MICRO LABS LIMITED

SMART DENTAL UPDATES

Dear Doctor,
Greetings from Micro Labs Limited. We are happy to bring you **"SMART DENTAL UPDATES"** which contains latest and interesting news in the field of Dentistry.
This issue contains

- Comparison of local anesthetics in mandibular posterior teeth with irreversible pulpitis
- Dental Phobia among Pregnant Women: Considerations for Healthcare Professionals
- Effects of Oral Commensal Streptococci on P gingivalis Invasion into Oral Epithelial Cells

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited

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Comparison of local anesthetics in mandibular posterior teeth with irreversible pulpitis

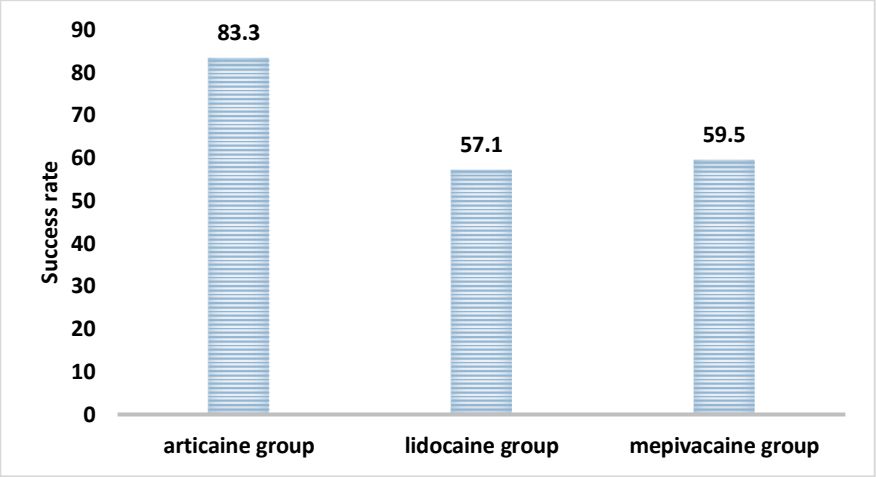
Irreversible pulpitis is an infuriating medical condition that involves spontaneous and impulsive pain Providing effective pain control is an important prerequisite of endodontic treatment. Inferior alveolar nerve block (IANB) is one of the most commonly employed techniques for achieving pulpal anaesthesia during treatment of mandibular posterior teeth. However, its failure rate was estimated to range from 43% to 83%, necessitating supplementary injections. Buccal infiltration (BI) is a simple supplementary technique that could increase the success rate. In addition, it is less destructive to periodontal ligament and avoids bacteraemia. Articaine, lidocaine and mepivacaine are the most frequently used local anaesthetic formulations in clinical dentistry. Although several trials have been conducted to compare the efficacy of supplemental BI with articaine versus with lidocaine after an IANB in mandibular molar with irreversible pulpitis, their conclusions are somewhat controversial. In addition, there is no study comparing articaine or lidocaine with mepivacaine in patients with irreversible pulpitis.

Articaine as a supplemental BI following IANB is a more successful anaesthetic agent.

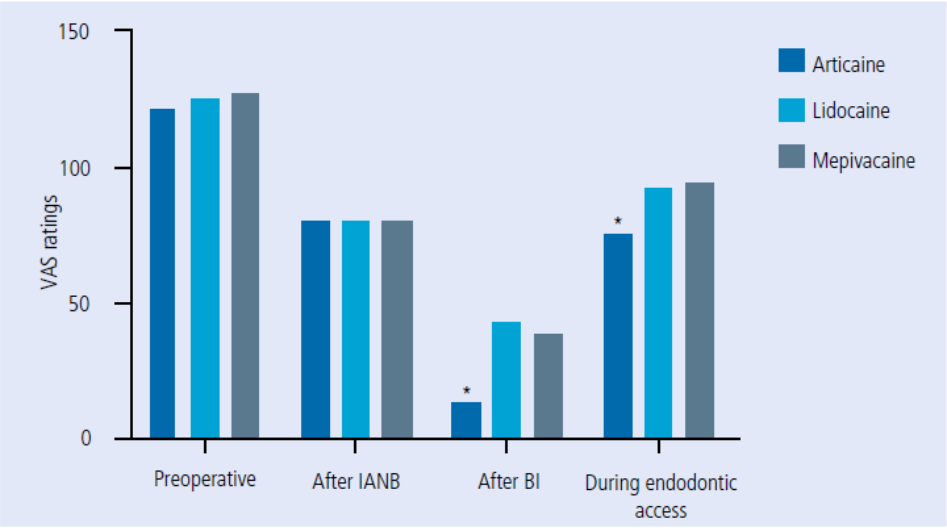
The present study aims to compare the anaesthetic efficacy of 4% articaine, 2% lidocaine and 2% mepivacaine, all in combination with 1:100,000 adrenaline, for BI following lidocaine IANB in mandibular posterior teeth with irreversible pulpitis. This prospective, randomised clinical study was conducted on adult patients (18 years or older) with irreversible pulpitis in mandibular posterior teeth.

Patients with irreversible pulpitis in mandibular posterior teeth and unsuccessful IANB were randomly assigned to three groups: articaine group (n = 52), lidocaine group (n = 52) and mepivacaine group (n = 52). They were instructed to rate the pain experienced at four phases (before the injection, after IANB, after BI and during endodontic access) on a Heft-Parker visual analogue scale (VAS). Success was defined as the ability to access and instrument the tooth with no pain or mild pain (VAS rating ≤54 mm) after BI.

The success rate was significantly higher in the articaine group (83.3%), compared with that in the lidocaine group (57.1%) and mepivacaine group (59.5%) P <0.01 .



Multivariate logistic regression analysis showed that articaine was associated with a higher success rate compared with lidocaine (OR = 3.89, 95% CI: 1.35–11.27; P = 0.02) and mepivacaine (OR = 3.67, 95% CI: 1.24–9.75; P = 0.01), after controlling for age, gender and initial pain. VAS ratings were significantly lower in the articaine group compared with those in the lidocaine group and mepivacaine group after BI and during endodontic access (P <0.01).



A supplemental BI with articaine following IANB can be considered a more successful anaesthetic agent in mandibular posterior teeth with irreversible pulpitis compared with lidocaine and mepivacaine.

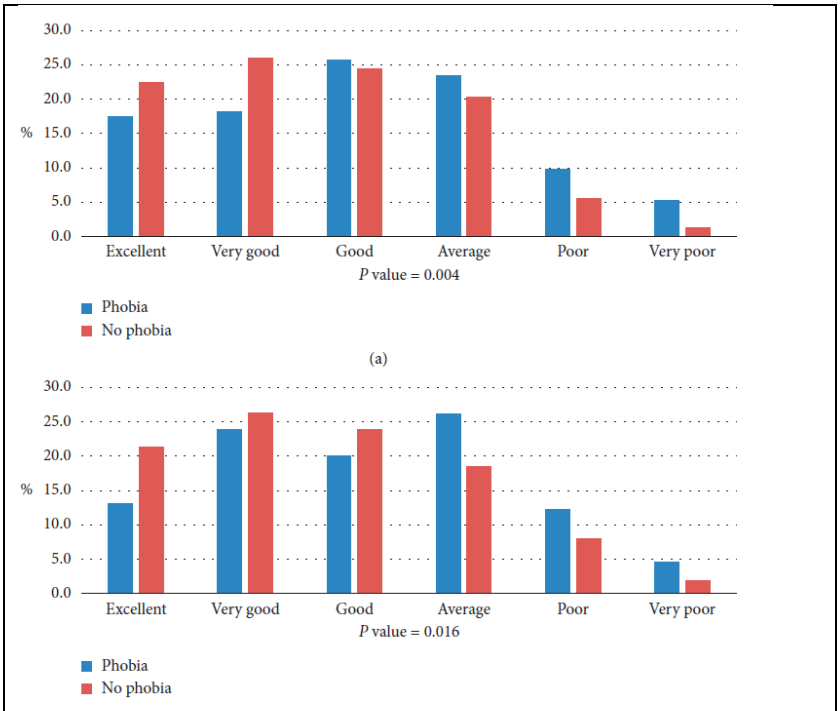
Source: Gao X, et al. Br Dent J. 2020;228(8):605-608. doi:10.1038/s41415-020-1434-9

Dental Phobia among Pregnant Women: Considerations for Healthcare Professionals

Pregnant women are at increased risk of gingivitis, periodontitis, tooth mobility, pregnancy oral tumor, caries, and enamel erosions. Pregnant women suffer from high burden of oral diseases, yet dental phobia, a common barrier to dental care and frequently undetected condition, is least explored. Therefore, there was a need to investigate the prevalence of dental phobia and the underlying factors in pregnant women. &e identification of patients with dental phobia and awareness of its associated factors can help healthcare professionals improve the oral health of pregnant women. &e study aimed to evaluate dental phobia and factors associated with it among pregnant women.

The bad dental experience was associated with increased dental phobia..

This cross-sectional study included pregnant women visiting hospitals. The Modified Dental Anxiety Scale (MDAS) was used to assess dental anxiety and phobia. &e score of MDAS ranges from 5 to 25, and a cutoff value of 19 was used to identify participants with dental phobia. The study analyzed data of 825 participants with mean age of 29.08 ± 5.18 years. The prevalence of dental phobia was 16.1%. About 46.9% of the sample believed that dental treatment should be avoided during pregnancy, and the importance of regular dental checkup was recognized by 16.4% of the participants. Dental phobia was associated with the perception of the health of teeth (P 0.004) and gums (P 0.016).



Self-perceived oral health among pregnant women with and without dental phobia. (a) Perception about health of teeth among pregnant women with and without dental phobia. (b) Perception about health of gums among pregnant women with and without dental phobia.

Multiple logistic regression showed that being under the age of 30 years (OR 0.63, P 0.019) and updating knowledge about oral health (OR 0.49, P 0.006) were significantly associated with reduced likelihood of dental phobia. However, having bad dental experience (OR 2.13, P 0.001) and being in first trimester of pregnancy (OR 1.57, P 0.033) were significantly associated with increased odds of dental phobia. A considerable proportion of pregnant women reported dental phobia. The bad dental experience was associated with increased dental phobia. However, reduced likelihood of dental phobia was associated with updating oral health knowledge. Healthcare professionals may consider these factors to reduce dental phobia and improve oral health of pregnant women.

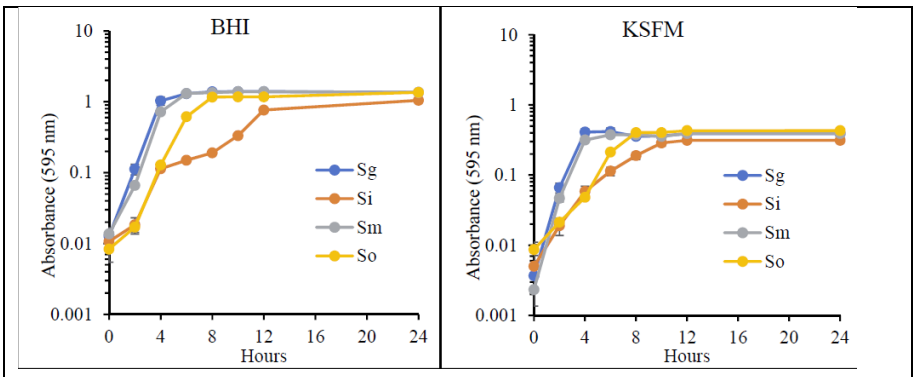
Source: Nazir M et al. Int J Dentistry. 2020. ID 4156165: 1-7

Effects of Oral Commensal Streptococci on Porphyromonas gingivalis Invasion into Oral Epithelial Cells

Periodontal disease (PD) is an oral inflammatory condition induced by the diffusion of bacteria into the epithelium surrounding the tooth. PD affects 47.2% of adults over the age of 30 in some capacity, and approximately 70.1% of adults 65 years of age and older have a form of PD.

Commensal species bind to host cells and diminish P. gingivalis invasion.

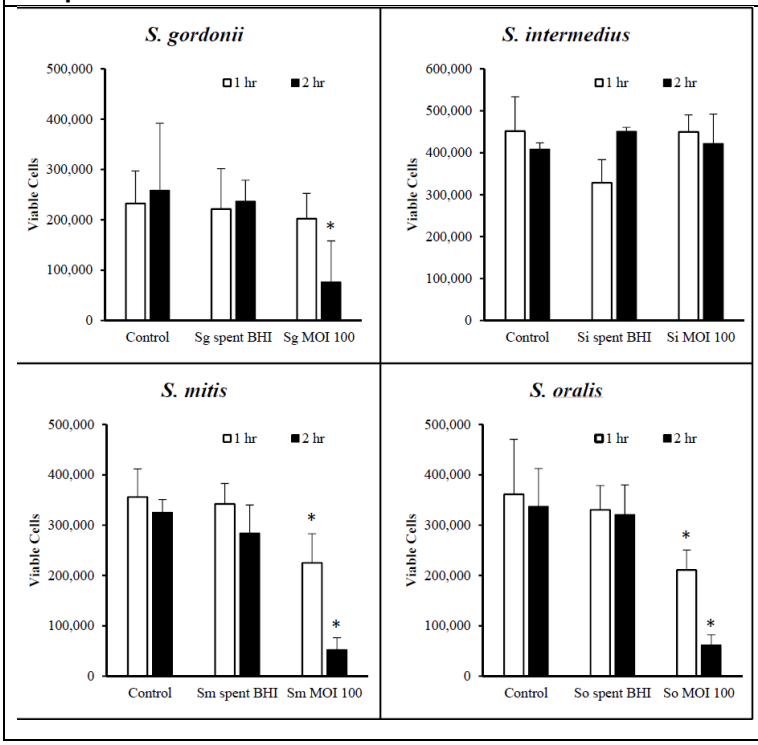
The objective of this study was to determine if the interaction between common oral commensal bacteria and oral epithelial cells would provide protective effects against the invasion of periodonto pathogen Porphyromonas gingivalis. Oral epithelial OKF6/Tert cells were used in cocultures with Streptococcus gordonii, Streptococcus oralis, Streptococcus mitis, and



Growth of commensal bacteria in Brain Heart Infusion Broth (BHI) and Keratinocyte Serum-Free Growth Medium (KSFM). S. gordonii (Sg), S. intermedius (Si), S. mitis (Sm) and S. oralis (So) were grown in KSFM and BHI. Absorbance was measured at indicated time-points (n = 3).

Streptococcus intermedius. The viability of OKF6/Tert cells following a bacterial challenge was evaluated by trypan blue exclusion. The adherence of commensal species was determined by CFU counts. P. gingivalis invasion in OKF6/Tert cells was assessed before and after exposure to commensal species according to CFU counts. Viability assays show that only S. gordonii and S. intermedius display low toxicity toward OKF6/Tert cells. Both commensals adhere to OKF6/Tert cells at an average ratio of 1 CFU to 10 cells. P. gingivalis invasion into host cells is significantly reduced by 25% or 60% after exposure to S. gordonii or S. intermedius, respectively. The results suggest that these commensal species bind to host cells and diminish P. gingivalis invasion. This is important in the context of periodontal disease since P. gingivalis primarily acts on the host by invading it. Therefore, efforts to decrease invasion will eventually lead to future therapies harnessing the mechanisms employed by oral commensal bacteria.

Viability of OKF6/Tert cells following exposure to commensal streptococci.



Source: Hanel AN Dent. J. 2020, 8, 39; doi:10.3390/dj8020039