39th IACDE National Conference

NEWER ADVANCES IN VITAL PULP THERAPY

Vital Pulp Therapy (VPT) is the treatment initiated on exposed Dental pulp to Repair and Maintain the Pulp vitality. It is aimed in preserving and maintaining Vitality of pulp tissue that is compromised by Dental trauma, Caries or Restorative procedures in healthy state. - AAE

1. Calcium Silicate-based Cements (CSCs)

Mineral Trioxide Aggregate (e.g.Proroot MTA & Biodentine)

- Excellent Biocompatibility,
- Antibacterial Properties,
- Stimulate Dentine Bridge Formation

2.Calcium-Enriched Mixture (CEM) Cement

- Excellent Sealing Ability
- Regenerative Potential
- Excellent Bioactivity
- Remarkable Efficacy

3. Light-Curable Pulp Capping Materials

- Faster Setting Time
- Simplified Application .

e.g.TheraCal PT

- For Direct and Indirect Pulp Capping
- Significant Calcium Release
- Stimulate Hydroxy Apatite & Dentin Bridge Formation.

4. Low-Level Laser Therapy (LLLT)

- PhotoBioModulation (PBM)
- Visible red (600–680 nm) or near infrared regions (700–940 nm) with low average powers (less than 500 mW) in continuous wave.
- Output is low, no issues with heat /sound
- Induce remodeling,
- Accelerate wound healing

5. Tissue Engineering Approach

Biomaterials Based Scaffolds

- Natural Scaffolds : Collagen, Glycoaminoglycan, Chitosan, Alginate, Agarose
- Synthetic Scaffold: Hydroxyapatite/ tri-calcium phosphate, Polyacetic acid, Polycaprolactone, Self-assembling peptide hydrogels.
- Composite Scaffolds
- Natural polymers +Synthetic polymers

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Stem cells Formation + Growth Factors

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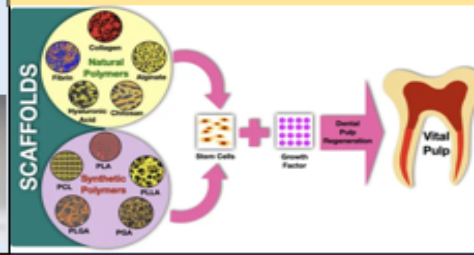
Dental Pulp Regeneration



6. Premixed Bioceramics

- Homogenous consistency
- No cross-contamination
- Superior handling
- Insensitive To Moisture
- Blood Contamination
- Easily condensable

7. LASERS

CARBON DIOXIDE LASER

- Most Common
- Wavelength 9300-10,600nm
- Gated Pulsed Or Super Pulsed Mode
- Optical Hemostasis
- Proper Carbonization and Fusion

DIODE LASERS

- Continuous Mode, Gated Pulse, Super-pulsed Mode
- Near Infrared Region
- Antimicrobial
- Excellent Hemostasis
- Used in Soft tissue surgery

ND:YAG LASER

- Infrared Light 1064nm
- Continuous Mode
- Absorbed By Haemoglobin
- Excellent Haemostasis.
- Used for Soft tissue surgery

ER:YAG LASER

- Infrared Radiation-2940nm Wavelength
- Free Running Pulsed mode
- More Absorption in Dentine than Enamel
- To control Bleeding
- No Hyperemic reaction

Vital Pulp Therapy has emerged as a Transformative and Proactive approach and stands as a Pivotal advancement in Modern Dentistry, Revolutionizing and offering a more Conservative Approach in managing Vital pulp injuries and its Infections.