

Focused attention training to decrease anxiety in patients' candidates to a craniotomy

Entrenamiento de atención focalizada para disminuir la ansiedad en pacientes candidatos a craneotomía

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Abstract

Background: The focused attention training has been used in pre surgery patients because of the benefits of its use: decrease of psychological symptoms like anxiety, eases the post operator period and recovery. Also, there are favorable changes in a psychological level as well as pain healing. **Objective:** Show that the focused attention training is effective in patients who are candidates to a craniotomy. **Method:** The study includes 11 participants in an age of 29 to 60 age from the Hospital de Especialidades del Centro Médico Nacional Siglo XXI, from May to September 2021. The Hospital Anxiety and Depression Scale (HADS) was applied pre, post and follow-up, to search anxiety symptoms and the focused attention training was used in the 11 patients. **Results:** The data was analyzed and checked with the Friedman test, for not parametric data and to identify differences in anxiety levels. It was observed that there are differences ($p < 0.05$) in both anxiety and depression. **Conclusions:** Anxiety decreased significantly before and after the focused attention training, the follow-up was kept the same way for 40 days; which means the training helped the patient to decrease anxiety.

Keywords: Anxiety. Pre-surgical anxiety. Focused attention training. Gliomas. Neurosurgery. Craniotomy.

Resumen

Antecedentes: El entrenamiento de atención focalizada se ha utilizado en pacientes prequirúrgicos por los beneficios que conlleva: disminuye los síntomas psicológicos como ansiedad, facilita el periodo posoperatorio y la recuperación, cambios favorables a nivel fisiológico y reducción del dolor, entre otros. **Objetivo:** Demostrar la eficacia del entrenamiento de atención focalizada en pacientes candidatos a craneotomía. **Método:** El estudio incluyó 11 participantes de entre 29 y 60 años de edad del Hospital de Especialidades del Centro Médico Nacional Siglo XXI, de mayo a septiembre de 2021. Se aplicó la Hospital Anxiety and Depression Scale (HADS) antes, después de la intervención y a los 40 días para investigar síntomas de ansiedad, y se utilizó el entrenamiento de atención focalizada en los 11 participantes. **Resultados:** Se analizaron los datos con la prueba de Friedman para datos no paramétricos con el fin de identificar diferencias en los niveles de ansiedad. Se observó que sí hay diferencias ($p < 0.05$) tanto en ansiedad como en depresión. **Conclusiones:** La ansiedad disminuyó significativamente entre las mediciones antes y después de la intervención. La medición posterior continuó de la misma manera durante los 40 días, lo que significa que el entrenamiento ayudó al paciente a disminuir la ansiedad.

Palabras clave: Ansiedad. Ansiedad prequirúrgica. Entrenamiento de atención focalizada. Gliomas. Neurocirugía. Craneotomía.

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Introduction

A brain tumor is a “mass” that grows inside the brain. When it originates in the brain itself, it is called primary, and when it is the result of metastasis, it is referred as secondary¹. Malignant secondary tumors in the central nervous system are the seventeenth most common type of cancer in the world, with more than 250,000 cases diagnosed every year², and around 77% are gliomas. Moreover, these are the tumors with the highest mortality rate and prevalence in adults between 40 and 60 years old^{3,4}.

Among the treatments used for the reduction of the tumor, neurosurgery, also known as craniotomy, aims at reducing the size of the tumor, minimizing possible post surgical neurological deficits, reducing the comorbidities associated with resections, and enhancing the patient's survival⁵.

In addition, being exposed to a surgical procedure implies a psychological preparation for patients due to the symptoms they present at the process. This preparation may include psychoeducation about the procedure, expected discomforts, expected levels of cooperation; pre-surgical, intra-surgical and post-surgical activities that must be performed; mentioning some adverse events that may arise; and also alleviating psychological symptoms involved in the procedure, such as anxiety⁶.

The main reasons causing anxiety symptoms in pre-surgical patients that are most commonly reported include the communication of the diagnosis, hospitalization, the surgical procedure, intra-surgical discomfort (with higher prevalence in women)⁷, fear to anesthesia and to intra-surgical and post-surgical pain, to the recovery stage, lack of information, possible temporary physical impairment difficulties^{8,9}, uncertainty, tension and stress, which create in some patients resistance before the surgery, as they perceive it as a threat¹⁰⁻¹².

The focused attention training is defined by the American Psychological Association (2014) as a state of consciousness which involves a set of procedures that generate a context where the accomplishment of suggestions in people is promoted. It is usually made up of a series of instructions and preliminary suggestions, and involves focused attention and reduced peripheral awareness^{13,14}. This is a technique that induces, through relaxed and focused attention, a high state of suggestibility¹⁵.

The main aim of the intervention in the present work was to train the patients to reduce their high levels of anxiety and learn to control them at clinical situations, mainly pre-surgical ones.

Method

11 rightful claimant patients, between 29 and 60 years old, of the Hospital de Especialidades del Centro Médico Nacional Siglo XXI, diagnosed with glioma, were included during the period from May to September 2021.

Three sessions were provided for each participant: two pre-surgical, focused on the surgical procedure, and one post-surgical, focused on the recovery stage:

- Session 1: the recruitment was carried out at the outpatient clinic according to the selection criteria. The content of the consent letter was read and explained, and every participant signed it and received a copy. Both the pretest of the *Hospital Anxiety and Depression Scale* (HADS) and the first focused attention training towards the characteristics of the surgery were applied.
- Session 2: during the first day of hospitalization, the second focused attention training was conducted towards the characteristics of the surgery.
- Session 3: due to medical indication, 13 days after the surgery the third focused attention training was provided towards the characteristics of the post-surgery recovery and the HADS post-test was applied.

The Zigmund and Snaith (1983) HADS was used for the evaluation of the cognitive and behavioral symptoms in populations with physical diseases and hospital environments, not psychiatric ones. It has a length of approximately 5-6 minutes and integrates 14 reactivities and 2 sub scales, of anxiety and depression, with 7 items each. The options are Likert-type, from 0 to 3, with a top score of 21 for each sub scale. The cut-off points from 0 to 7 indicate no anxiety, from 8 to 10 it is considered that the relevant symptom is present, and from 11 to 21 there is a clinical problem. In Mexico, this scale was validated by Villegas¹⁶ in 2004 for oncology patients with an index of internal consistency of the scale $\alpha = 0.78$, and for the sub scales 0.72 and 0.69, at the National Institute of Cancerology (Instituto Nacional de Cancerología) with good internal consistency ($\alpha = 0.83-0.85$), high reliability test-retest ($r = 0.75$), and appropriate convergent validity ($p < 0.05$)¹⁶⁻¹⁸.

Statistical analyses

The Shapiro-Wilk test of normal distribution was performed to determine if the anxiety and depression

data resulting from the HADS followed a normal distribution. As a non-normal distribution was detected, the non-parametrical Friedman test was used to identify the differences among the three measurements. The data processing was carried out with the Statistical Package for the Social Sciences (SPSS).

Ethical aspects

The applied psychotherapeutic intervention is a non-invasive procedure, therefore, it caused no physical harm and there was no medical dilemma towards the patients. Moreover, they were asked to sign an informed consent letter in accordance with the Declaration of Helsinki (1964). In addition, the approval of the protocol was obtained with the register number CEI-CICS UST-025 by the Ethics Committee in Investigation at the Centro Interdisciplinario de Ciencias de la Salud, Unidad Santo Tomás from the Instituto Nacional Politécnico, which has the register number CONBIOÉTICA 09-CEI-019-20170731. It is important to mention that the data collected will be stored for a maximum of 5 years in a database. After said time, they will be eliminated permanently, considering the General Law of Personal Data Protection in Possession of Bound Entities (Ley General de Protección de Datos Personales en Posesión de Sujetos Obligados). The treatment was completely free of charge for the patients and they were benefited, as they had a therapeutic management additional to the medical treatment, and were able to obtain some improvement for their surgical procedure. In case they wanted to withdraw from the psychotherapeutic process, they were able to do so at any time without having any difficulty in the relation with their treating doctor nor at the hospital consultations. They were treated with respect before, during and after the development of the investigation work.

Results

The age range of the participants was from 29 to 60 years old. 45.5% (5) were women and 54.5% (6) were men. The academic level with the highest percentage was that of the equivalent to a Bachelor's degree (45.5%). The prevailing marital status was married (54.5%). 36.4% were people with employment. Finally, the tumor regions with the highest prevalence (36.4%) were the temporal and frontal regions.

The Friedman test was used to identify the differences in the levels of anxiety among the measures before, after and at follow-up, and it was found that there

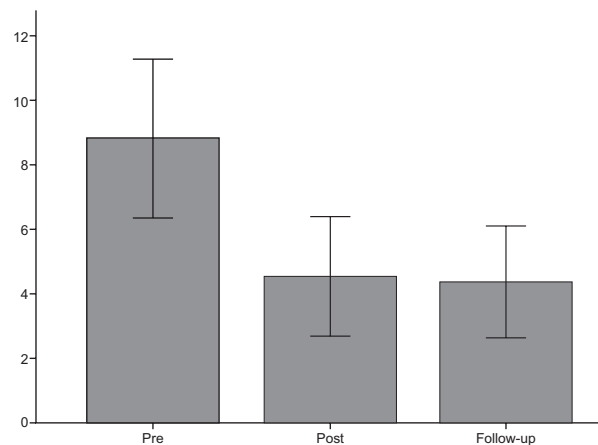


Figure 1. The level of anxiety changed among the three measurements. It decreased after the focus attention training in relation to the measurement taken before its application, and that level decreased even more at the 40-day follow-up.

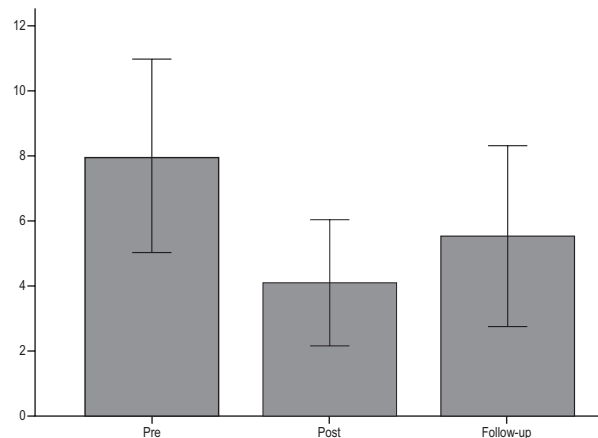


Figure 2. The level of depression changed among the three measurements. It decreased after the focus attention training in relation to the measurement taken before its application, and increased at the 40-day follow-up, although it did not reach the level of depression measured at the beginning.

are differences ($p = 0.000$) (Fig. 1). Statistically significant differences were also found for depression with the Friedman test ($p = 0.045$) (Fig. 2). The means of anxiety and depression before, after and at follow-up are detailed in Tables 1 and 2.

Discussion

The present work had the objective to evaluate the effectiveness of the focused attention training in reducing anxiety on candidate patients to craniotomy through quantitative markers from the HADS. This objective was accomplished, since all the cases showed reduction in anxiety.

Table 1. Non-parametric Friedman test, anxiety means before, after and at follow-up

Indicator	Mean (SD) n = 11
Pre-test anxiety	8.82 (3.65)
Post-test anxiety	4.55 (2.77)
Follow-up anxiety	4.36 (2.61)

SD: standard deviation.

Table 2. Non-parametric Friedman test, depression means before, after and at follow-up

Indicator	Mean (SD) n = 11
Pre-test depression	8.00 (4.42)
Post-test depression	4.09 (2.87)
Follow-up depression	5.55 (4.15)

SD: standard deviation.

As it is mentioned by Forman et al.² and Ostrom et al.⁴, primary malignant tumors in the central nervous system represent the seventeenth most common type of cancer in the world, in adults between 40 and 60 years old, and nearly 77% of these tumors are gliomas. In Mexico, there are limited epidemiological records documenting the incidence and prevalence of these tumors. However, among the 11 patients studied, gliomas were present, albeit not all in the same brain region, with ages ranging between 29 and 60 years old.

As it has been reported, one of the treatments that help reducing the tumor is craniotomy, but this procedure triggers emotional symptoms in patients, which may appear as soon as the diagnosis is made, during the hospitalization or prior to the surgical procedure. These symptoms include anxiety, fear to anesthesia, to intra-surgical or post-surgical pain, to the recovery stage, lack of information or to possible temporary physical impairment difficulties⁷⁻⁹. The 11 patients stated they were feeling really anxious and fearful due to the implication of the process. Besides, the specific and technical information given by the doctors would not let them assimilate and imagine the situation. In this respect, the intervention helped them to manage those emotions. They mentioned that, thanks to the focused attention training, they were able to understand the procedure, and that it not only helped them with the pre-surgical and post-surgical aspects, but it also made them reflect about the significance of health and to

value the importance of family support and personal aspects in relation to life and their professional or social objectives.

Another relevant issue of the work is that they presented high levels of pre-surgical anxiety that were not medically addressed because the specialized staff was focused on the medical biological preparations. Therefore, the intervention helped them reduce these levels and made them face the event differently, which was recognized by the specialists.

It is also important to note that favorable results were obtained in a really short time. Two pre-surgical sessions were performed to decrease anxiety and one after the surgery towards the recovery, as there have been reports that high levels of anxiety may prolong said process. After the sessions, it was possible to observe a decrease in anxiety in all patients, even during the follow-up test.

Finally, the psychological aspect is essential when approaching any patient who will be subjected to surgery. This has often been underestimated in the surgical practice and there is only a small number of studies that report on patients' experiences and feelings¹⁹. Hence, the importance of this work, which shows the need for a therapeutic approach towards pre-surgical patients.

Conclusions

Anxiety arises in any of the surgical phases in all the patients, although some of them showed higher levels than others. However, it can be reduced with a psychotherapeutic pre-surgical preparation. It was possible to observe the difference between the before and after the intervention in the patients: all of them were able to reduce their high levels of anxiety in spite of the craniotomy and everything associated to it.

Furthermore, the patients mentioned that, thanks to the focused attention training, they were able to understand the procedure, and that it not only helped them face the pre-surgical and post-surgical process, but also to readjust different aspects and priorities in their lives.

It is still of vital importance to detect the psychological symptoms that pre-surgical patients present and to continue investigating with larger numbers of patients. This will allow the continuous demonstration of the efficiency and effectiveness of psychotherapeutic treatments through evidence-based psychology.

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Conflicts of interest

The authors state they have no conflicts of interest.

Ethical disclosures

Protection of people and animals. The authors state that the procedures followed the ethical guidelines of the responsible human experimentation committee and were performed according to the World Medical Association and the Declaration of Helsinki.

Data confidentiality. The authors declare that they have followed their center's protocols on the publication of patient data.

Right to privacy and informed consent. The authors have obtained the informed consent of the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

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