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Mats Mehrstedt, D.M.D.

Horner Landstr. 173

22111 Hamburg, Germany

Hypnosis and Dentistry

Ilana Eli and
Moris Kleinhaus

■ In dentistry, hypnosis has numerous potential applications, which include treating patients who suffer from dental fear, anxiety and phobia, excessive gagging reflex, managing acute and chronic pain, increasing patient's compliance with dental hygiene, and enhancing patient's adaptation to dentures. In the hands of a trained professional, hypnosis is a potent medical tool. It is the authors' belief that incorporating hypnosis in dental care is beneficial to both dentist and patient and enables better comprehensive dental care to the population.

In spite of its ancient roots, hypnosis has been accepted only recently as a scientific and medical tool. It has been surrounded by myths and mystery for so long that even today various popular misconceptions regarding hypnosis exist. There is no doubt that hypnosis is a powerful therapeutic tool. Over 1000 articles have been published in the scientific literature during 1982 to 1985 concerning hypnosis (Nash, 1988). This indicates an enduring willingness on the part of the scientific community to accept hypnosis as a legitimate topic for clinical and research investigation. Hypnotherapy has been viewed as „a process whereby we help people utilize their own mental associations, memories and life potentials to achieve their own therapeutic goals“ (Erickson & Rossi, 1979), a definition appropriate to cover the use of hypnosis in psychotherapy, as well as in other fields of medical treatment, such as dentistry. The present article summarizes the various aspects of hypnosis as a therapeutic tool in the dental setting.

The application of hypnosis in dental care

Treatment of dental fear, anxiety and phobia

An important use of hypnosis in dentistry is to alleviate fear, anxiety and phobia. Although relatively little research has been conducted in this field, an increasing number of theoretical and clinical reports have been published concerning this issue. In the early 1970s, several relevant cases were reported. Golan (1971) described a woman who was generally „frightened to death“ of dental treatment but had an urgent need for dental care (acute alveolar abscess in one of her few remaining teeth). Hypnosis was

used to reduce the patient's anxiety and eventually the necessary treatment was performed. The procedures used by Golan made no attempt to investigate the roots of the anxiety and were based mainly on relaxation, positive reinforcement during treatment and post-hypnotic suggestions regarding future treatments. In a later report (Golan, 1975) a case was described in which hypnosis was effective in the treatment of a specific dental fear (the fear of the noise of the dental drill).

Since these reports, a growing number of investigators have suggested the use of hypnosis to treat different variants of dental fear, anxiety or phobia (Penzer, 1972; Bar-Gil, Eli & Kleinhaus, 1983; Eli, Kleinhaus & Bar-Gil, 1983; Kleinhaus, Eli & Rubinstein, 1985; Gerschman, Burrows & Reade, 1987; Forgione, 1988; Waxman, 1989; Manusov, 1990; Rodolfa, Kraft & Reilley, 1990). Reports include patients who generally fear of the dentist or have particular fears, such as fear of extraction, suffocation, sound of the drill, needle, etc. In most cases, hypnosis can play a major role in administering techniques and treatment modalities, i.e., such as behavior therapy (mainly desensitization), psychodynamically oriented therapy, relaxation and suggestive techniques (Kleinhaus et al., 1985).

Treatment of extensive gagging reflex

The gag reflex is normally activated when there is an immediate need to protect the airway and to remove noxious stimuli from the gastrointestinal tract. In certain individuals, however, the reflex is so exaggerated that it becomes an enormous obstacle to even simple routine dental procedures. Some of these patients manifest the reflex only in the dental situation; for others, it is a general problem, where the patient cannot tolerate any foreign object in the mouth.

Gagging problems may be caused by somatogenic factors or psychogenic factors, or both (Krol, 1963; Means & Flennikin, 1970). Kramer and Braham (1977) suggest that physiological causes involve both the biomechanical aspect of the dentures (poor retention, insufficient posterior palatal seal, hypersensitive soft palate, etc.) and tactile, visual, acoustic, or olfactory stimuli related to impression taking. Psychogenic causes may include fear, anxiety and apprehension, or may result from psychological bludgeoning in childhood, where the dentist is portrayed as an evil person who hurts and is threatened as punishment. Although, in some patients, gagging is believed to be a manifestation of an underlying neurosis (Savage & MacGregor, 1970) or a deep-seated personality disorder (Levine, 1960). Wright (1980) could find no supporting evidence for this in a personality examination of 53 gaggers.

Various treatment modalities for the psychogenic chronic gagger have been described: premedication with barbiturates, nitrous oxide, etc. (Rothschild, 1959); the use of drugs which selectively depress the parasympathetic portion of the autonomic nervous system (Appleby & Day, 1956; Schole, 1959; Jaffre, 1964; Kramer & Braham, 1977); posterior palatal injection of local anesthetic agents (Means & Flennikin, 1970); and topical anesthetic applied to the palate and dorsum of the tongue (Savage & MacGregor, 1970).

The importance of suggestion (Kramer & Braham, 1977) and positive reinforcement (Murphy, 1979), and the combination of suggestion with hypnorelaxation (Sector, 1961) have been described. Hypnotherapy has also been proven to be effective in reducing the gag reflex (Savage & MacGregor, 1970; Penzer, 1972; Weyandt, 1972; Singer, 1975; Moss, 1977; Murphy, 1979; Rootenberg, 1979; Eli, Kleinhaus & Bar-Gil, 1984; Morse, Hancock & Cohen, 1984a; Eli & Kleinhaus, 1985; Clarke & Persichetti, 1988; Waxman, 1989). This includes the use of hypnosis in association with systematic desensitization.

In a previous report, Eli and Kleinhaus (1985) described several cases where hypnosis was used to alleviate gagging in dental patients. In two of the patients, gagging was identified as a learned avoidance reaction, originating from former aversive encounters with treatment. Dental treatment is generally considered to be unpleasant and may involve pain. In patients with adequate personality backgrounds, the traumatic experience may be so intense that it triggers an avoidance reaction towards any treatment. If this first traumatic situation becomes associated with a gagging response, the patient may use this response in the future as a way to avoid treatment without admitting fear and anxiety, even to him/herself. Typically, these patients are highly motivated, but their gagging reflects the non-verbal message that although they want to be treated, they are too anxious to receive it. This group could be considered good candidates for behavioral treatment, such as *in vivo* desensitization. The authors used hypnosis as a tool to achieve deep relaxation and to carry out a process of systematic desensitization, *in vivo* at the dental office.

In two other patients, the symptomatic gagging was identified as a defense mechanism which served as an inadequate solution to a deep-seated psychodynamic conflict. In one patient the conflict was of a sexual nature in which intrusion of dental instruments into the mouth had a symbolic oral-sexual meaning that reacted unconscious conflicts of forceful unwelcomed intrusion. Since the patient was undergoing psychotherapy, this area was not explored, but instead the authors tried to „split“ the patient's psychodynamic conflicts from the gagging symptom. For this purpose, indirect suggestive proceedings were mobilized and a suggestive, matter-of-fact attitude was used to imply that the gagging could be separated from the possible psychodynamic conflicts which would continue to be treated by the therapist. Thus, the patient could be safe to cope with her dental care without any threat to her psychological integrity.

The other patient had a dynamic, deep-rooted dependence-independence conflict with possible unresolved castration fears. Dental treatment for this patient implied helplessness in the face of an assault on his physical self. Whether or not the remembered treatment incident occurred exactly as the patient described, it certainly was a traumatic experience, being a definite threat to the independent „macho“ image he wished to defend. Gagging protected his personality by precluding any dental intrusion. Such deep-rooted conflicts require a dynamic psychotherapeutic approach together with any attempt at symptom removal. Even if successful, alleviation of the symptom would not

be long-lasting unless the personality needs are addressed. Since the patient came to the clinic with a specific need for dental treatment, no attempt was made to use hypnosis for psychotherapy. However, our psychodynamic understanding served as a background in shaping the staff's behavior towards the patient and in constructing the treatment strategy. It was necessary to avoid or neutralize any action that could trigger and manifest a latent conflictual situation. The understanding of the patient's castration fears and the "macho" self-image need, modulated the staff's attitude towards the patient. A totally permissive atmosphere was developed and any confrontation with the patient was avoided to prevent an authoritative approach that could interfere with the patient's emotional needs. This approach also supplied the patient with the opportunity for partial emotional re-education with regard to authoritative figures.

Hypnosis was used in these patients only as a tool to achieve deep relaxation together with the use of suggestive procedures which attempted to "split" the psychodynamic conflicts from the gagging symptom. This implied that gagging could be separated from the psychodynamic conflict. The suggestions allowed the patients to feel "safe" and to cope with the dental treatment without having their psychological integrity threatened.

Pain management

The use of hypnosis for anesthetic purposes dates back to the 19th Century and is attributed to Recamier in 1821. Hypnosis was used by Cloquet in 1829 to perform a mastectomy on a 69-year-old woman. The earliest use of hypnosis as an anesthetic agent in dentistry is attributed to Oudet who, in 1837, extracted a tooth from a hypnotized patient (Rosen, 1953). From 1836-1844, West, Brownell, Esten and Barret extracted teeth in patients who were under hypnosis (Gravitz, 1988) and in 1847, Ribaud and Kiario removed a tumor from a man's jaw under hypnotic anesthesia (Bernheim, 1964).

Many reports regarding the use of hypnosis in the dental setting describe its dramatic effect when used as a sole anesthetic. Hilgard and Hilgard (1975) summarized several case reports in which dental procedures were performed under hypnosis, without other anesthetic agents. These include extractions, pulpotomies and pulpectomies. The cases cover a wide age-range, from 4 years up to 65 years. Others present the use of hypnosis in endodontics (Morse, 1975, 1976; Morse & Wilcko, 1979) and other dental treatment procedures (Chen, Dworkin & Bloomquist, 1981; Kleinhauz et al., 1985; Waxman, 1989) to allow treatment without stress or pain. The use of hypnosis to induce local anesthesia is especially effective in patients with specific fears of the dental syringe, needle, or injections (Bernick, 1972) and in treating patients with true (or suspected) hypersensitivity to local anesthetic agents (Morse, Shoor & Cohen, 1984b).

Occasionally a patient presents his/her dentist with a history of hypersensitivity to local anesthetic agents. The symptoms may include immediate reactions to the injection procedure (dizziness, shortness of breath, tachycardia, etc.), or delayed reactions to the anesthetic (swelling, urticaria, etc.). Although the true incidence of local anesthetic all-

ergy is low, such a history often involves the patient's anxiety regarding the use of the drug in question, and the dentist's apprehension to treat the "problematic" patient. In such cases, hypnosis can play a major role in controlling pain and the associated distress.

In many cases, adverse reactions to local anesthetic are psychogenic in nature. Fear of injection or of dental treatment in general, may lead to some of the most frightening "allergic" reactions - tachycardia and vasodepressor syncope. Even patients with a former diagnosis of allergy may not be allergic at all (Aldrete & Johnson, 1970; deShazo & Nelson, 1979; Babajews & Ivanyi, 1982; Milam, Giovannitti & Bright, 1983; Fiset, Milgrom, Weinstein, Getz, & Glassman, 1985; Assem & Punmia-Moorthy, 1988; Doyle & Goepferd, 1989). Patients frightened by the use of local or general anesthesia, or those diagnosed as allergic may suffer from severe adverse consequences. Patients correctly or incorrectly labeled as "allergic" tend to postpone routine treatment until pain is intolerable, causing deterioration of their dental condition (Doyle & Goepferd, 1989). Thus, hypnosis may be used as an efficient tool to induce analgesia/anesthesia and to enable routine dental care. Generally, the hypnotic response in such patients is easily achieved because of the patient's high motivation and because the method is solely used to achieve analgesia. Consequently, patients do not expect any "psychological" intervention and, therefore, have less need to mobilize psychologic defenses (Kleinhauz & Eli, 1993).

Besides its role in the management of acute pain during dental treatment, hypnosis can also be used to manage conditions which involve prolonged chronic pain, such as temporomandibular pain and dysfunction syndrome, atypical odontalgia, or glossodynia. In some of these patients, the pain syndrome is initiated by destructive habits, such as bruxism (Rugh, 1983; Rugh & Lemke, 1984; Rugh & Ohrbach, 1988). The use of hypnosis has been suggested as a tool to eliminate such habits and to reduce the pain syndrome (Graham, 1974; Crasileck & Hall, 1975; Moss, 1977; Golan, 1989).

Hypnosis has been used to manage chronic pain in various medical settings (Hilgard & Hilgard, 1975; Waxman, 1989) and to relieve symptoms of benign chronic orofacial pain not necessarily associated with destructive habits. It can be used, not only to remove the presenting symptoms, but also to address various aspects of the pain experience (anxiety, depression, low self-esteem, sick role behavior, learned helplessness and pain games). Ultimately, it can increase the patient's ability to accept and cope with the pain and to accept responsibility for personal progress (Finer, 1980).

Adaptation to dentures

Occasionally, the patient's adaptation to full or partial dentures leads to unexpected problems. Some find it hard to adapt emotionally to the new situation and the dentist is presented with a problem that is difficult to handle. Hypnosis has been suggested as a possible treatment mode for these patients (Kleinhauz et al., 1985; Waxman, 1989). This can be accomplished by positive suggestions as to the patient's ability to tolerate the denture, and/or suggestions to increase his/her motivation for the required cooperation.

Control of hemorrhage and salivary flow

Proper administration of hypnotic suggestions can be useful in reducing hemorrhage and/or salivary flow during dental treatment (Lucas, Finkelman & Tocantis, 1962; Lucas & Tocantis, 1964; Golan, 1971; Newman, 1971; Moss, 1977). For example, a clinical case was described in which both hemorrhage and salivary flow were reduced during dental treatment where hypnosis was used as the only anesthetic agent (Morse & Wilcko, 1979).

Treatment of syncope

Hypnosis can be used to facilitate treatment in patients who faint in the dental chair (usually during the administration of local anesthesia) (Penzer, 1972; Waxman, 1989). In one report (Penzer, 1972), a patient was described who had always fainted when given any injection. When the patient was treated under hypnosis, no injection was necessary and the patient cooperated completely. In treating these patients, the role of hypnosis is twofold: it serves as a method of local anesthesia without the necessity of using injections, and it reduces anxiety which is often the main cause for the syncope.

Other applications

Since the very essence of hypnosis is based on a positive interpersonal relationship between patient and hypnotist, and on an increased suggestibility and rapport on the part of the patient, these phenomena may be used to increase cooperation in various aspects of dental care. Golan (1975) for example, suggested the use of hypnosis as a tool to increase patient cooperation on matters such as prophylaxis care and follow-up visits. Apparently, positive motivation for the required behavior can be achieved through suggestions by which the patient imagines how good she/he will look with properly cared for teeth. Some evidence as to the efficiency of hypnosis in promoting patients' compliance with routine dental flossing is presented by Kelly and colleagues (Kelly, McKinty & Carr, 1988).

Protocol for hypnosis induction

The following protocol was suggested by Kleinhaus and Eli (1993):

1. *Patient evaluation:* Careful history taking is essential to elicit previous traumatic experiences concerning dental treatment and to deal with the patient's fears and related anxieties. Dental evaluation should provide an accurate treatment plan and pertinent information to the patient.
2. *Interpersonal patient/doctor relationship:* A positive interpersonal relationship between patient and dentist is essential, especially when hypnosis is involved. Proper interpersonal relationship leads to mutual trust, a crucial factor in situations where hypnotic techniques are used. Lack of trust enhances feelings of helplessness and increa-

ses the patient's resistance to hypnotic induction. To establish proper interpersonal relationships, it is the dentist's responsibility to be attentive, to show understanding, and to accept the real messages of the patient, beyond the limits of the apparently clear verbal communication. While verbal communication generally implies sharing cognitive tasks and problems, the non-verbal aspects of the conversation have a greater impact on the emotional aspect of the relationship. Emotions, such as friendliness, assertiveness and dominance, are reported to depend more on non-verbal than verbal behavior. To create a proper relaxed atmosphere even the architectural features of the dentist's office can convey many messages. Decor, color design, illumination, wall pictures, background music, all contribute to create the general atmosphere.

3. *Preparation of the patient for induction of hypnosis:* Brief and explicit information about the general principles involved in hypnosis should be provided to the patient. This should conform to the patient's age and his/her intellectual development and background. Misconceptions about hypnosis are frequent in the non-professional community. Any distorted knowledge should be properly neutralized by providing pertinent information to the patient to avoid potential complications and to enhance the patient's responsiveness to hypnosis. Past experiences involving hypnosis and the patient's reactions and feelings on those occasions should be recorded in detail. Thus, it is possible to avoid pitfalls or to use this information in the processes of induction and treatment.

4. *Induction of hypnosis:* Hypnotic response can be achieved through conventional methods of induction described in the hypnotic scientific literature. In the dental setting, the dentist's mirror can be used as a fixation device for a standard „eye-fixation“ induction technique. Another common induction technique is the „arm levitation technique“. In all cases the technique and course of hypnotic induction should be adapted to the patient's psychologic needs.

Occasionally, failure to achieve hypnotic induction can occur due to the patient's need for mastery and consequent fear of losing control during the hypnotic process. For these patients, a „self-control“ induction method is of value. A signal is selected which can be used volitionally by the patient when the need to end hypnosis arises. The patient is trained to use this signal during induction of hypnosis. Only when the patient is confident in his ability to retain mastery can the dentist continue with routine procedures (Kleinhaus & Eli, 1991).

At all times of the hypnotic intervention, it is important to agree on a signal in case of discomfort (e.g., raising one hand). This allows the dentist to pause and reinforce suggestions when necessary. It is recommended to continue verbal contact with the patient during the entire episode with suggestions directed toward continuation of the hypnotic effect(s).

To facilitate future treatments and to avoid dependency on one specific dentist, it is advisable to teach the patient self-hypnosis. The technique enables the patient to reach proper hypnotic depth with no outside guidance. However, strict suggestions and instructions should be given to limit the use of the technique for medical interventions only.

Caution in the use of hypnosis

Hypnosis is a powerful medical tool and, as such, should be used with knowledge and care. Special training and, in some countries, a special licence is required. When improperly used, hypnosis may carry adverse deleterious effects.

Several potential complications may take place following hypnotic procedures (Meares, 1961; Kleinhaus, Dreyfuss, Beran, Goldberg & Azikri, 1979; Kleinhaus & Beran, 1981, 1984; Kleinhaus & Eli, 1987). Complications from hypnosis are rather rare in the dental setting since the patient's encounter is usually episodic and used merely as a technique to ease discomfort (Orne, 1965). While this is true when the technique is only used to obtain local anesthesia, occasionally the dentist may face a patient who seeks non-dental applications of hypnosis, such as antismoking suggestions (Kleinhaus & Eli, 1987). Such an intervention would be a deviation from the original "contract" between patient and dentist and may lead to unexpected problems.

Kleinhaus and Eli (1987) present several cases of potential deleterious effects of hypnosis carried out in the dental setting, which originated from problems, such as improper use of suggestive procedures, improper handling of spontaneous reactions, faulty dehypnotization, and lack of adequate psychodynamic knowledge by the hypnotist. Several safeguards are proposed when using hypnosis in the clinical setting:

1. The professional should not stray from his area of expertise.
2. The clinician should have basic psychological and psychopathological training to be able to identify, assess and cope with possible psychological reactions during the hypnotic intervention.
3. Attention should be given to the wording used in the suggestive procedures, taking into consideration their possible literal interpretation by the patient.
4. Generally, a permissive technique is preferable.
5. Special attention and reassurance should be noted for proper completion of the dehypnotization procedures.
6. Psychological services should be available in case of need.

Although the technique of hypnosis is relatively easy to learn and complications of hypnosis in the dental setting occur very rarely, the entire process can involve complex psychodynamic processes. A hypnotist who lacks proper training in the use of hypnosis may encounter different deleterious effects. Awareness of possible complications and compliance with the suggested safeguards will decrease the possibility of complications and increase the safety in the use of hypnosis in dentistry.

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Ilana Eli, D.M.D.

Dept. of Occlusion and Behavioral Sciences

School of Dental Medicine

Tel Aviv University

Tel Aviv, Israel

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