Study Assessing the Effectiveness of a Vibrating Dental Syringe Attachment

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Aim: To assess the efficacy of the 'Vibraject', vibrating dental syringe attachment on patients' perceived pain when receiving intra-oral injections.

Method: The inclusion criteria were based on random selection of patients requiring an intra-oral dental injection in 7 anatomical areas. Those requiring sedation were excluded. Each patient (n=329) was randomly given one of three methods of local anaesthetic delivery: either the use of a conventional syringe, the conventional syringe plus the vibrating attachment or the conventional syringe after topical anaesthesia. Consented patients were asked to grade the pain of receiving the injection using the Loma Linda Scale as well as a visual analogue scale of 0 to 10. The area and type of injection; (infiltration, inferior alveolar block and palatal) were noted. The number of operators was kept as small as time permitted and each operator's technique kept as consistent as possible.

Results: The overall estimated marginal mean pain score for the conventional method was 2.68± 0.27 and for the same plus Vibraject 2.08±0.35 (p<0.001). There was no effect of the operator modelled as a random effect (ie. A multilevel model with 2 levels between/within dentists), hence eliminating confounding bias. The Vibraject proved particularly effective at the most painful sites eg. Upper/ lower anterior and palatal infiltrations. An ANOVA analysis showed that use of topical anaesthetic had no significant effect on reducing the pain score in this particular study, (P=0.226, F=1.48).

Conclusion: <u>The vibrating attachment highly significantly reduced patients' pain experience</u>. Since the positive effect of topical anaesthetic is accepted worldwide, the vibrating attachment could be used to supplement this aiming towards pain-free injections. It could also be used alone to eliminate application time.