter data

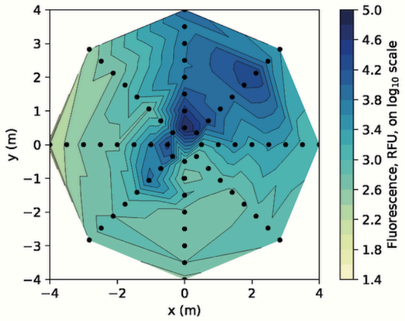


CONCLUSION

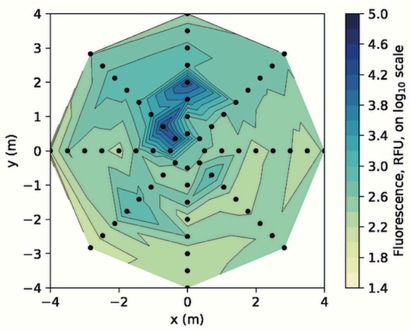
- Xanthan gum is highly effective in reducing aerosol and droplet production from ultrasonic scalers.
- Temperature rises in the coolant make clinical use unacceptable.

FILTER PAPER DATA

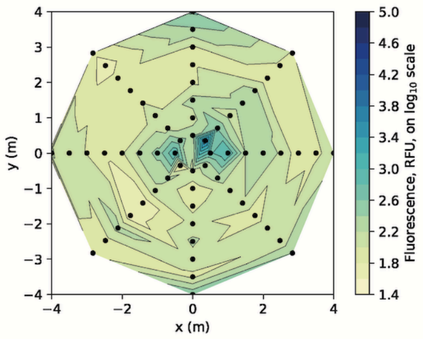
0% xanthan gum



0.4% xanthan gum



0.6% xanthan gum



Newcastle University
School of Dental Sciences

British Endodontic Society

Email: greta.cervinskyte@newcastle.ac.uk

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