Chemomechanical Reduction of the Bacterial Population in the Root Canal after Instrumentation and Irrigation with 1%, 2.5%, and 5.25% Sodium Hypochlorite

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**Aim**
- To compare the *in vitro* intra-canal bacterial reduction produced by instrumentation and irrigation with 1%, 2.5% & 5.25% NaOCl solutions.

**Materials & Methods**
- 40 extracted MAN premolars were used in this study.
- Access opened and canals were initially instrumented & then inoculated with *E. faecalis*.
- Root canals were divided into 4 groups according to the conc. of irrigation used during instrumentation:
  - **Group 1:** Canals were irrigated with 1% NaOCl (10 canals)
  - **Group 2:** Canals were irrigated with 2.5% NaOCl (10 canals)
  - **Group 3:** Canals were irrigated with 5.25% NaOCl (10 canals)
  - **Group 4:** Canals were irrigated with 0.85% sterile saline solution (10 canals)
- Root canals were sampled before and after instrumentation.
- Data obtained from samples were statistically analyzed.
- The Inhibitory effects of the three NaOCl conc. on *E. faecalis* were also evaluated.

**Results**
- All NaOCl conc. significantly reduced the no. of bacterial cells in the root canal.
- No significant difference between all the NaOCl solutions tested.
- All NaOCl solutions were significantly more effective than saline solution.
- All NaOCl conc. showed large zones of inhibition against *E. faecalis*.
- Inhibitory effects depended on conc.

**Conclusion**
- Regular exchange and the use of large amounts of irrigant should maintain the antibacterial effectiveness of the NaOCl solution, compensating for the effects of concentration.

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