

Hypnosis for management of claustrophobia in magnetic resonance imaging*

Hipnose para controle de claustrofobia em exames de ressonância magnética

Luiz Guilherme Carneiro Velloso¹, Maria de Lourdes Duprat², Ricardo Martins³, Luiz Scopetta⁴

Abstract **OBJECTIVE:** To evaluate the efficacy of hypnosis for management of claustrophobia in patients submitted to magnetic resonance imaging. **MATERIALS AND METHODS:** Twenty claustrophobic patients referred for magnetic resonance imaging under sedation were submitted to hypnosis using the Braid technique. The patients susceptible to hypnosis were submitted to magnetic resonance imaging under hypnotic trance without using sedative drugs. **RESULTS:** Out of the sample, 18 (90%) patients were susceptible to the technique. Of the 16 hypnotizable subjects who were submitted to magnetic resonance imaging, 15 (93.8%) could complete the examination under hypnotic trance, with no sign of claustrophobia and without need of sedative drugs. **CONCLUSION:** Hypnosis is an alternative to anesthetic sedation for claustrophobic patients who must undergo magnetic resonance imaging.

Keywords: Hypnosis; Claustrophobia; Magnetic resonance imaging.

Resumo **OBJETIVO:** Testar a eficácia da hipnose para o controle de claustrofobia em pacientes submetidos a exames de ressonância magnética. **MATERIAIS E MÉTODOS:** Vinte pacientes claustrofóbicos, com indicação de sedação para ressonância magnética, foram submetidos a hipnose pela técnica de Braid. Os pacientes suscetíveis à hipnose foram encaminhados para realização do exame em estado de transe hipnótico, sem uso de medicamentos para sedação. **RESULTADOS:** Da amostra estudada, 18 casos (90%) foram suscetíveis à técnica. Dos 16 pacientes sensíveis à hipnose que compareceram para a ressonância magnética, 15 (93,8%) realizaram o exame em transe hipnótico, sem ocorrência de crise de claustrofobia e sem necessitar de medicamentos para sedação. **CONCLUSÃO:** Hipnose é uma alternativa para a sedação medicamentosa em pacientes claustrofóbicos que necessitam realizar ressonância magnética.

Unitermos: Hipnose; Claustrofobia; Imagem por ressonância magnética.

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INTRODUCTION

The currently available magnetic resonance imaging (MRI) systems require that patients lay still in a confined environment for extended periods of time. Claustrophobia is common and many times makes the scanning impossible. Usually, in such a situation, sedation with drugs is utilized, re-

quiring additional specific logistics measures such as an anesthesiologist assistance, previous fasting period, pre-anesthetic evaluation of elders or patients with comorbidities, noninvasive monitoring during the procedure – in order to minimize the risk for respiratory depression and other undesirable collateral effects.

Hypnosis is recognized by the Brazilian Federal Council of Medicine “as a valuable clinical practice subsidiary of diagnosis or treatment (...). It is an artificially induced mental state of consciousness narrowing resembling sleep, although physiologically different, since it is characterized by the appearance of a series of spontaneous phenomena or other phenomena originating from verbal or other stimuli. (...) Thus, hypnosis is a form of diagnosis and therapy (...) that can be performed by physicians, dentists and psychologists in their strict areas of specialization.”⁽¹⁾

With hypnosis, a state of deep relaxation can be induced even in patients moderately susceptible to the technique, with physiological alterations resembling natural sleep. Cough reflex is not suppressed, there is not respiratory depression nor blood pressure nor cardiac rhythm alteration⁽²⁾. Additionally, the hypnotized patient may remain cooperative, performing simple movements or maintaining voluntary apnea as necessary. Thus, the utilization of hypnosis in anxious or claustrophobic patients during MRI examinations presents a clear reduction in the risks inherent to anesthetic procedures, besides saving in the costs of drugs and materials required for such procedures.

Several small, non-controlled studies have proposed hypnosis as an adjuvant method during invasive radiologic procedures⁽³⁾, digestive endoscopy⁽⁴⁾, and even colonoscopy⁽⁵⁾. The utilization of this tech-

* Study developed at Hospital e Maternidade São Camilo Pompeia, São Paulo, SP, Brazil.

1. PhD, MD, Cardiologist, Group of Medical Hypnosis and Hypnotherapy of Hospital e Maternidade São Camilo Pompeia, São Paulo, SP, Brazil.

2. Psychologist, Group of Medical Hypnosis and Hypnotherapy of Hospital e Maternidade São Camilo Pompeia, São Paulo, SP, Brazil.

3. Biomedical Scientist, Unit of Imaging Diagnosis – Hospital e Maternidade São Camilo Pompeia, São Paulo, SP, Brazil.

4. MD, Radiologist, Unit of Imaging Diagnosis – Hospital e Maternidade São Camilo Pompeia, São Paulo, SP, Brazil.

Mailing address: Dr. Luiz G.C. Velloso. Avenida Pompeia, 1319, Vila Pompeia. São Paulo, SP, Brazil, 05023-000. E-mail: luiz.veloso@sti.com.br

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nique for the management of MRI-related anxiety or phobia has not been reported in the literature.

Objective

To evaluate the utilization of hypnosis as an alternative to pharmacological sedation in claustrophobic and anxious patients submitted to MRI.

MATERIALS AND METHODS

In the period from March to September/2008, the authors selected 20 adult patients with no cognitive deficit who were referred with indication for MRI under sedation because of a previous unsuccessful attempt due to phobia or anxiety.

The patients were identified on the schedule of MRI examinations. The previously scheduled cases with a "under sedation" remark were selected by the authors who proposed the performance of MRI examinations with the alternative technique, without using pharmaceuticals.

The patients who agreed in participate were explained the hypnosis technique to be utilized during the procedure and signed a term of free and informed consent.

The classical Braid's technique was utilized to induce hypnosis leading the patient to a somnambulant state, or stage 5 on the Stanford hypnotic susceptibility scale (SHSC). At this stage, the patients underwent ideosensory activities, with induction of vivid, pleasant visual and kinesthetic sensations (walk through a relaxing, safe and welcoming landscape) associated with a sensation of peace, tranquility and safety. After the establishment of the hypnogenic signal, the patients were dehypnotized for assessment of the depth and efficacy of the induced hypnotic trance. Subsequently, hypnosis was induced again, this time by means of the hypnogenic signal. In this second procedure (double induction technique), the patients were introduced to the different phases of the MRI examination which are resignified and associated with the relaxing sensation achieved in the previous ideosensory activity. The MRI study was scheduled for a later date.

On the occasion of the procedure, the patient was hypnotized with utilization of the hypnogenic signal in a preparation room, and taken on a wheelchair to the MRI equipment, being dehypnotized once the procedure was completed.

RESULTS

Among the selected patients, 2/20 (10.0%) were not susceptible to hypnosis. Among the hypnotizable patients, 4/18 (22.2%) reached stages 3 or 4, and 14/18 (77.8%) reached stage 5 in the Stanford hypnotic susceptibility scale. The time required for inducing hypnotic trance ranged from 1 to 20 minutes (mean, 5.3 minutes), and the period under hypnosis in the first phase ranged from 10 to 50 minutes (mean, 25.3 minutes). Among the 18 patients who were susceptible to hypnosis, two (11.1%) of them failed to attend the MRI appointment for fear of a phobia crisis. In the other 16 patients, the trance was induced in 15 (93.8%) with hypnogenic signal and the MRI examination was uneventful and took from 20 minutes (cervical spine) to 90 minutes (cardiac MRI) minutes (mean, 34.7 minutes/procedure). In 1/16 (6.2%) cases, the patient entered a crisis of anxiety and hyperventilation upon his arrival at the MRI room, and could not be hypnotized although being highly susceptible to the technique.

The results and description of the sample are summarized on Table 1.

Table 1 Cases and results.

Case No.	Sex	Age (years)	Topography	IT* (min)	TT† (min)	Level‡	Success	ET§ (min)
1	Female	49	Cervical + lumbar spine	5	30	5	Examination successfully performed	45
2	Female	50	Cervical spine	20	45	3	Examination successfully performed	20
3	Female	53	Lumbar spine	15	35	5	Examination successfully performed	20
4	Male	29	Cervical spine	3	20	5	Examination successfully performed	20
5	Female	63	Cervical spine	3	25	5	Examination successfully performed	20
6	Female	55	Lumbar spine	4	30	5	Examination successfully performed	20
7	Male	52	Lumbar spine	5	15	5	No (phobia in the examination room)	
8	Female	47	Cardiac	5	15	5	Examination successfully performed	90
9	Female	42	Shoulder	2	15	5	No (the patient did not attend)	
10	Female	55	Cervical + lumbar spine	1	23	4	Examination successfully performed	25
11	Male	54	Cervical spine	1	25	3	Examination successfully performed	25
12	Female	52	Lumbar spine	7	10	4	Examination successfully performed	20
13	Female	62	Shoulder	5	25	5	No (the patient did not attend)	
14	Female	58	Abdomen	5	30	5	Examination successfully performed	60
15	Female	52	Lumbar spine	2	23	5	Examination successfully performed	20
16	Female	47	Lumbar spine		0	NS	No	
17	Female	21	Hypophysis	3	20	5	Examination successfully performed	25
18	Female	57	Lumbar spine		0	NS	No	
19	Female	54	Cardiac	5	20	5	Examination successfully performed	60
20	Female	65	Abdomen	5	50	5	Examination successfully performed	50
Means	85% Female	51 years		5.3 min	25.3 min			34.7 min

* IT – induction time: time required for the first hypnotic trance induction; † TT – total time: time under hypnosis in the MRI preparation session; ‡ Level: hypnotic trance depth in the Stanford hypnotic susceptibility scale; § ET – examination time: MRI examination time under hypnosis; NS: patient not susceptible to hypnosis.

DISCUSSION

Claustrophobia is a quite frequent event in patients submitted to MRI, with a reported incidence of about 2%⁽⁶⁾ to 15%⁽⁷⁾ of the MRI examinations. The event seems to occur predominantly in female patients and in certain types of studies such as cranial MRI because of the patient positioning within the scanner. In this circumstance, pharmacological sedation or even general anesthesia is required to enable the procedure completion.

Since the times of the ancient Egyptians, reports on the utilization of hypnosis for therapeutic purposes have been found. Before the advent of anesthesia, hypnosis was utilized to alleviate the pain in several types of procedures, limbs amputation inclusive. Reports were written particularly about this aspect by James Esdaile, a surgeon of the British army in the colonial India, in his classical book published in 1850⁽⁸⁾. Although poorly utilized, hypnosis is currently indicated as a complementary therapy in several clinical conditions and to facilitate the physical and psychological postoperative convalescence⁽⁹⁾. Some studies suggest that hypnosis can reduce the discomfort and distress in children submitted to invasive procedures such as voiding cystourethrography⁽¹⁰⁾. A meta-analysis of 26 studies published on this matter draws the conclusion that 82% of patients receiving hypnosis present less emotional discomfort than controls during clinical procedures. In such studies, hypnosis was utilized for reducing the discomfort during postoperative and puerperal periods, chemotherapy and radiotherapy, invasive radiological procedures, lumbar puncture, etc.⁽¹¹⁾. References about the utilization of hypnosis in the management of claustrophobia in patients submitted to MRI were not found in the literature.

Hypnosis is an altered state of the conscious level induced by techniques involving a repetitive and monotonous, generally verbal stimulus. The hypnotized patient presents a crepuscular state – he/she remains conscious and master of his/her will since he/she is awake, but at the same time the patient is deeply relaxed and experiences dreamlike sensations as during normal sleep. Among innumerable applica-

tions, hypnosis can be a useful tool in the management of anxiety and phobic disorders, either in association or not with psychotherapy, particularly cognitive behavioral therapy. Since hypnosis is physiologically similar to sleep, there is no risk for the health of the patient. The susceptibility to hypnosis (that some authors prefer to describe as hypnotic *ability* of the patient), is an individual characteristic that remains stable over time; about 10% of the general population are resistant to the procedure⁽²⁾, independently from the hypnotist's technique and capability.

Although the sample of the present study included patients with intense claustrophobia or anxiety, their susceptibility to hypnosis was similar to the one observed in the general population. The first induction of hypnotic state was achieved in a short time, allowing the establishment of the hypnogenic signal – that immediately leads the patient to a deep trance, provided it is allowed by him/her.

Some characteristics of the hypnotic state⁽²⁾, or trance, particularly favor the use of hypnosis in the management of claustrophobia in patients submitted to MRI:

1. Ideosensory activity – The patient can be induced to clearly visualize pleasant landscapes in association with quite realistic smell, touch and taste sensations. The hypnotized individual may be induced to vividly feel himself/herself on a beach – with the feet on the seashore, feeling the Sun, the wind and the sea smell, hearing the sounds of the waves, birds and the leaves of the coconut trees. These dreamlike images can be associated with relaxation and tranquility, being present during the examination under hypnosis.

2. Ideomotor activity – The patients may be hypnotically suggested to remain completely still during the whole procedure without feeling discomfort.

3. Distortion of the time perception – As the examination is completed, the patient may have the perception – suggested by the hypnotist – that the procedure took only few minutes. Additionally either total or partial amnesia may be induced in some patients more susceptible to hypnosis.

4. Analgesia – Hypnosis can significantly reduce the discomfort in minor procedures such as venous puncture. Patients

with pain aggravated by prolonged decubitus can also benefit from hypnotic analgesia.

In the sample of the present study, such characteristics related to the hypnotic trance were utilized to achieve a greater comfort level for the patient during the MRI study. Thus, during the preparatory trance, the evocation of pleasant scenes and sounds was associated to the different phases of the procedure. For example, the patient was suggested that, if the sound of sea waves or a waterfall can be extremely relaxing, the intense sound of a MRI equipment could also make him/her to feel relaxed and calm. And, in fact, during the examinations of hypnotized patients, the authors observed a decrease in their heart rates coinciding with the moments at which the MRI unit emitted an intense noise. Equally, the patient was suggested that the movements of the examination table would be extremely relaxing like the movements of a rocking chair or a hammock. Additionally, considering that more than three quarters of the susceptible patients included in the sample achieved the stage 5 in the Stanford hypnotic susceptibility scale (somnambulant state) where a very realistic visualization of images can be achieved, these patients were suggested to visualize pleasant landscapes during the procedure.

All the patients received repeated messages that their respiration remained calm and stable, and that the room temperature was amenable and comfortable. All of them were suggested that although they could freely move, they feel themselves so secure and comfortable with eyes closed and in complete immobility, that they did not feel the slightest desire to move or open their eyes during the whole procedure.

At the phase of dehypnotization, as the procedure was completed, suggestions of wellness and physical vigor were repeated, besides the Idea that the time under hypnosis would be perceived as very short, only few minutes. After awakening, the patients were encouraged and congratulated for completing the procedure with their own resources without the need of sedative medications. All of them were released from the imaging unit immediately after the procedure completion, with neither motor difficulty nor significant somnolence.

CONCLUSION

Among the 20 patients in the sample who could not complete the MRI examination because of claustrophobia or anxiety, 90% were hypnotizable by means of the classical Braid's method. Among the patients susceptible to the technique who could be taken to the MRI room, 93.8% completed the procedure under hypnosis uneventfully and without the need of sedative medications.

Therefore, hypnosis has shown to be an effective and safe alternative to pharmacological sedation to allow MRI examination in phobic and anxious patients. Because of the method characteristics, hypnosis can be

a preferential method for patients with comorbidities implying higher risk for sedation, or in procedures requiring the patient's cooperation, such as cardiac MRI.

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