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NOTE PREVIEW ARTICLE

LASER ACUPUNCTURE PERFORMED BY NURSES TO PREVENT OR RELIEVE NAUSEA AND VOMITING IN PEDIATRIC CHEMOTHERAPY: CLINICAL TRIAL LASERACUPUNTURA PELO ENFERMEIRO PARA PREVENIR OU ALIVIAR NÁUSEAS E VÔMITOS NA QUIMIOTERAPIA INFANTIL: ENSAIO CLÍNICO ACUPUNTURA LÁSER REALIZADA POR ENFERMEROS PARA PREVENIR O ALIVIAZ NÁUSEAS Y VÓMITOS EN QUIMIOTERAPIA INFANTIL: ENSAYO CLÍNICO *Cristiane da Silva Varejão¹, Fátima Helena do Espírito Santo²*

ABSTRACT

Objective: to assess the effectiveness of laser acupuncture for the prevention and relief of nausea and vomiting in children and adolescents undergoing chemotherapy. **Method:** experimental, single-blinded, randomized trial with control group to be conducted in a reference institution for cancer control and treatment with children and adolescents aged 6-17 years undergoing chemotherapy with drugs of medium and high emetogenic potential. Data analysis will be performed based on the completion of a diary and the comparison of the two groups. A 5% probability level will be adopted and the work will be performed using the SPSS software, version 17.0. The project was approved by the Research Ethics Committee under No. CAAE 33745514.033015274. **Expected results:** to minimize nausea and vomiting during chemotherapy and determine the perspectives of using acupuncture as complementary therapy. **Descritores:** Child; Nursing; Oncology; Acupuncture.

RESUMO

Objetivo: avaliar a eficácia da acupuntura a laser na prevenção e alívio de náuseas e vômitos em crianças e adolescentes que fazem quimioterapia. **Método:** estudo experimental, randomizado, simples cego do tipo grupo controle a ser realizado em uma instituição de referência no controle e tratamento do câncer, com crianças e adolescentes entre 6 e 17 anos de idade que estiverem em uso de quimioterapia com drogas de médio e alto grau emetogênico. A análise dos dados será efetuada com base no preenchimento do diário comparando-se os dois grupos. Será adotado o nível de 5% de probabilidade e, para a realização do trabalho, será utilizado o software SPSS, versão 17.0. O projeto foi aprovado pelo Comitê de Ética em Pesquisa sob o número CAAE 33745514.033015274. **Resultados esperados:** minimizar náuseas e vômitos durante a quimioterapia e apontar perspectivas do uso da acupuntura como terapia complementar. **Descritores:** Criança; Enfermagem; Oncologia; Acupuntura.

RESUMEN

Objetivo: evaluar la eficacia de la acupuntura láser en la prevención y alivio de náuseas y vómitos en niños y adolescentes sometidos a quimioterapia. **Método:** estudio experimental, aleatorio, simple ciego con grupo control a realizarse en una institución de referencia en el control y tratamiento del cáncer con niños y adolescentes entre 6 y 17 años de edad sometidos a quimioterapia con drogas de mediano y alto potencial emetogénico. El análisis de datos se realizará en base a anotaciones en un diario y la comparación de los dos grupos. Será utilizado el nivel de 5% de probabilidad y para realizar el trabajo será utilizado el software SPSS, versión 17.0. El proyecto fue aprobado por el Comité de Ética en Investigación con el N° CAAE 33745514.033015274. **Resultados esperados:** minimizar las náuseas y vómitos durante la quimioterapia y determinar las perspectivas del uso de acupuntura como terapia complementaria. **Descritores:** Niño; Enfermería; Oncología; Acupuntura.

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INTRODUCTION

Acupuncture is the body of knowledge in traditional Chinese medicine that aims at curing diseases through the application of needles (traditional form), in addition to other techniques. This ancient Chinese technique changes blood flow in the region, promoting muscle relaxation and reducing spasms, inflammation, and pain. The stimulation of certain points promotes the release of hormones such as cortisol and endorphins favoring analgesia and reducing anxiety and stress.¹

The World Health Organization (WHO) recommends acupuncture to its member states, having published several studies addressing its efficacy and safety. The consensus of the National Institutes of Health, United States, indicates the use of acupuncture for various diseases and health harms, such as: chemical dependency; rehabilitation after cerebrovascular accident; asthma; headache; post-chemotherapy nausea and vomiting; and symptoms arising from the climacterium, among others.² With respect to the latter, an experimental study conducted with 50 women, who had reported physical and/or emotional complaints relating to the climacterium, showed that the use of acupuncture had been effective in improving the climacteric syndrome.³

The WHO also recommends acupuncture treatment for nausea and vomiting, which are frequent side effects associated with chemotherapy treatments. Evidence-based studies have demonstrated the effect of acupuncture on the relief of these symptoms. A randomized study assessed 150 women diagnosed with invasive breast cancer who were undergoing chemotherapy. The participants were divided into three groups: control; classical acupuncture; and auricular acupuncture. The analysis of the data showed that classical acupuncture significantly decreased the intensity of nausea and vomiting from the first to the seventh day.⁴ Another study conducted with children used auriculotherapy to determine its effect with regard to nausea and vomiting after chemotherapy. It showed a decrease in nausea and vomiting intensity and the author reported a significant acceptance among children and their caregivers.⁵

Laser acupuncture is an additional tool for this ancient technique. It uses low-power laser to stimulate the points. It has been used successfully in several fields, including physical therapy, medicine, and dentistry. It is an alternative to metal acupuncture

needles and a non-invasive and, painless method with no side effects.⁶

As a regulatory body of professional nursing practice, the Federal Nursing Council (COFEN) enacted the Resolution 326/2008 which authorizes nurses to use acupuncture autonomously in their professional performance after obtaining a certificate issued by a *lato sensu* graduate program.⁷ Through systematic care, acupuncturist nurses may contribute with complementary therapy to control emetic symptoms and favor the improvement of cancer patients' quality of life.

OBJECTIVES

- ◆ To assess the effectiveness of laser acupuncture for the prevention and relief of nausea and vomiting in children and adolescents undergoing chemotherapy.

METHOD

This study will be experimental with a quantitative approach meeting the specificities indicated by Polit and Beck, namely: handling (there is some kind of intervention); control (group that does not receive the intervention); and randomization (randomized distribution of the subjects in the experimental or control group).⁸ Therefore, it will be an experimental randomized trial with control group. The randomization process will occur by defining two groups, namely group A, which will undergo acupuncture and receive antiemetic drugs, and B, a control group that will receive antiemetic drugs and placebo acupuncture. The distribution of the participants into the groups will occur by means of a random draw, respecting the equitable division between the two of them. This draw will be conducted using two envelopes indicating in which group the patients will participate. The project was approved by the Research Ethics Committee under No. CAAE 33745514.0.3001.5274.

◆ **Scenario of the research**

The research will be conducted in the children's outpatient chemotherapy unit of a reference institution for cancer control and treatment located in the State of Rio de Janeiro, Brazil.

◆ **Subjects of the research**

The participants of the research will be school-age children (6-11 years of age) and adolescents (12-17 years of age) undergoing chemotherapy with drugs of medium and high emetogenic potential, except those starting the first cycle.

◆ Application of acupuncture and data recording

The application of acupuncture will be performed using the Smart Led Plus laser device manufactured by VMV Biotherapy. It is a Class IIIa visible red laser with variable and continuous stimulation frequency. The application will occur on the day that the patients undergo chemotherapy and when the patients come back for the pediatrician appointment, which takes place about 20 days after the last procedure. Patients will be monitored by the researcher for six months. The children or adolescents' caregivers will receive a diary to be completed by them or the patients. They will take note of the intensity of nausea and the number of vomiting episodes. The intensity of nausea will be measured using the scale of the National Cancer Institute, United States.⁹

◆ Data analysis

Data analysis will be performed based on the diary comparing the two groups. A 5% probability level will be adopted and the work will be performed using the SPSS software, version 17.0.

◆ Ethical considerations

As advocated in Resolution 466 of 12th December 2012 of the National Health Council,¹⁰ a research protocol was submitted to the institution and the subjects and their caregivers will be informed about the stages, procedures, and risks of the research. In addition, the participants or their caregivers will be asked to sign an informed consent form.

EXPECTED RESULTS

It is expected that the application of laser acupuncture will decrease and/or relieve nausea and vomiting in children and adolescents undergoing chemotherapy, thus contributing to the improvement of these patients' quality of life. It is also intended to contribute to the scientific community, pointing out perspectives for further studies and for the use of acupuncture as a complementary therapy in nursing care at the institution.

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