

Irrigants: A Game Changer in Root Canal Treatment

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One of the principal goals of root canal treatment is the cleaning of entire root canal system through removal of pulpal debris, smear layer and smear plugs. Instrumentation alone is not sufficient to remove pulpal debris and smear layer thoroughly. Irrigation of root canal system in between instrumentation is mandatory to completely debride and clean the root canal.

Irrigation is generally done between each subsequent instrumentation. Principal aim of irrigation is dissolution and lavage of pulpal debris out of root canal. Irrigation is the most neglected phase of the root canal treatment but it should be understood that without or with incomplete irrigation, root canal treatment is incomplete. Smear layer, lateral canals, auxiliary canals and furcations are impossible to clean without proper irrigation.

Apart from pulpal debris removal, irrigation has many other functions such as tissue dissolution, antibacterial activity, lubricating the canal, smear layer removal and bleaching the tooth. Among the several irrigant solutions sodium hypochlorite is the most popular solution. Crane in 1920 described the use of Dakin's solution (0.5% NaOCl). It is having good tissue dissolving property and antimicrobial activity against most of the microorganisms.

Despite its promising properties, it has several disadvantages like periapical tissue irritation and chances of complications. Several researchers are trying to replace NaOCl with other irrigant solutions of superior quality and less disadvantages. Russian researchers have invented electrochemically activated water claiming superior tissue solvent and smear layer removal activity compared to those of NaOCl.

Second most widely used irrigating solution is EDTA. It is used because of its excellent smear layer removal property. Combination of NaOCl with H₂O₂ and NaOCl with EDTA are used for differ-

ent conditions to get advantages of both irrigant solutions having different properties.

The newly invented non-instrumentation technology of cleaning root canal system uses NaOCl to remove pulpal debris and bacteria from canal without the use of instruments. If this technique becomes popular, it will revolutionize the conventional root canal therapy.

It is well imaginable that one irrigant solution may not work efficiently in all the conditions. According to the conditions and type of pathology, solutions should be changed or used in combinations.

There is continuous research to develop an irrigant having all the ideal requirements. At last, I just want to say that future of dentistry holds more research on irrigants and its techniques.

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