Case report: Ear Acupuncture therapy for psoriasis.

Psoriasis is an inflammatory chronic disease affecting both genders, approximately 2-3% of the world population. Although there are different clinical forms of psoriasis, the most common type is *psoriasis vulgaris*. It presents skin patches typically red, itchy and scaly and different levels of severity and extension, stablished clinically by Psoriasis Area and Severity Index (PASI). Because of these facts, there are many types of interventions focused on your treatment, looking for effectiveness and safety. The immunomodulatory effect of acupuncture has been proven experimentally in the control of inflammation and analgesia, however there are few studies that evaluate the ear acupuncture as treatment in autoimmune diseases and its pathological processes. Six patients with different degrees of PASI were treated with ear acupuncture using the points: Shemen, Kidney, Sympathetic Nervous System, Occipital, Adrenal, Allergy, Anxiety, Local Point, Hives and Tension for fourteen weeks or until symptoms disappeared. These cases showed that ear acupuncture therapy can be effective in the treatment of psoriasis at different stages. While the patients in the early stage of symptoms, even if was relapse, respond quickly to treatment, it was observed the clinical response of a patient with severe erythematous psoriasis (PASI 25.8), resistant to other treatments, significantly regressed after 14 weeks (2.4 PASI). The results indicate the importance of the development of a case-control design, to confirm the indication of this kind of therapy to *psoriasis vulgaris.*

Limit: 250 words

INTRODUCTION:

Psoriasis is a chronical inflammatory disease that affects approximately 2 to 3 % of the global population, in both genders [1]. In fact, it is an autoimmune disease guided by T-cells that affect the skin and may extend to the nails and joins and, is characterized by erythematous lesions that emerges in the body with variation on pattern and distribution. The distinguished clinical aspects allow classify as ordinary, inverted, guttate, erythrodermic and pustular. The severity is established by the area affected and degree of involvement of patient tissue. [2].

The pathogenesis of disease has been widely studied, it is known that genetic, environmental and immunological factors are involved [3]. Furthermore, the association of stress situation was detected on 71% of the cases in a study of approximately 6.000 patients, which contributes with the proposal to the participation of the epithelial neuropeptides in the disease process [4]. Other pathological aspects, such as the symmetry through the injuries, and the fact that the traumatic unilateral denervation causes remission only of the affected side was also reported. [5].

Didactically, it can be considered that the skin is constituted basically by two layers: epidermis (surface) and dermis (connective tissue). The epidermis consists 90% of keratinocytes, besides melanocytes, Langerhans cells and Merkel cells. In the dermis are present the fibroblasts, macrophages and mast cells. [6] Keratinocytes are distributed in five layers known due to their morphological characterizes, which are results of the cell differentiation stage, that start at the basal layer. This process of proliferation is stimulated from the autocrine manner of nerve growth factor (NGF), that, between other activities, influence the production of proinflammatory neuropeptides. In the psoriatic dermis is denoted the enhanced proliferation of keratinocytes, resultants from the chronical inflammation and by the enhance of NGF. [7].

There is a complex interplay between environmental and genetic factors which trigger in the psoriatic lesion. The homeostasis of this process is kept by the permanent control between fibroblasts of the dermis, keratinocytes of the epidermis and the cells of the immune system, residents and recruited. The inflammatory condition is stablished through activated dendritic cells, effectors T cells generated and attracted to skin tissue and, epithelial cells. [8].

There are several therapies adopted to the treatment, according to the present characteristics, from no drugs, such as body acupuncture and ear acupuncture, UV light treatment, topics and systemic, and others most usual, associated treatments. [9].

The immune response modulating effect by acupuncture, experimentally denoted through the inflammation control and analgesia, has been widely studied. A systematic review, realized in the mainly scientific data banks, resulted in 67

relevant articles, with experimental resource a clinical trial, involving humans and animals under the acupuncture effects in the immunological system. Specific markers, such as immunoglobulins, interleukins, others cytokines and the cellularity were used as tags of the immunological effects of the acupuncture. The results allowed to conclude that there is a positive stimulation in the pathological cases of immunosuppression, and vice-versa, in cases of inflammation and autoimmune diseases occurs the suppression of the process. [10].

In spite of several studies about the effects of acupuncture and the microsystems in the immune response, there are few works of the evaluation of this therapy in the inflammation processes and autoimmune diseases treatment, such as psoriasis. This case report presents a pilot study for the purpose of evaluate the efficiency of auriculotherapy in the treatment of psoriasis.

METHODS AND MATERIALS: it is a prospective observational study involving patients with psoriasis undergoing ear acupuncture. The sample consists in 10 (ten) individuals with a clinical diagnosis of psoriasis, without any treatment at the moment of the interview, 8 women and 2 men, ages from 24 to 59 years old, presenting no other morbid condition known, beside of the object of the study and accepted to participate of this research through the free consent and enlightened signature. This project was approved by the committee of ethics in research number 1.091.238 from 05/25th-2015.

The individuals were included in the study according to the following criteria: read, understood and signed the term of consent; age between 18 and 60 years old, cognitive capacity preserved, answer the evaluation and follow up questionnaire of the treatment, attend in the day of treatment until the disappearance of the lesions, display the medical diagnosis of psoriasis, even without the classification of the clinical phase of the disease, subject to the visual evaluation (PASI-Psoriasis Area and Severity Index). Do not present any other morbid condition, except the objective of study, do not present auricular cutaneous injuries either near the ears, due to the possibility of developing symmetric psoriatic lesions. Treatment time: ten to twelve weeks, according to Naldi & Rzany, 2009- or until the symptoms disappear. The candidates were selected from patients, students and teachers of IBRATE Technical School.

Randionic™ crystal spheres were applied in the points selected as suggested by Souza, 2013: Shemen; Kidney; Autonomic Nervous System (sympathetic); Occipital, Adrenal, Allergy; local point (injury areas); Hives and Tension.

Each session time, interview and application of the spheres, was 30 minutes approximately. The stickers remained for six days when they were removed by the patients. The interval from the removing of the stickers and new application was twenty-four hours approximately. The recruitment, interview to fulfil the questionnaire, intervention and evaluation of the results was the acupuncture ambulatory of IBRATE. The results were determined from the treatment time, characteristics of the lesions, appearance and size of the lesions (PASI), before and during the application, and registered photographically by a camera ISight with 8 megapixels of IPhone 5™

The size of the lesions was calculated with Image J™.

Data were obtained from the record of the injuries during the treatment period and information got from the questionnaire.

RESULTS:

Initially participated in the study, ten patients with psoriasis in different degrees as PASI, consulted directly in the Psoriasis Area Severity Index site (PASI) Calculator (pasi.colti.li/). Among the participants, three abandoned treatments; five with PASI between 0.2 and 2.8 achieved total disappearance of symptoms and two showed significant recovery (table 1).

Patients 01 and 02 suffered relapse of the disease, new applications for returning after several months and was required 8 and 3 weeks, respectively, for the recovery of healthy skin. Among patients who had complete disappearance of lesions the median weeks of treatment was 5 (table 1) (fig 1)

Patient 06 was the first time he had symptoms of the disease with the appearance of lesions. He made use of corticoid ointment, for the treatment and reached 100% recovery after 4 weeks.

Patients 03 and 04 are two women with disease history over twenty years. They have been subjected to various traditional treatments such as corticosteroids, methotrexate and ultraviolet. The patient 03 responds well to treatment with UV ray, but the results are short-lived. She recovered exhibiting less lesions, through association between auricular acupuncture, body acupuncture of Tung's method and diet.

Patient 04 had previously tried several forms of treatment, and the latter with methotrexate who abandoned because of side effects and poor results. She responded very well to treatment with auricular acupuncture(fig.2), and after the 12th week, we started to apply in association by body acupuncture of Tung's method, adopting 88.17, 88.18 and 88.19 points twice a week [12].

DISCUSSION

The *Psoriasis vulgaris* is the common psoriasis, multifunctional, hereditary disease which has innate and acquired immune responses involved in its pathogenesis. [13].

Psoriasis, also, can become worse under stress situation and pathological mood swings. Studies on patients and experimental models showed that selective serotonin reuptake inhibitors (SSRIs) causes decrease the needs of systemic treatment. On other hand, some SSRI can presents an anti-inflammatory effect [14,15]. Thorslund and collaborators, 2013 proved that serotonin transporter protein [SERT] is increased in tissue psoriatic lesions comparing to tissues of healthy carriers and non-carriers. Besides that, they established a correlation between chronical stress and the presence of SERT in psoriatic cells. They also demonstrated that number of positive dendritic cell to SERT was associated with severity of psoriasis (increased of PASI) and the in the epidermis injuries.

Dendritic cells are important such as cells presenters of antigen to T lymphocytes, and in the activation process of the immunological response. They are linked to cytokines rises participating in the differentiation and proliferation of T cells, specialty to the capacity of those lymphocytes on synthetize serotonin [16]. In this way, serotonergic system interferes in this interaction, and can influence on the

severity of psoriasis. Therefore, the presence of dendritic cells that capture serotonin in the tissue can trigger psoriatic lesions.

All therapeutic that acts on serotonergic system should act on the clinical expression of psoriasis, as noted in our results, between the patients observed (table 1) the speed and efficiency to the treatment by auricular acupuncture is linked to the area affected and the time of disease, probably those factors are involved in the quantity of dendritic cells and lymphocytes residents in the tissue.

According to Takagi and Yonehara, 1998, the serotonin receptors 5HT1, 5HT2 and 5HT3 are positively involved in the inducted analgesia by electro acupuncture, and the stimulation of acupuncture points can induct to serotonin release.

Ear acupuncture has been applied as acupuncture technic for more than 2500 years, and has been present in the oldest books. According to Pierre Rabischong, 2013 the therapeutic effect of auriculotherapy is due to peripheral innervation of the region for three main nerves and the central neural possible interference of different sensory fibers at the level of the brainstem and the thalamus. Conferring to Kalil-Gaspar, 2003, the autonomous and sensory nerve fibers of the skin have trophic and immune modulating properties, and the cells of the skin depends on the integrity of those innervations.

Studies wherein the denervation studies by sciatic nerve section in experimental animals, resulting in the degeneration of nerve fibers paw epidermis, resulted in the drastic reduction of the production of that paw keratinocytes, reaching up to 30% decrease, after seven days, when compared with the other paw [20].

It was confirmed that most of acupoints are located near to the nerve trunk or branches, and that the meridians correspond to the main peripheral nerves trajectory. The set of neural and neuro active components stimulated through an acupoint é denominated Neural Acupuncture Unit (NAU). Histologically it was observed a dense concentration of neuro active components in those points, when compared to adjacent areas [21]. The inserted needle in an acupoint releases a large sort of substance in the skin, muscles and connective tissue at the local and near tissues [22]. In these places are present neuro active cells such as mastocytes included histamine, substance P (SP) and cytokines [23], and all of the residents,

such as, lymphocytes macrophages, fibroblasts, platelets and keratinocytes are involved in the local and afferent signals of NAU.

Among the patients observed in our study, stands out the fast response to auricular acupuncture on those who presented PASI under 2,8. The five patients observed presented total regression of the disease state, and only one took an additional medication, corticoid ointment. The auricular acupuncture presented 100% of efficiency in those patient's treatment without any collateral effect, especially because of the use of crystals. The crystals instead needle avoid the psoriatic lesion induced by punching. These results confirm with the proposal the stimulation of an acupoint induces to the release of neuro active substances, amongst them serotonins that aid the regression of the psoriasis state. It is important to denote that the patients who presented relapse were subjected to stressful situations that triggered that.

According to Li Luan et al. 2015, showed exist an important correlation between PASI and the frequency of the circulating TH17 and TH22. Several studies have demonstrated that TH17 and TH22 contribute to the pathogenesis of psoriasis, TH22 increases the proliferation and migration of keratinocytes and reduces the differentiation of the cells [26,27]. The presence of the disease for a long period of time, apparently, implies in the stability of the system with a lower concentration of some substances and, probably, enhances other neuro active components. Thus, applying the stimulation on NAU, it is not reached the required production of substances neuro actives, serotonin; for instance; which would reach the broken equilibrium para differentiation of the keratinocytes, reason why other elements, such as corporal acupuncture, that stimulate other NAUs and a diet, would induce to a more efficient response. Besides that, it was confirmed that electro acupuncture acts in the balance between TH1/TH2 and TH17/Treg, with anti-inflammatory effects on experimental encephalitis causing the production of beta-endorphin. [28]

The decrease of serotonin influences in the inflammatory process and in the stimulation of keratinocytes production, resulting in the worsening of psoriasis state. So auriculotherapy should stimulate the production of serotonin and can act effectively in the treatment of mild to moderate cases of psoriasis.

Therefore, even though the observed results are not totally effective in severe cases, the slowdown in the clinical situation with consequent improvement in the quality of life, reducing significantly the general discomfort and the stress allows the interruption of the closed circle wherein the patient is stuck.

CONCLUSION

Based on the observed cases, we conclude that auricular acupuncture deserves to be studied deeply, with a significant size of samples, aiming to prove its efficiency, to be widely adopted in the treatment and control of psoriasis.

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Table 1: Characteristics of the studied patients with psoriasis

patients	01	02	03	04	05	06	07	08	09	10
Genre/ age year old	F/ 28	F/ 37	F/ 34	F/ 54	M/ 21	M/ 33	F/ 49	F/ 54	F/ 59	F/ 24
Time of disease (approximately years)	10	9	24	30	5	recently	15	25	7	4
Psoriasis family history	mother	unknown	father, paternal great grandfather	paternal great grandmother and brother	none	none	none	paternal great grandfather and great-aunt	none	none
Location of lesions	scalp and hindhead,	elbows	scalp, hindhead, ventral and dorsal trunk	arms, trunk and legs	hands and elbows	palms and elbows	scalp and elbows	scalp	hands and elbows	face and trunk
Characteristics of lesions	scaly, scratch	scaly, scratch	scaly	scaly	scaly, scratch	scaly	scaly, itch intensely	scaly, itch intensely	rash erythematous, itch intensely	large plaques, erythematous, scaly, scratch
Sense cause worsening	heat	heat	cold	changing weather	none	heat	heat, dry	changing weather	cold	heat
Clinical type	mixed, guttate and pustular	plaque	guttate	mixed, plaques, erythrodermic and guttate	plaques	plaques	plaques	plaques	plaques	plaques
More	worry	worry	sadness	anxiety	worr	worr	anxiety	worry	anxiety	anxiety

present feeling					y	y				
Duration of treatment (weeks)	7 e 8	3 e 3	Interrupted and restarted twice	14	5	4	interrupted	interrupted	interrupted	7
PASI initial	1,9	0,4	7,7	27,5	0,2	1,6	5,6	11,6	1,6	2,8
PASI final	0,0	0,0	3,4	4,0	0,0	0,0	N/C	N/C	N/C	0,0

Fig 1. Male, 24 years old, before and after treatment with five weeks of ear acupuncture.

fig2. Female, 54 years old, before and after treatment with twelve weeks of ear acupuncture.