Clinical hypnosis (from the Greek hypnos – sleep) is a form of psychotherapy which may be defined as hyper-suggestibility in an altered state of awareness (trance-like state that resembles sleep) which is induced by a person whose suggestions are readily accepted by the patient in unconscious responses. This technique is used for medical purposes to relieve anxiety or otherwise improve or alter behavior. It is a part of healing procedures used from ancient times of Babylonians, Egyptians and Greeks. Accounts about hypnosis may be found in the Bible and the Hindu Vedas written about 1500 B.C. [1]. Modern hypnosis began in the eighteenth century with studies performed by Mesmer, who, in 1775, developed healing procedure known as “animal magnetism” or mesmerism, which was later renamed hypnosis [2]. In the past 50 years, hypnosis has experienced a resurgence, first with physicians and dentists and more recently with psychologists and other mental health professionals. Today, it is widely used for treating addictions, such as smoking or drug use, for pain controls, and for phobias, such as dental phobias. Hypnosis may be used either independently or as an adjunct option with other forms of treatment, including the management of pain, reduction of...
bleeding in hemophiliacs, stabilization of blood sugar in diabetics, reduction in severity of attacks of asthma, the cure of verucca, relieving pain in cases of skin burn, and control of reaction to allergies such as poison ivy and certain foods [2, 3].

The use of hypnosis in dentistry has a long history. The first documentation of hypnotism in dentistry goes as far back as 1763, and it describes the use of “magnetism” for curing dental pain [4]. In 1837, Oudet, a French dentist, used hypnoanesthesia for a dental extraction—one of the first reported cases [5, 6]. The first publication in Germany about tooth extraction under hypnoanesthesia can be found in the book of Pfeffermann “Description of the whole dentistry” [7]. In this book, the author dedicates one chapter the theme “anesthesia through hypnotism”. At the start of the 20th century, the primary focus of hypnosis was on alleviating pain, but since then the indication spectrum for hypnosis has spread in parallel with the development of local anesthesia.

Treatments involving the face and oral cavities are associated with particularly high levels of physical stress. This is due to the extreme density of nerves and intense emotions involved in the area of treatment and the fact that the patient and doctor get physically much closer than is normal. Jöhren and Sartory [8] assume that merely 20–30% of all patients shown up at the dentist are free of anxiety. International studies conducted during the last five decades have found that 46–59% of all patients are very apprehensive of dental treatment and up to 27% of all patients are extremely anxious. Moreover, it was found that up to 11% of all dental patients suffer from a dental phobia that dominates their personality enough to cause severe psychic reactions [8–12].

A study found that over 70% of dentists experience considerable stress when they treat patients exhibiting dental anxiety. In fact, roughly 35% of dentists admit that treating children is very stressful for them [13]. Other studies have demonstrated that over 60% of dentists consider their profession as highly stressful versus other fields [14], and patients with anxiety are the most stressful factor in their daily work [15].

Main Indications for Using Hypnosis in Dentistry

The Management Fear and Anxiety

A key indication for the use of medical hypnosis is the treatment of patients exhibiting dental anxiety. A dentist is confronted with all forms of anxiety, ranging from mild uneasiness to full-fledged phobia. Despite numerous technical and pharmacological advances in dentistry, most people are still extremely apprehensive of a dental visit. Hence, the night before an appointment numerous patients suffer from sleeplessness, loss of appetite, feelings of being cornered, and cramps all over—which are triggered simply by the thought of having to go to the dentist [16]. Such fears are often set off by images of earlier experiences with doctors (and visits to the dentist) that are magnified by visions of medieval horror scenes. People seldom judge the actual situation properly because they drown it out with their own fantasies or tales recited by others. This turns even the simplest treatment into a stressful session [17–19].

Dentists are often confronted with conscious and unconscious verbal defensive reactions, but primarily with nonverbal ones. The dentist can either ignore these signals or seek to suppress them by pretending to act professionally. In any case, the dentist will end up bearing the consequences—such that her/his shoulders will begin to follow the patient’s tensing shoulders and stress will transfer over. The patient naturally senses the increasing tension and responds by becoming even tenser. This vicious circle just leads to unconscious sparring that either makes it difficult to treat the patient properly and precisely or precludes it altogether. Once done, the patient openly appears relieved to get away, while the dentist begins to perceive back pain and complains about increasing stress [20]. Clinical hypnosis is one possible approach for anxiolysis and stress reduction in such circumstances. This psychological procedure uses suggestion (L: suggerere, the act of impressing something on the mind of another) as this means to uniquely modify the conscious state of the patient during treatment. This induces a trance, evoked actively by the patient and supported by the dentist. The trance directly decouples the therapy environment by varying degrees of physical and emotional relaxation, anxiolysis, and distortion of time.

Hypnosis for Dental Analgesia

Hypnoanesthesia using rational psychotherapy or suggestive psychotherapy was found to be especially useful in restorative dentistry [2, 4, 21]. Using hypnosis in dentistry for analgesia presents several benefits over chemical anesthesia. It does not produce chemical numbness, which annoys the patient for several hours after the procedure and is responsible for patients slurring their speech or
inadvertently biting their inner cheek; it avoids chemical risk factors; and it avoids the often dreaded needle. As in hypnoanesthesia used in surgery, unfortunately, it can only be satisfactorily and completely effective when used alone in about 10% of the population [8]. However, it is partially and significantly effective in a much larger percentage, and when more extensive dental work is necessary it is able to reduce chemical anesthetic dosages.

Extractions, root canal procedures, deep filling, and periodontal work can all be made to be more pleasant and paradoxically less time-consuming by attempting a simple induction and giving suggestions for numbness and relaxation. In the dental setting, numbness of the index finger can first be produced; the patient’s hand is then guided into his mouth to touch the gums and teeth. Seeing the interrelationship of pain and anxiety previously mentioned, suggestions are also provided for calm and for “being here now,” to dissipate anticipatory ideation. In an alternative technique, the dentist, while the patient is in a trance, touches the area of the jaw, first externally then internally with paired suggestions for relaxation and numbness, gradually extending numbness to the entire oropharynx, with preservation of essential reflexes such as swallowing and gagging.

**Control of Bleeding**

The ability of hypnosis to decrease bleeding following surgical procedures has been widely mentioned in the literature [22–23]. Anecdotal reports attest to a phenomenon found in hypnotized patients in which incisions are remarkably free of bleeding. When suggesting decreased blood flow to an area it is important to let the patient ensure that there is sufficient bleeding to allow the socket to be full so that there will be sufficient tissue present for healing, and the risk of infection is reduced [24]. Bleeding from a post-extraction wound or immediately following an extraction can be controlled if a strong suggestion is given to the deeply hypnotized patient that the blood-flow in the particular area will be reduced for some hours. Under these circumstances, the bleeding will often case completely. An extraction can frequently be performed without the loss of more than two or three drops of blood if the blood-flow is reduced by hypnotic suggestions before the extraction is made.

**Control of Gagging**

The gag reflex is primarily a survival mechanism designed to prevent inhalation or ingestion of anything dangerous or unpleasant. However in many people this reflex becomes oversensitive, impending necessary dental treatment or preventing oral hygiene from being carried out. Hypnosis can reduce the gag reflex by using different strategies [33]. Suggestions of relaxation and calmness, especially of the tongue, can help patients manage the gag reflex. Also the combination of acupuncture and hypnotic suggestions will often help. Acupuncture needle can be placed on the midline between the lower lip and the point of the chin. This point is known as Conception Vessel 24. Using this point combined with hypnotic suggestions can often allow dental procedures to be completed successfully [34].

**Control of Salivation**

In a similar manner, direct suggestions that the patient’s saliva will dry up for a limited period will result in a definite lessening of the flow of saliva. This can be a great assistance in the type of patient who has profuse or ropey saliva which constitutes an increasing hazard during the preparation of a cavity in a lower tooth [25].

**Control of Bruxism**

The effects of bruxism can include muscle pain, TMJ problems and tooth substance loss, leading to sensitivity and pathology of dental pulp [26]. Besides other aetiology factors like abnormal occlusion, congenital abnormalities, neoplasma or trauma, bruxism can be an expression of tension or anxiety [27]. Study performed by Panek et al. [28] revealed that an increased psychoemotional tension connected with some personality traits was frequently found in patients performing bruxism. Data from the professional literature indicated that clinical hypnosis may be very effective in treating bruxism [29–32]. Using hypnosis to increase the patient’s ability to relax and deal with any anxiety is almost always helpful. Progressive muscular relaxation with emphasis on the muscles of mastication and other muscles of the head and neck can bring great relief. Suggestions to leave the teeth slightly apart, perhaps with the tongue just resting on the occlusal surfaces, can be also incorporated into relaxation program.

**Pediatric Dental Hypnosis**

Hypnosis is equally successful in treating children [20]. Kindergarten or elementary school aged children are easy to induce into a trance. This is because they experience trance states all the time. This comes from playing many games that take place in a fantasy world, which they can easily hop
Hypnotizing children means dealing with them in a loving manner. It differs from that of adults primarily in the use of imagery and words that are better suited to the young patients. It helps to apply hypnosis techniques that divert the child’s attention before commencing treatment, since children love confusing, crazy, and magical stories [35]. Use of simple magical lions or handfinger puppets can help the little patients to disassociate themselves from the treatment. In fact, children can go into a deep trance with open eyes, and can speak without breaking the trance. Trance induction is like a game for the child, which he/she follows eagerly as long as it is exciting and fun.

The question arises as to how dentists who use hypnosis differ from other colleagues? Well, they just think differently. These dentists look forward to their little patients, because they do not know any non-treatable or difficult kids. Instead, they view the kids as interesting, or sometimes very interesting or even challenging. Such a thought process shapes their actions, while their presuppositions determine the outcome. Dentists who use hypnosis also talk differently. For instance, they decorate their instruments and materials with pictures and symbols that children find snazzy and react to positively. Consequently, the etching gel becomes a tooth shampoo, a syringe is transformed into a pellet filling machine, and the rose-head burr drill turns into a ladybird crawling on the teeth. These dentists treat children differently by using hypnotism as a means to do fun things with the kids. Therefore, for them the number of interesting and very interesting children keeps declining constantly [36].

**Methods Used in Hypnosis**

The American psychiatrist, Milton Erickson (1901–1980), had a major influence on medical hypnosis as it is practiced today. His methods particularly utilize autosuggestion and suggestion by others to achieve anxiolysis, relaxation, analgesia, etc. during treatment by a dentist or physician. Although there is no definitive scientific evidence of how a trance is induced, Erickson’s techniques manage to induce almost 90% of the patients into various states of a trance [37].

A trance induced by hypnosis involves a physiological, inwardly focused state that can be measured by alpha brainwave activity and is accompanied by deep mental and physical relaxation [38]. A trance is an absolutely natural phenomenon, practiced for ages by many cultures around the world. It has been used for self-healing or for healing others [39]. Much research has been conducted for years on hypnosis and trance, including two habilitation theses recently completed in Germany on the application of hypnosis in dentistry [40–41].

Hypnosis applies a unique form of communication to help the patient relax physically and mentally as he/she lies on the dental chair. The patient’s eyes are closed, muscles are relaxed, and the mouth is literally handed over for repairs. During this time, the patient’s mind is occupied with memories of a beautiful vacation or other wonderful and relaxing experience, but at the same time the patient reacts when addressed and retains all natural reflexes. Contrary to myths, the patient does not simply disappear into some state of Nirvana, but is rather disassociated as it discerns the treatment through a kind of fog from an agreeable distance. Afterwards, these patients recall their perception of the dental therapy with remarks like, “Well, I certainly knew that you were working on my teeth, but it was not very important, because it just seemed so far away somehow.” Another pleasant side-effect of treatment under hypnosis is the time distortion caused by the trance. A hypnotized patient’s subjective perception of time is much shorter than reality. For example, patients often respond that a session, which really required a whole two hours, lasted a mere 45 minutes! The benefits of this unique fact should not be underestimated, especially for dentistry.

Inducing hypnosis depends not just on how the hypnotist induces a trance, but on the patient’s willingness and capability to relax and fall into a trance. Regardless of how skilled in rhetoric a hypnotist is, only a willing patient can be induced into a trance. The hypnotist must create a communicative framework that allows the patient to accept a trance. This is achieved, among others, by clarifying myths surrounding hypnosis, the patient’s expectations of how hypnosis functions, and the patient’s trust in the competency and professionalism of the hypnotist [42].

A survey conducted at the University of Lübeck (Germany) on general acceptance of hypnosis during maxillofacial surgery found that 6% of the patients rejected the use of hypnosis, but 66% of those surveyed rated it as basically good to extremely worthwhile. Over 75% of the patients in this survey believe that hypnosis actually enriches medical treatment, while only 1.6% percent holds the opposite view [43]. Another as yet unpublished survey of 1,100 test subjects determined that by far the majority of dental patients are open to hypnosis or view hypnosis positively. In addi-
tion, this group is remarkably motivated to accept−ing adjuvant clinical hypnosis for medical and dental treatments [44].

Clinical hypnosis is a noninvasive and acceptable alternative to improve the conditions and comfort level for dental patients. More studies are required, however, to validate the practicality and effectiveness on a routine basis. Such studies would also augment acceptance of hypnosis by dentists.

References

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