

## Medicaments in endodontics

### I. Irrigants

#### 1. Sodium hypochlorite

Concentrations 1,5 – 6%, mostly 2,5% -6% Non stable chemical. Principle of action: ioxidation and chloration. Wide spectrum of microbes affected. Dissolves organic material – rests of dental pulp, biofilm. It can be activated with ultrasound, sonic activator and laser.

#### 2. Chlorhexidin

Antiseptic agent.(Chlorhexidini gluconas) Chlorhexidin is bisbiguanid effective against wide spectrum of microbes partly also viruses. For root canal irrigation 0,12% or 0,2% roztok. Bitter taste and discoloration of teeth (brown colour).

No combination with NaOCl – toxic precipitate.

#### 3. EDTA

Ethylendiaminotetraacetic acid – chelator. It is able to create complex compounds with calcium - it dissolves inorganic part of smear layer. It is used in combination with other irrigants since its antimicrobial effect is low.

#### 4. Citric acid

Similar effect as EDTA dissolves inorganic part of smear layer. Combination with other irrigants. Concentration 10%- 40%.

#### 5. Saline solution

0,9% solution of sodium chloride. In case of complication, surgical procedures in endodontics, widely open apex, isotonic, no antimicrobial effect.

### II. Disinfectants and antiseptics

#### II.a Calcium hydroxide

Alcalic - pH12,5.

Low solubility cca z 1 %. Suspensions or cements. Suspension can be prepared mixing of calciumhydroxide with water. Ready made materials contain glycerin, methylcellulose.

These are suspensions.

There are also cements mixed of base and catalyst. Paste A contains calcium hydroxide and plastificator N-etyltoluensulfonamid, paste B salicylates, disalicylates and fillers (baryum sulphate, calciumsulphate, titanium dioxide). Also one component lightcuring materials are available. Their effect is lower.

#### Effect of calciumhydroxide on dental pulp:

1. Stimulation of dentinogenesis.
2. Stimulation of differentiation of new odontoblasts.
3. Stimulation of tertiary dentin formation
4. Strong antimicrobial effect
5. Hemostasis
6. Dessication

## II.b Bioactive – hydraulic cements

Effect is similar to calciumhydroxide, they are not temporaries but they set into hard materiál. – they have tight seal. The most known is mineraltrioxid aggregate – MTA. Indication vitalm pulp therapy – pulpotomy, complications, apexifications.

## II.c Disinfectants

Strong chemicals based on phenolic agents and formalin. They can be found at the market. But they are not recommended any longer.

## III. Necrotising agent

They are used in special cases when the root canal treatment cann not be preformed using local anaesthesia. These medicaments are based on paraphormaldehyd, contain local anaesthetic - Lidocain and, eugenol, Peru balsam and vehiculum. It must be covered hermetically using temporary filling materiál (one component materiál Cavit and zinkoxidphosphate cement).

## IV. Antibiotics

They are indicated in case of complications when the patient has systemic symptoms. Local usage of antibiotics is obsolete.

## V. Anaesthetics

Infiltration anaesthesia, nerve blocked anaesthesia, PDL, intrapulpal anaesthesia are used in Lubrikancia

## VI. Lubricants

Are recommended for better effect of root canal instruments. These gels contain EDTA, carbamide peroxide and vehiculum (gel). However sodium hypochloride has good lubrication effect due to dissolution of organic material.