The gag reflex is a normal healthy physiologic mechanism that prevents foreign objects or noxious material from entering the pharynx, larynx, or trachea. The reflex is triggered when the region of the soft palate or the posterior third of the tongue is stimulated. Impression taking can be very annoying to patients when the gag reflex is triggered. Several methods have been introduced to help both the patient and the dental practitioner during this dental procedure. These methods include local or general anesthesia, inhalation sedation using nitrous oxide, psychologic and behavior management procedures, mechanical prevention technique, hand pressure point and acupuncture, barbiturates to depress the central nervous system, antihistamines to reduce the feeling of sickness, and parasympathetic depressants to reduce the salivation. Finally, a method using table salt spread for 5 seconds on the tip of the tongue appears to eliminate the gag reflex. The idea seems interesting and easy, but no clinical trial was published to support this theory. The aim of this pilot study was to compare two methods for reducing gagging induced by stimulation of the soft palate: table salt and nitrous oxide inhalation sedation.

Materials and Methods: Fifteen healthy volunteers, eight men and seven women with a mean age of 20.6 years, were subjected to a gagging event three times using a large tablespoon to stimulate the soft palate: event 1 = spoon alone, event 2 = spoon and table salt on the tip of the tongue with a 30-minute break between events 1 and 2, and event 3 = spoon and nitrous oxide sedation on another day. Time in seconds was measured from the moment the spoon touched the soft palate until gagging was felt using a chronometer held by the subject. Results: The mean time for eliciting the gagging reaction was 7.7 seconds for the spoon alone, 8.9 seconds for the spoon and table salt, and 24.0 seconds for the nitrous oxide sedation. Nitrous oxide inhalation sedation significantly (P < .001) reduced the gagging/retching reaction, whereas there was no significant time difference in gagging reaction between stimulation with the spoon alone or when table salt was added. Conclusion: Within the limits of this study, table salt did not seem to reduce the time to triggering the gag reflex, whereas nitrous oxide had a substantial effect. Int J Prosthodont 2001;14:364–366.

Purpose: The objective of this study was to compare two methods for reducing gagging induced by stimulation of the soft palate: table salt and nitrous oxide inhalation sedation.

Materials and Methods: Fifteen healthy volunteers, eight men and seven women aged 19 to 22 years, mean age 20.6 years, with no previous history of gagging problems agreed to participate in this pilot study. The study was approved by the Institutional Review Board. The gagging event was three times using a large tablespoon to stimulate the soft palate: event 1 = spoon alone, event 2 = spoon and table salt on the tip of the tongue with a 30-minute break between events 1 and 2, and event 3 = spoon and nitrous oxide sedation on another day. Time in seconds was measured from the moment the spoon touched the soft palate until gagging was felt using a chronometer held by the subject. Results: The mean time for eliciting the gagging reaction was 7.7 seconds for the spoon alone, 8.9 seconds for the spoon and table salt, and 24.0 seconds for the nitrous oxide sedation. Nitrous oxide inhalation sedation significantly (P < .001) reduced the gagging/retching reaction, whereas there was no significant time difference in gagging reaction between stimulation with the spoon alone or when table salt was added. Conclusion: Within the limits of this study, table salt did not seem to reduce the time to triggering the gag reflex, whereas nitrous oxide had a substantial effect.
to participate in the study. Each subject was subjected to a gagging event three times using a large tablespoon to stimulate the soft palate. Time in seconds was measured from the moment the spoon touched the soft palate until gagging was felt using a chronometer held by the subject. In the first event, the gag reflex was triggered using the spoon alone without salting the tongue or using inhalation sedation. This procedure was performed on all subjects. A break of 30 minutes separated this event from the second one. During the second phase, the gag reflex was triggered using the same protocol, but this time table salt was spread on the tip of the tongue of each subject 5 seconds before starting the gagging experiment. The final part of the experiment, the third event, was run 2 days later with the same protocol, except that the subjects were under nitrous oxide inhalation sedation before starting stimulation of the gag reflex. Inhalation sedation was given following international standards regulations.13

The data from the three events—spoon alone (group 1), spoon and table salt (group 2), and spoon and nitrous oxide (group 3)—were analyzed statistically by means of the paired t test.

Results

The first experimental event with the spoon alone (group 1) was taken as a control group, and time in seconds needed to trigger the reaction gave the basic value of comparison, mean time 7.7 seconds. These results were compared to the spoon and table salt (group 2), mean time 8.9 seconds, and to the spoon and nitrous oxide (group 3), mean time 24.0 seconds. Using nitrous oxide prolonged the gag reflex about three times in comparison with the first two experiments (group 3) to stimulation with the spoon alone (group 1) or stimulation with spoon and table salt (group 2), the differences were highly significant (P < .001; Table 1). The difference between means of paired samples using the t test was not significant between groups 1 and 2 (P > .2), while the difference between groups 3 and 1 was significant (P < .001).

Discussion

Although the gag reflex is a physiologic protective reflex, it can become very disturbing to some patients and cause dental fear.14 These patients are sensitive to a broader variety of stimuli and show precursors and aftereffects of retching/vomiting that are not found in the normal population.14

For this reason, the sample was restricted to a normal population, enabling us to test the efficiency of the two methods. It has been suggested that table salt depresses the gag reflex by a superimposed simultaneous stimulation of the chorda tympani branches to the taste buds in the anterior two thirds of the tongue.12 This could not be verified in our study in healthy subjects.

The use of nitrous oxide to reduce gagging requires special equipment in the practice, and it is well known that inhalation sedation alleviates dental anxiety and reduces dental pain.13 On the other hand, the dentist phobia syndrome, with the exaggerated gagging pathologic reflex, is the symptom of different psychopathologic processes such as specific fear, repugnance/fear-based disturbances, diffuse anxiety, goal-directed behavior, depressive states, and visceral pathology.14 It is therefore most probable that the relief of anxiety by inhalation sedation can also decrease gagging. In comparing the effects of using nitrous oxide when stimulating the soft palate (group 3) to stimulation with the spoon alone (group 1) or stimulation with spoon and table salt (group 2), the differences were highly significant (P < .001), meaning that nitrous oxide is highly effective in reducing the gag reflex. These results are in line with commonly accepted statements.13

However, the table salt method may have a psychologic effect on patients with the dentist phobia syndrome. It would seem interesting to do further research on these patients and to include another group of patients with gagging problems. Within the limits of the study, table salt did not seem to extend the time to triggering the gag reflex in a normal healthy population, whereas nitrous oxide had a significant effect.

References

Chidiac et al


Literature Abstract

Early implant failures in patients treated with Brånemark system titanium dental implants: A retrospective study.

The aim of this study was to identify various explanatory factors associated with early titanium implant failure. All 43 patients with failing and nonosseointegrated implants at the stage two surgery during the years 1992 to 1997 at a Swedish implant center were invited to participate. Three patients declined participation, resulting in a sample size of 40 subjects. A gender- and age-matched control group of 40 subjects with long-term successfully integrated implants was identified and included. All generally used variables, including bone quantity and quality, were noted. In addition, a venous blood sample was collected from the participants for analyses of antibody avidity scores for Bacteroides forsythus and antibody titer to Streptococcus aureus. A multivariate regression analysis with implant outcome as the dependent variable revealed highly significant associations with both the avidity scores for B. forsythus (P < .0001) and the antibody titer to S. aureus (P < .001), and a significant association with the bone shape and resorption (BDR) score (P < .05), but not with other variables such as bone quality score, initial implant stability, etc. The authors conclude that immunologic factors are involved in osseointegration. The result of the present study may, in this reviewer’s opinion, even open up a paradigm shift in the understanding of early implant failures.


References: 37. Reprints: Dr Mats Kronström, Department of Prosthetic Dentistry, Central Hospital, SE-54185 Skövde, Sweden. e-mail: mats.kronstrom@vgregion.se—SP