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Use of Acupuncture for the Chronic Neck Pain: Application to Adults as Part of Primary Health Care

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1. Introduction

Neck pain (cervical pain) has been described in the literature as a common complaint in the adult population (van der Velde et al., 2010; Mäntyselkä et al., 2010). It is more prevalent in women, both as regards the number of cases and extent of this type of pain (Fejer et al., 2006). Neck pain can occur due to jaw disorders, whose etiology is complex and unresolved (Bretan et al., 2005). These disturbances may trigger other affection, in addition to neck pain, such as: headaches, earaches, popping joints, mandibular locking, and lateral deviation of the mandible (Okeson, 1998; Simma et al., 2009). The onset of these affections may be linked to the close relationship between the cervical spine and temporomandibular joint (Tedeschi-Marzola, 2005), and may also included the equilibrium relationship between the braincase, temporomandibular joint, articulation of the skull and cervical spine (Butler, 2003).

The management of individuals with chronic pain has been a challenge, since various factors may interfere in the development of this type of pain. Outstanding among these factors are emotional situations; interests in obtaining workers' compensation benefits – being laid off work and/or retired due to disability (Kraychete et al. 2003). Moreover, conditions of anxiety and depression tend to make it difficult to apply strategies used for the treatment/control of neck pain (Institute for Clinical Systems Improvement, 2007).

Neck pain and headaches are syndromes that represent a clinical challenge for dentists and physicians (Lu et al., 2001). Furthermore, neck or cervical pain has been recognized as a frequent complaint among adults, a fact that has resulted in a high demand for medical services, in addition to causing absenteeism and incapacity to work (Willich et al, 2006; Matsudaira et al., 2010). Painful disorders that affect the neck area are known as common incapacity affections that involve high cost medical treatment (Haines et al., 2009).

Conventional therapeutic treatments are not always capable of producing chronic pain relief (Simma et al., 2009). The history of acupuncture reveals the existence of an ancient relationship between this therapy and the treatment of pain (Filshie and Cummings, 2001).

The use of acupuncture in public health care systems has been recommended by the World Health Organization – WHO (1999). This Organization has also recommended the use of acupuncture in the treatment of neck pain, in view of the proven effectiveness of this therapy (WHO, 2002).

In some countries the use of acupuncture in addition to conventional medical treatment has shown cost-benefit (Kim et al., 2010). As acupuncture is a non-pharmacologic treatment modality (Wang et al., 2008) and has presented satisfactory results in reducing pain intensity (Lu et al., 2001) it could be more widely used in chronic health situations, especially for primary care in the public health service.

The aim of the present study was to describe the results obtained with acupuncture treatment applied to adult patients with chronic neck pain, assisted by a public service providing primary health attention, located in the south of Spain during the year 2008.

2. Methods

The present work is characterized as clinical study (case series) conducted to verify the possible proportionate benefits to the health of patients with chronic neck pain treated by acupuncture. The study sample was composed of 100 patients diagnosed with chronic cervical pain. Data collection was accomplished in the Pain Treatment Unit - UTD, located at the Doña Mercedes Health Centre (Spain). Patients included in the present study were those who signed the informed consent document, with complaint of chronic cervical pain (pain experience equal to or longer than 03 months) and, who then received two acupuncture sessions during the months from January to December of 2008 (participation in at least 2 sessions).

To measure pain intensity, the Visual Analogue Scale (VAS) from 0 to 100 mm was used (Wewers & Lowe, 1990), and the Likert Scale from 0 to 4 points was used to measure the following variables: frequency, level of incapacity caused by the pain, level of sleep disorders caused by pain, and analgesic consumption (Likert, 1932; Likert, 1967). The studied variables were classified showed in table 1.

The other variables were analyzed through the absolute and relative frequencies (gender, marital status, and time of pain experience) or mean and standard deviation (age). Initially the data were tabulated in spreadsheets (Excel) and later the Software SPSS version 17 was used to perform statistical analysis. The patients were submitted to 1 acupuncture session a week.

The data were analyzed by means of comparing the values obtained in the first and in the last acupuncture consultation. The Wilcoxon test for two dependent samples was used for intensity, frequency and level of incapacity caused by the pain; level of sleep disorders caused by pain; and analgesic consumption. The power of the test was a minimum of 0.80, and Alpha of 5%, according to the pattern most frequently used in the medical literature (Gardner & Altman, 1986; Gong et al., 2000; Lauer, 2006).

3. Results

The 100 patients participating in this study, received an average of eight acupuncture sessions, and the majority of them were women (84%).

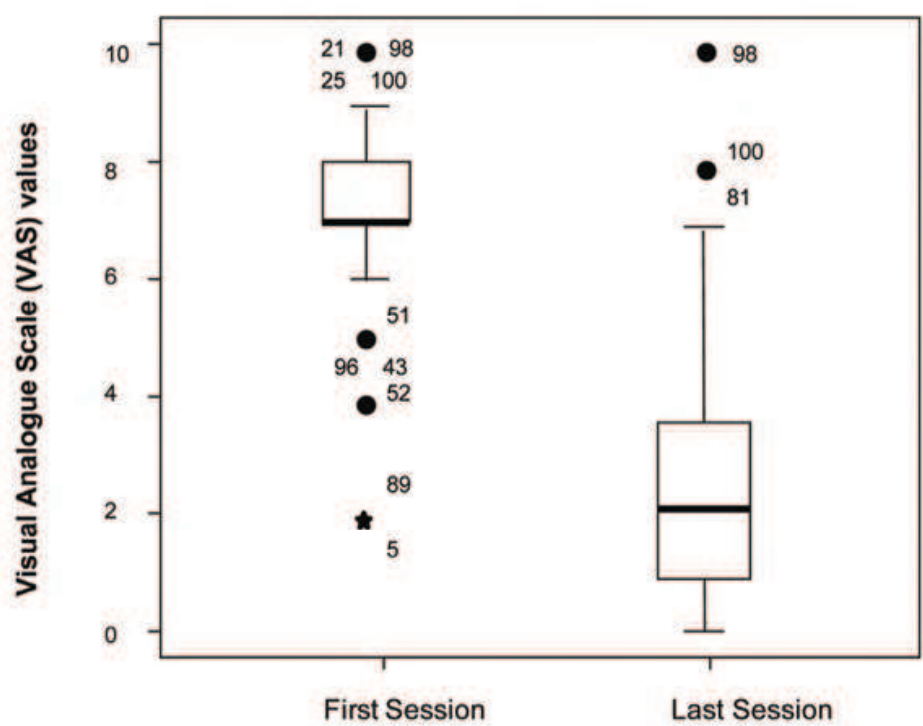
As regards marital status, 78% of the individuals were married; 12% single; 8% widowers and 2% divorced. The average of age and the respective standard deviation were 56 and 13 years.

Studied variables	Levels	Description
Pain Frequency	0	never feels pain
	1	pain that appears sporadically, or with a duration of up to 1 hour a day, every day of the week; or pain that appears on less than 02 days a week, including pain with a duration of 1 hour
	2	presence of persistent pain during a maximum of 6 hours a day
	3	presence of daily pain with a duration of 6 hours and less than 24 hours
	4	presence of constant pain
Analgesic Consumption	0	never consumes analgesic
	1	consumes analgesic sporadically or less than the dose recommended for the illness
	2	consumes analgesic respecting the doses recommended by the medical practice guidelines for the illness
	3	consumes analgesic with a higher dose than that recommended by the medical practice guidelines for the illness
	4	needs to increase the number of analgesics, as well as continual increase in the dose administered.
Level of Incapacity	0	there is no incapacity
	1	there is incapacity for doing heavy work, or work that demand great physical effort
	2	the patient is unable to accomplish daily tasks
	3	the patient needs help to dress or to take bath
	4	complete incapacity
Sleep Disorder	0	the pain does not wake up the patient
	1	the patient wakes up occasionally during the night because of the pain
	2	the patient wakes up 1 time every night because of the pain
	3	the patient wakes up 2 or more times every night, most of the week, because of the pain
	4	the patient does not sleep because of the pain

Table 1. Levels of pain, analgesic consumption, incapacity and sleep disorder

The results with regard to pain experience indicated its predominance for a period from 12 to 180 months (71%), which corresponds to a period of 1 to 15 years; followed by pain for a period of less than 12 months (17%); pain for a period of longer than 180 months (12%). The results of the Wilcoxon test for dependent samples revealed significant changes ($p < 0.0001$) in the: pain intensity, pain frequency, analgesic consumption, incapacity caused by pain and sleep disorders due to pain (Graphs 1, 2, 3, 4 and 5). The pain intensity was classified in the first acupuncture session and for most of the patients it was close to the maximum value of VAS (median = 7), whereas in the last session, the patients reported pain close to the lowest degree of this scale (median = 2) - Graph 01.

Pain intensity in the first and in the last acupuncture session (Median)



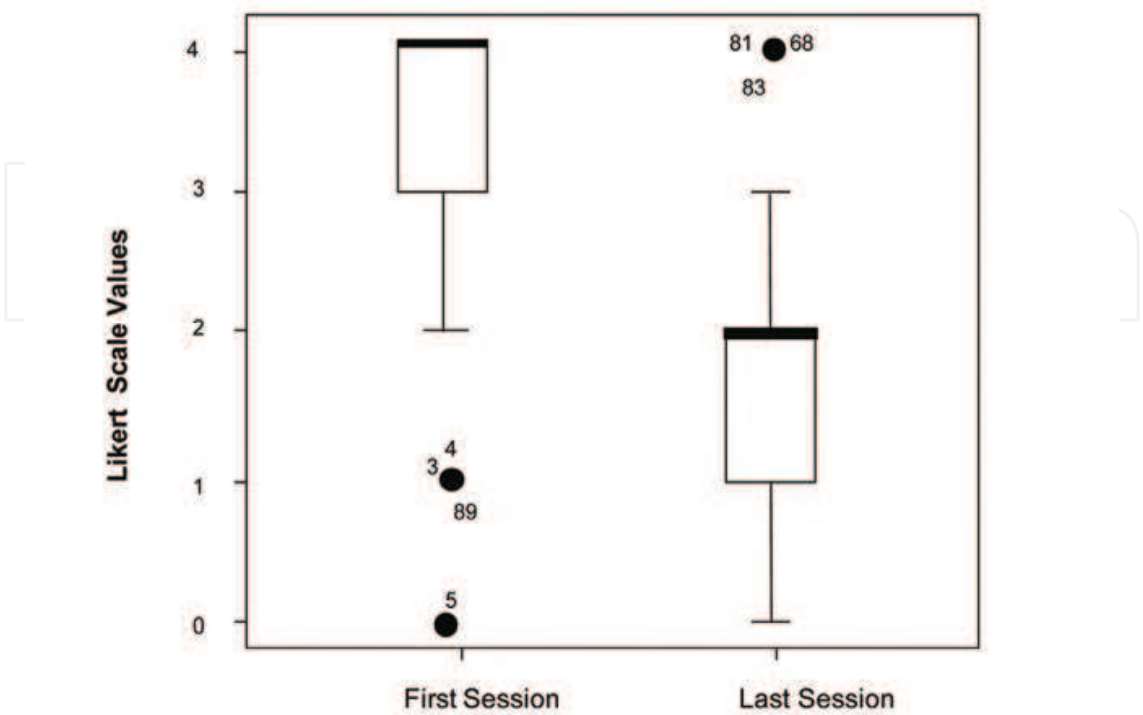
Graph 01. Pain intensity in the first and in the last acupuncture session (Median)

As regards pain frequency (Graph 02) it was observed that in the first session the majority of the patients reported the presence of constant pain (median = 4), and at the end of the session this population reported the presence of persistent pain with duration of at the most 06 hours a day (median = 2).

In the first session, most of the patients reported that they consumed analgesic and respected the doses recommended by the medical practice guidelines for the illness that affected them (median = 2), however, in the last session of the proposed treatment, practically the absence of consumption of these medicines was related (median = 0) - Graph 03.

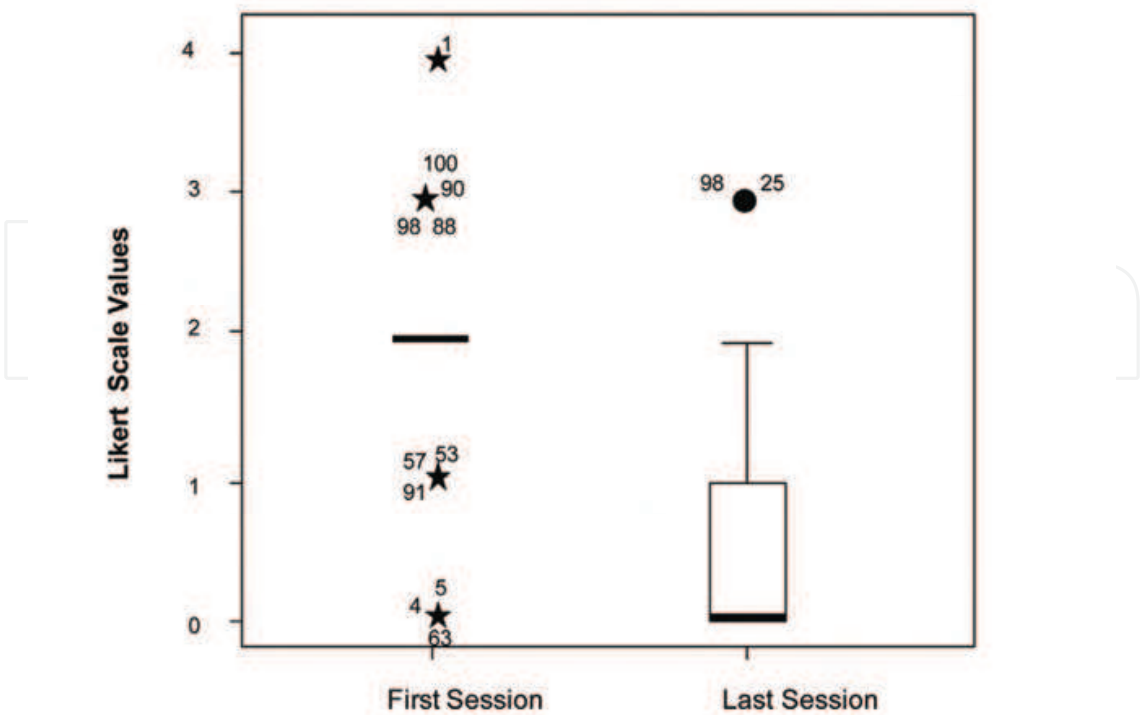
Data as regards the level of incapacity (Graph 04) demonstrated that in the first acupuncture session, most of the patients reported that they were unable to accomplish daily tasks (median = 2), while in the last session, most of the patients reported no such incapacity (median = 0).

Pain frequency in the first and in the last acupuncture session (Median)



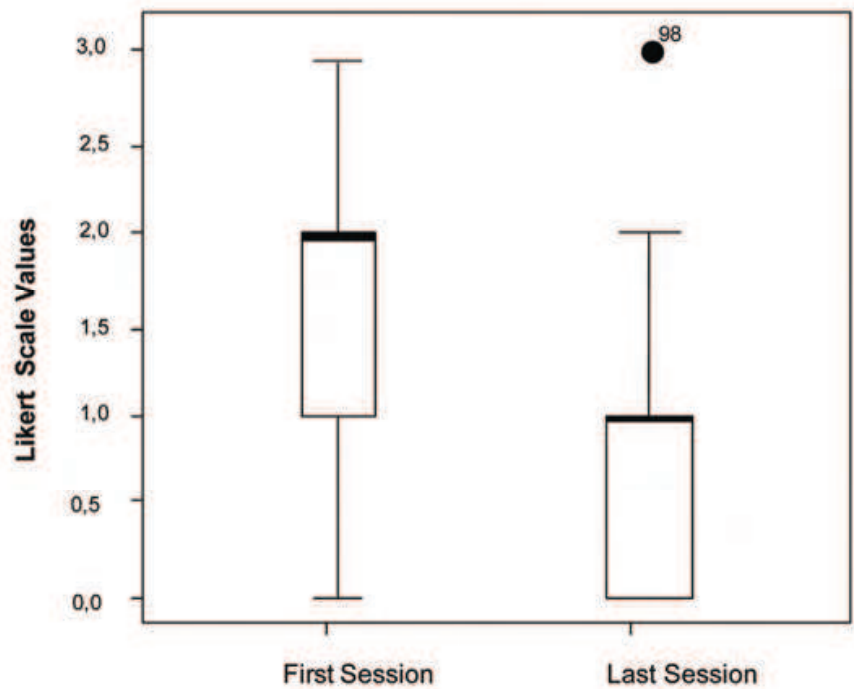
Graph 02. Pain frequency in the first and in the last acupuncture session (Median)

Analgesic consumption in the first and in the last acupuncture session (Median)



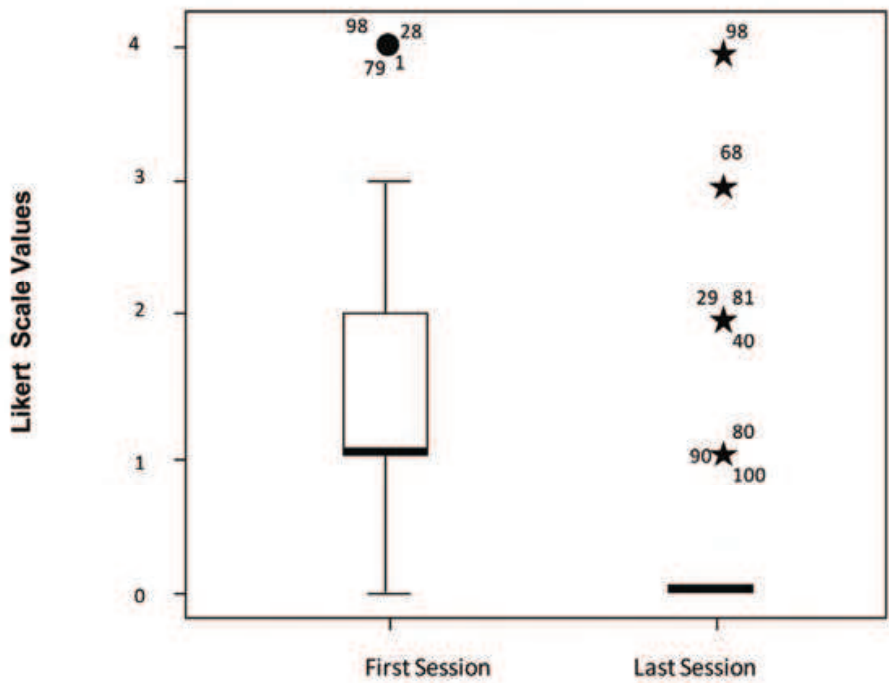
Graph 03. Analgesic consumption in the first and in the last acupuncture session (Median)

Incapacity caused by pain in the first and in the last acupuncture session (Median)



Graph 04. Incapacity caused by pain in the first and in the last acupuncture session (Median)

Sleep disturbance caused by pain in the first and in the last acupuncture session (Median)



Graph 05. Sleep disorder caused by pain in the first and in the last acupuncture session (Median)

In the first treatment session the patients classified sleep disorders as being of degree 1 (median = 1), which corresponds to the fact of waking up occasionally during the night because of pain, however, in the last session, most of the patients reported that they did not to wake up for this reason (Graph 05).

4. Discussion and conclusion

In the medical literature, the type of study conducted by observing a group of patients group who present common characteristics is called a "case series". Such studies are used to describe some of the clinical, physiopathological or functional aspects of affections, in addition to reporting aspects with regard to the treatment or diagnostic procedure used in this context (Porta, 2008).

Due to the fact of presenting a detailed report of the clinical experience of the studied subject, the publication of case series can indeed contribute to the production of relevant bibliographical material. On the other hand, this methodology presents some limitations that prevent the inference of a causal relationship (Kestenbaum, 2009) and the confirmation of hypotheses (Hennekens & Buring, 1987).

The lack of control groups is an inherent feature and limiting the case series (Porta, 2008). However, this methodology has been widely incorporated in the assessment of health technology, especially when there is no strong evidence on the effectiveness of therapy tested (Dalziel et al, 2005).

Considering the advantages and disadvantages mentioned above, in the present study the design principles called case series it was adopted in order to make a contribution to more detailed scientific knowledge with regard to acupuncture treatment for cases of chronic cervical pain attended by the public service. That was made because decisions about health policies are going to be necessary even in the absence of scientific evidence produced by means of the randomized clinical trials (Dalziel et al., 2005). The importance of conducting this type of study is pointed out insofar as it represents the possibility of helping other researchers that have produced similar observations, aiming to create better conditions for formulating hypotheses (Hennekens & Buring, 1987) and for developing future studies with higher methodological quality.

Chronic pains have been considered as a severe problem in health attendance, not only in terms of human suffering and morbidity, but also in terms of the economic implications for society (Sjogren et al., 2009). Pains that affect the area of the back, among these, the cervical pain represent one of the three most frequent complaints among the affections of the musculoskeletal system (Trinh et al, 2007). They have been considered a frequent and common health problem in the adult population (Wening et al., 2009; Kaaria et al., 2009).

The effect of an appropriate treatment performed by acupuncture can last up to three years after the last session (He et al.; 2004). Ezzo et al. (2000) verified that 06 acupuncture sessions was associated with positive results (benefits) and other authors corroborate these results (Petrie 1983; Petrie 1986; White 2004). In the present case series this association was not verified. However, it was verified that the patients received an average of 08 acupuncture sessions and that the results of these interventions demonstrated significant improvement in all the studied variables.

Cervical pain has been reported in the literature as being a common symptom manifested in the word; and it mainly affects women (Fejer et al., 2006; Trinh et al., 2007). In the present study it was verified that most of the patients treated with acupuncture were women (84%),

finding agrees with Holdcroft et al. (2005) and according to Vas et al. (2007) represents the profile of users of the public health services offered in the studied area.

Married individuals composed the greater part of the sample in the present research (78%). Similar data are in agreement with these results (Niemtzow et al., 2008). However, it is pointed out that marital status has not been evaluated in most of the published studies on chronic cervical pain treated with acupuncture.

The mean age verified in the present study, when compared with researches that evaluated the management of the chronic cervical pain with the above-mentioned therapy, was higher than the value mentioned in the study published by Salter et al. (2006); Zheng et al. (2008) and lower than that mentioned in the study published by Itoh et al. (2007).

In agreement with Sardá Jr. et al. (2009) scientific studies published had recognized that several psychological factors can influence the degree of pain experience, the reaction of the individuals to the perception of pain and impact of pain on their daily activities. Thus, the experience of chronic pain has been defined as being a product of the complex and dynamic interaction of several biological, social, psychological, environmental and family factors which result in a non linear relationship between the beginning of benign chronic pain and their effects on the human body (Shipton, 2008). In the present study the time of experience of the pain felt occurred predominantly between 12 and 180 months (71% of the cases) which corresponds to an average of 6.5 years, higher than the value found by Itoh et al (2007); Willich et al. (2006); Salter et al. (2006).

According to He et al. (2004), the establishment of an appropriate treatment with acupuncture was capable of reducing effectively the intensity as well as the frequency of muscular pain located in the cervical area. The findings of the present research agree with data of the above-mentioned study and corroborate the results of other randomized controlled clinical studies conducted by Itoh et al. (2007) and Witt et al. (2006).

It is known that opioid analgesics have been prescribed as fundamental therapy of first choice in the treatment of patients with chronic pain (Reid et al., 2002; Rosenblum et al., 2008; Victor et al., 2009). However, patients who were treated in the long term with this type of medication became more depressive, had poor life quality (Zheng et al. 2008) and presented passive attitudes to chronic pain management (dependence and addiction) (Breivik, 2005). Sleepiness, qualm, vomiting, constipation and possibility of the need for gradual increase in the dose of the medicine are mentioned in the literature as adverse effects of opioid analgesic consumption (Gourlay, 1999).

Borenstein (2007) reported that non pharmaceutical therapies such as acupuncture, for instance, present the potential of reducing chronic cervical pain and represent a therapeutic modality exempt from toxicity. The reduction of the consumption of analgesics due to acupuncture treatment for chronic cervical pain was verified in the present study and this findings ratifies similar results in two other publications by Vas et al. (2007) and Hansson et al. (2008) respectively.

Witt et al. (2006) verified a reduction in the intensity and incapacity caused by the chronic cervical pain in patients treated with acupuncture. Similarly, in a study published by Hansson et al. (2008), adult patients affected by chronic musculoskeletal pain reported an increase in the capacity to perform daily activities, as well as in work activities during a period of up to 06 months after the end of acupuncture treatment. Such findings agree with the results of the present research, which verified a reduction in the incapacity caused by chronic cervical pain in the studied population.

The findings of the present study indicate that the patients treated with acupuncture presented a significant statistic reduction in sleep disorders. However, this condition is a theme that has hardly been explored. In agreement with some authors, the latest evidences on effect of acupuncture in this disorder cannot yet be considered clarified (Chen et al., 2007; Yeung et al., 2009).

The characteristics of the researches on back pain, among these cervical pains, have recently been modified and have gone from a biomedical approach to a biopsychosocial approach (Sieben et al., 2009). Thus it is important to remember that the attitude of patients submitted to treatment with alternative and complementary therapies can be a predictive factor for positive results (Sasagawa et al. 2008), nevertheless, studies conducted by Lewith et al. (2002) and White (2003) suggest the opposite. The present scientific investigation did not explored the above-mentioned characteristic, however, the explanation of the interference of the patient's attitude in acupuncture treatment, is relevant and interesting data to be studied in future works. Other approaches such as: cost effectiveness, variations of acupuncture technique, association of cervical pain with other areas of the spine also constitute interferences that need to be studied to perfect the understanding and planning of future strategies in public service of the population by means of acupuncture and auriculotherapy. Reports of studies conducted over a period of more than 10 years revealed that the treatment of chronic pains by acupuncture presented acceptable cost-effectiveness when compared with conventional therapies used for treating this type of pain, in addition to demonstrating that this therapy was clinically effective in these circumstances (White & Cummings, 2009). Other publications have reported that the offer of acupuncture therapy in the primary health care service was capable of providing a reduction in routing patients at other levels of attention including reducing costs related to prescriptions (Johnson, 2008).

The use of acupuncture promoted significant economy with regard to expenses originating from conventional pharmacological treatment in individuals affected by migraine who were attended in units of the public service of health in Italy (Liguori et al., 2000). In England in the same treatment mentioned above was verified an additional cost due to the use of acupuncture when it was used as supporting treatment to the conventional therapeutics. Such increment was considered a small expense when compared with the improvement in the patients' quality of life and to the cost-effectiveness of the use of acupuncture in comparison with the number of other interventions performed in the English health system (Wonderling et al., 2004).

With further regard to the expenses incurred with public health systems in agreement with the international threshold of the values of cost-effectiveness in health acupuncture can be considered a valid strategy for the alternative treatment of chronic cervical pain in agreement with the cost-effectiveness relationship published in a multicentric study conducted in the public health service in Germany (Willich et al., 2006).

The present study was conducted in a public service of primary attention and the improvements perceived in the levels of the patients' health aroused the idea that an increase in the offer of this type of therapy is desirable in view of fact that some authors verified clinically pertinent benefits in patients attended by acupuncture, in these services (Valdés et al., 2001; Vickers et al., 2004; Vas et al., 2007; Witt et al., 2008). Furthermore the use of the mentioned therapy constitutes an alternative important to the treatment of patients who do not respond to the conventional medical treatment applied to musculoskeletal pains (Kam et al, 2002).

It was concluded that acupuncture can be considered a treatment option in the cases of chronic cervical pain in adult patients assisted by the public health service in the primary care brought as it important benefits to the health of these individuals.

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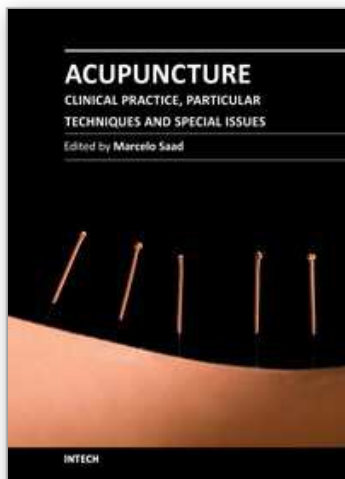
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Acupuncture is growing in popularity world-wide. Acupuncture and related techniques are useful tools for treating a spectrum of diseases. However, there are still many areas of controversy connected to it due to the fact that mechanisms of action of acupuncture are not entirely clear. Another debilitating element is the absence of a convincing model of sham acupuncture for a control group in clinical trials. Therefore, there are still inappropriate prejudice and unfamiliarity regarding acupuncture. I hope this book can contribute to guide the advance of this ancient medical art. The reader will here find texts wrote by authors from different parts of the world. The chapters cover strategic areas to collaborate with the consolidation of the knowledge in acupuncture. The main objective is to share elements to make acupuncture more and better offered at health systems worldwide.

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