

# Chlorhexidine as an endodontic irrigant

Michael Sultan discusses using irrigants in endodontics

The most commonly used irrigant in endodontics is sodium hypochlorite. This is a highly alkaline disinfectant that can dissolve pulpal tissue and kill most of the bacteria found in infected root canal systems. However it is

a highly caustic solution that can cause tissue damage, especially if forced into the periapical tissues, and can also damage instruments and clothes. Sodium hypochlorite has many undesirable side effects and an alternative is always be-

ing sought.

One of the causative agents in failure of root-filled teeth is enterococcus faecalis, which is resistant to the alkaline solutions. Consequently, endodontists encourage the use of

chlorhexidine not only as an endodontic irrigant but also as a final rinse to give long term protection to root canals before obturation.

Chlorhexidine itself is a chemical antiseptic that has

been used at a low concentration of 0.2 per cent as a mouthwash for many years, primarily to reduce plaque and gingivitis. Prolonged use can cause marked tooth discoloration as well as altered taste sensation. Higher concentrations have been used as a skin wash, although there are case reports of urticaria and contact dermatitis.

Chemically chlorhexidine is a cationic bisguanide which is highly lipophilic and interacts with cell membrane phospholipids and lipopolysaccharides and is consequently bactericidal. It is active against a wide spectrum of bacteria especially gram positives, less so on gram negatives and is also active against fungi. It has proved

**Safe Implant** ©  
 Together towards a democratization of implantology  
 Tel.: +33 (0) 1 48 05 71 88

Safe shark or Regular healing cap + abutment, to be discovered at a rate of 80 €

Exclusively through: [www.implantdiscount.com](http://www.implantdiscount.com)

DEKRA

**Complete System**

Safe Implant ©

from **49 €**  
 NEW  
 Safe Shark Evo ©

type os I & II Safe Regular ©  
 type os I & II Safe OSI ©  
 type os III & IV Safe Shark ©  
 type os III & IV Safe Tornado ©  
 Short from I to IV Safe Short ©  
 Slim from I to IV Safe Slim ©

Compatible with:  
 Zimmer dental ©  
 Nobel Replace ©  
 Branemark ©  
 Dentium ©  
 Safe Implant ©  
 Straumann ©  
 Alpha bio  
 Mis  
 Adin  
 ecc...

From 12 € to 55 €

*'Chemically chlorhexidine is a cationic bisguanide which is highly lipophilic and interacts with cell membrane phospholipids'*

very effective against E. Faecalis which has proved resistant to sodium hypochlorite and calcium hydroxide and is found in failing root-filled teeth.

Much research has been done on the ideal concentration of chlorhexidine for use as an irrigant and the results are often conflicting. A few studies have shown 0.12 per cent Chlorhexidine (ie chlorhexidine mouthwash) as effective as 2.5 per cent sodium hypochlorite. As an anti-bacterial the majority indicate that the optimal concentration is two per cent. At low concentrations it can take many hours to kill bacteria in a tooth. This can be shortened to minutes at a higher concentration.

Interestingly (for endodontists) chlorhexidine has a prolonged bacteriostatic action. This is an action termed 'substantivity'. Following irrigation the chlorhexidine binds to surrounding tissues and has a slow release affect over an extended period. This can therefore in-