Perbedaan Dua Metode Sterilisasi Instrumen Putar NiTi off-centered terhadap Eliminasi Bakteri Enterococcus faecalis = Difference between Two Sterilization Methods of Off-centered NiTi Rotary Instruments in the Eliminaton of Enterococcus faecalis

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Abstrak

Latar Belakang: Penggunaan instrumen endodontik steril diperlukan untuk keberhasilan perawatan saluran akar. Desain dan bentuk instrumen endodontik menjadi tantangan dalam proses sterilisasi. Instrumen yang kini sering digunakan adalah instrumen putar NiTi, dengan salah satu desain terbaru adalah instrumen putar NiTi off-centered, yang bisa berupa variable taper maupun regressive taper. Bakteri resisten yang perlu diwaspadai dalam perawatan saluran akar adalah Enterococcus faecalis. Beberapa tahapan sterilisasi sudah pernah diajukan, namuan tidak spesifik pada instrumen putar NiTi off-centered yang terkontaminasi bakteri Enterococcus faecalis. Perlu siasat dan langkah-langkah khusus untuk mendapatkan instrumen putar NiTi off-centered yang steril dari bakteri Entercoccus faecalis. Tujuan: Membandingkan jumlah bakteri Enterococcus faecalis pada instrumen putar NiTi off-centered variable taper dan regressive taper setelah melalui dua metode sterilisasi yang berbeda. Metode: Delapan kelompok uji yang terdiri dari empat kelompok instrumen putar NiTi off-centered variable taper dan empat kelompok instrumen putar NiTi off-centered regressive taper. Masing-masing dari keempat kelompok tersebut dibagi menjadi kelompok kontrol negatif, kelompok kontrol positif, kelompok sterilisasi Parashos dan kelompok sterilisasi Linsuwanont. Selain kelompok negatif, instrumen-instrumen dari kelompok lainnya digunakan untuk mempreparasi saluran akar gigi premolar yang sudah dikontaminasi bakteri Enterococcus faecalis. Kedelapan kelompok kemudian diuji kultur menggunakan agar kromogenik untuk melihat keberadaan bakteri Enterococcus faecalis dan menghitung koloni yang terbentuk. Hasil: Pada kelompok kontrol negatif, tidak ditemukan adanya bakteri Enterococcus faecalis. Kelompok positif menunjukkan keberadaan bakteri Enterococcus faecalis dengan jumlah besar. Kelompok Parashos dan Linsuwanont menunjukkan jumlah bakteri Enterococcus faecalis yang beragam, dengan kelompok Parashos memberikan hasil jumlah bakteri yang lebih besar daripada kelompok Linsuwanont. beragam.terbanyak dan tersedikit Kesimpulan: Metode sterilisasi Linsuwanont adalah metode paling efektif untuk mensterilisasi bakteri Enterococcus faecalis pada instrumen putar NiTi off-centered regressive taper. Metode sterilisasi Parashos tidak efektif untuk mensterilisasi bakteri Enterococcus faecalis pada instrumen putar NiTi off-centered variable taper maupun regressive taper. Kata kunci: sterilisasi, intrumen putar NiTi, off-centered, Enterococcus faecalis, CFU

.....Backrgound: The use of sterile endodontic instruments is necessary to achieve successful root canal treatment. The design and shape of endodontic instruments poses challenges in their sterilization process. The current most widely used endodontic instrument are NiTi rotary files, and one of the newest design results in off-centered NiTi rotary files, which can either have a variable taper or a regressive taper. Resistant bacteria that must be noticed in root canal treatment is Enterococcus faecalis. Several sterilization processes have been put forward for endodontic instruments; however, none were specific for off-centered NiTi rotary files that were contaminated by Enterococcus faecalis. Specific strategies and steps are necessary to achieve sterile off-centered NiTi rotary files that are free from Entercoccus faecalis. Aim:

Compare the amount of Enterococcus faecalis on off-centered NiTi rotary files with variable taper and regressive taper after being processed using two different sterilization methods. Method: Eight test groups were established consisting of four off-centered NiTi rotary files with variable taper and four off-centered NiTi rotary files with regressive taper. Each of these four groups were divided into the following groups: negative control group, positive control group, Parashos sterilization group and lastly Linsuwanont sterilization group. Besides the negative control group, instruments from the other groups were used to perform root canal preparation of premolars that were contaminated by Enterococcus faecalis. The eight test groups were then tested for bacterial culture using chromogenic agar media to observe the presence and count the colony forming units of Enterococcus faecalis. Results: In the negative control group, no Enterococcus faecalis bacteria were found. The positive control group showed a large amount of Enterococcus faecalis present. The Parashos and Linsuwanont groups showed a variety in the amount of Enterococcus faecalis present, with the Parashos group showing a higher number of Enterococcus faecalis bacteria than the Linsuwanont group. Conclusion: The Linsuwanont sterilization method is the most effective method to sterilize Enterococcus faecalis bacteria from off-centered NiTi rotary files with regressive taper. The Parashos sterilization method was ineffective in sterilizing Enterococcus faecalis bacteria from both off-centered NiTi rotary files with variable taper and regressive taper.