






## Applicability of auriculotherapy in cancer patients: an integrative literature review

Aplicabilidade da auriculoterapia em pacientes oncológicos: revisão integrativa da literatura  
Aplicabilidad de la auriculoterapia en pacientes con cáncer: una revisión integradora de la literatura

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### ABSTRACT

**Objective:** To analyze scientific evidence in the literature on the use of auriculotherapy to relieve symptoms related to cancer and/or its treatment. **Method:** An integrative literature review based on: MEDLINE, CINAHL, LILACS, SCOPUS and COCHRANE in the last five years in English, Portuguese and Spanish. Inclusion criteria: primary studies with the central theme. Exclusion criteria: opinion articles, reviews and experience reports. **Results:** The search resulted in 435 publications, but only 11 remained after applying four selection stages. An analysis of the study designs showed that three of them (27.5%) had a high level of evidence, three (27.5%) had moderate, four (36%) had low and one (9%) had a very low level. The evaluated outcomes were related to the following symptoms: pain, constipation, nausea and vomiting, hot flashes, dyspnea, fatigue and insomnia. Moreover, 100% of the publications exposed positive effects of auriculotherapy in oncology. **Conclusion:** Auriculotherapy in cancer patients improves symptoms, and this practice was considered a safe and acceptable intervention. However, it is necessary to expand studies to obtain more favorable evidence since only 3 studies presented a high level of evidence.

### DESCRIPTORS

Complementary Therapies; Auriculotherapy; Acupuncture, Ear; Neoplasms; Oncology Nursing; Review.

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## INTRODUCTION

Cancer is currently a public health problem, classified as a chronic-degenerative disease<sup>(1)</sup> and considered one of the main causes responsible for illness and death in the world population<sup>(2)</sup>. There is an estimate of 600 thousand new cases for Brazil in the 2018-2019 biennium, with an exception for non-melanoma skin cancer (about 170 thousand new cases), so that there may be 420 thousand new cases of this disease for each year in the Brazilian population<sup>(2)</sup>.

There are three main forms of conventional treatments used for cancer, which are: surgery, radiotherapy and chemotherapy. These treatments are usually indicated concomitantly, and there are currently few malignant neoplasms which are addressed with only one type of treatment<sup>(3)</sup>. These treatment modalities can result in changes in the appearance, skills and performance of patients' daily functions. In this sense, chemotherapy deserves to be highlighted because the treatment also affects the healthy cells of the body due to the non-specificity of drugs in cellular metabolism, in addition to malignant cells, and can consequently generate several adverse effects, such as: anemia, fatigue, lack of appetite, alopecia, diarrhea, weight loss, mucositis, constipation, nausea, vomiting, and neuropathic pain, among others. Cancer patients experience psychological suffering associated with physical reactions, in which physical pain and fragility in the face of aggressive treatment make the illness situation difficult to live with<sup>(4)</sup>.

Managing symptoms related to cancer and its treatment has been recognized as a major challenge for health professionals. Thus, the suffering caused by these symptoms can delay the rehabilitation process by delaying the scheduled treatments and even abandoning them. In addition, when multiple symptoms are treated individually with pharmaceuticals, polypharmacy can further aggravate other symptoms and lead to future problems and drug interactions<sup>(5)</sup>.

There is a growing search for non-pharmacological measures and holistic forms of care around the world, and the reasons for this interest include the common side effects of drug treatments and dissatisfaction with the model of focusing on the disease and not on the health of individuals<sup>(6)</sup>. For this reason, integrative and complementary practices (ICPs) associated with conventional therapy have been used in order to favor a balance and self-control of patients<sup>(7)</sup>.

Integrative and complementary practices (ICPs) are composed of care approaches and therapeutic resources which seek to stimulate the natural mechanisms of disease prevention and health recovery through effective, safe and less invasive technologies with an emphasis on receptive listening, on developing the therapeutic bond, and on integrating the human being with the environment and society. The legitimation and institutionalization of these healthcare approaches in Brazil started with the creation of the National Policy for Integrative and Complementary

Practices (PNPIC – *Política Nacional de Práticas Integrativas e Complementares*) in 2006<sup>(8)</sup>. This policy has been advancing and expanding the provision of ICPs, and included 29 practices in 2018, namely: Homeopathy, Traditional Chinese Medicine/Acupuncture, Ayurveda, Anthroposophical Medicine, Naturopathy, Medicinal Plants and Herbal Medicine, Social Thermalism/Crenotherapy, Reiki, Yoga, Art Therapy, Biodanza, Circular Dance, Meditation, Music Therapy, Osteopathy, Chiropractic, Reflexotherapy, Shantala, Integrative Community Therapy, Apitherapy, Aromatherapy, Bioenergetics, Family Constellation, Chromotherapy, Geotherapy, Hypnotherapy, Laying on of hands, Ozone Therapy, and Flower Therapy<sup>(9)</sup>.

Auriculotherapy is part of a set of therapeutic techniques based on the precepts of Traditional Chinese Medicine (TCM), along with body acupuncture, and is an approved practice as a specialization and/or qualification for nursing professionals according to the Resolution of the Federal Council of Nursing (COFEN) 500/2015<sup>(10)</sup>.

Auriculotherapy promotes the psycho-organic regulation of the individual by means stimulating the energy points located in the ear, in which the whole organism is represented as a microsystem, and can be performed in a complementary way to conventional therapy. Materials such as needles, crystals and mustard seeds, among others, are used in applying auricular therapy. This practice can be called auricular acupressure when seeds are used, and is characterized by not using invasive materials, having easy applicability and presenting minimal side effects<sup>(11)</sup>.

Considering all the problems experienced by cancer patients associated with the possibility of using integrative and complementary practices in this area, the objective of this review was to analyze scientific evidence in the literature on the use of auriculotherapy to relieve symptoms related to cancer and/or its treatment.

## METHOD

### STUDY DESIGN

This is an integrative review of the literature which provides a synthesis of scientific data on a particular research problem<sup>(12)</sup> and the application of data results with significant evidence in clinical practice<sup>(13)</sup>. It can additionally corroborate knowledge gaps for future research. The integrative review is based on the following steps: development of the guiding question; literature search in the databases; study data collection; critical evaluation of the selected studies; analysis and discussion of results; and presentation of the integrative review<sup>(13)</sup>.

The guiding question of this study was developed from the acronym PIO, in which P represents the population, which in the present study are cancer patients, the I is the intervention which, in this case, is auriculotherapy, and the letter O (outcomes) are the results, which are determined by the symptoms presented by the patients<sup>(12)</sup>. Thus, the guiding question established for this review was: Is auriculotherapy

effective in relieving symptoms of cancer patients related to the evolution of the disease and/or its treatment?

### SELECTION CRITERIA

A temporal filter of the last five years (2014, 2015, 2016, 2017 and 2018) and an English, Portuguese and Spanish language filter were used in pre-selectioning the articles. The choice of descriptors related to the auriculotherapy intervention was carried out after searching the databases of articles that addressed this practice in order to recognize all possible terms used in the studies, with the Boolean operators AND and OR being used for the combination of these terms.

The search and selection of articles included in the review were independently carried out by two reviewers and the final results were similar. This double-checking verification is part of the second stage of elaborating an integrative review, in which the inclusion and exclusion criteria of studies/sampling or literature search are established and guarantee the reliability of the research<sup>(13)</sup>.

The studies were selected according to the following inclusion criteria: primary studies which addressed the central theme of this work in the format of national and international scientific articles. The following were excluded:

opinion articles, reviews, experience reports and research not yet completed.

The study selection was performed by carefully reading the titles and abstracts, so that works were read in full for the final selection of the articles, with those which presented the use of auriculotherapy to relieve symptoms in cancer patients as their central theme being selected.

### DATA COLLECTION

The bibliographic search was carried out in the months of September and October 2018 in the following databases: Medical Literature Analysis (PubMed/MEDLINE), Cumulative Index to Nursing and Allied Health Literature (CINAHL), *Literatura Latino-Americana e do Caribe em Ciências da Saúde* (BVS/LILACS), SCOPUS and COCHRANE. In the search, the Health Sciences Descriptors (*DeCs*) and MeSH (Medical Subject Headings): Neoplasms/*Neoplasias*, Auriculotherapy/*Auriculoterapia*, Acupressure/*Acupressão* and Acupuncture, ear/*Acupuntura auricular*. In addition to these, the CINAHL descriptor Cancer patients and the keyword cancer/*câncer* were also used, which were combined in different ways to favor a broad study search (Chart 1).

**Chart 1** – Word crossings performed according to the selected databases – Niterói, RJ, Brazil, 2019.

Database	Crossings
PubMed/MEDLINE	Neoplasms OR Cancer AND Auriculotherapy OR Acupuncture, Ear OR Acupressure OR Acupuncture Points
CINAHL	Neoplasms OR Cancer Patients AND Auriculotherapy OR Acupuncture, Ear OR Acupressure OR Acupuncture Points
BVS/LILACS	Neoplasms OR Neoplasias OR Cancer AND Auriculotherapy OR Auriculoterapia OR Acupuncture, Ear OR Acupuntura auricular OR Acupressure OR Acupressão OR Acupuncture Points OR Pontos de acupuntura
SCOPUS	Neoplasms OR Cancer AND Auriculotherapy OR Acupuncture, Ear OR Acupressure OR Acupuncture Points
COCHRANE	Neoplasms OR Cancer AND Auriculotherapy OR Acupuncture, Ear OR Acupressure OR Acupuncture Points

The study data collection was performed using the instrument developed, proposed and validated by Ursi<sup>(14)</sup>, which presents the following items: identification of the original article, objectives, methodological characteristics of the study, measured interventions, results found and level of evidence<sup>(15)</sup>.

### DATA ANALYSIS AND PROCESSING

The level of evidence was classified according to the GRADE system (Grading of Recommendations Assessment, Development and Evaluation) and consists of a comprehensive and transparent instrument for assessing the quality of the available evidence, which produces confidence in the information used and enables defining a certain recommendation, assisting the decision-making process<sup>(16)</sup>.

According to the GRADE system guidelines, the quality of the evidence is classified into four levels: high, moderate, low or very low. The starting point of the evaluation is an

analysis of the research design. Outcomes resulting from randomized clinical trials begin the evaluation with high quality scores (4 points), while those determined by observational studies start as low quality (2 points). A weighting system is subsequently used to decrease or increase the quality of the evidence. The factors which can decrease the quality of the evidence are: risk of bias (1), inconsistency of results (2), indirect evidence (3), imprecision (4) and publication bias (5), and the factors which can increase the level of evidence are related to a large magnitude of effect (6), dose-response gradient (7), and confounders which would reduce the effect found (8)<sup>(16)</sup>.

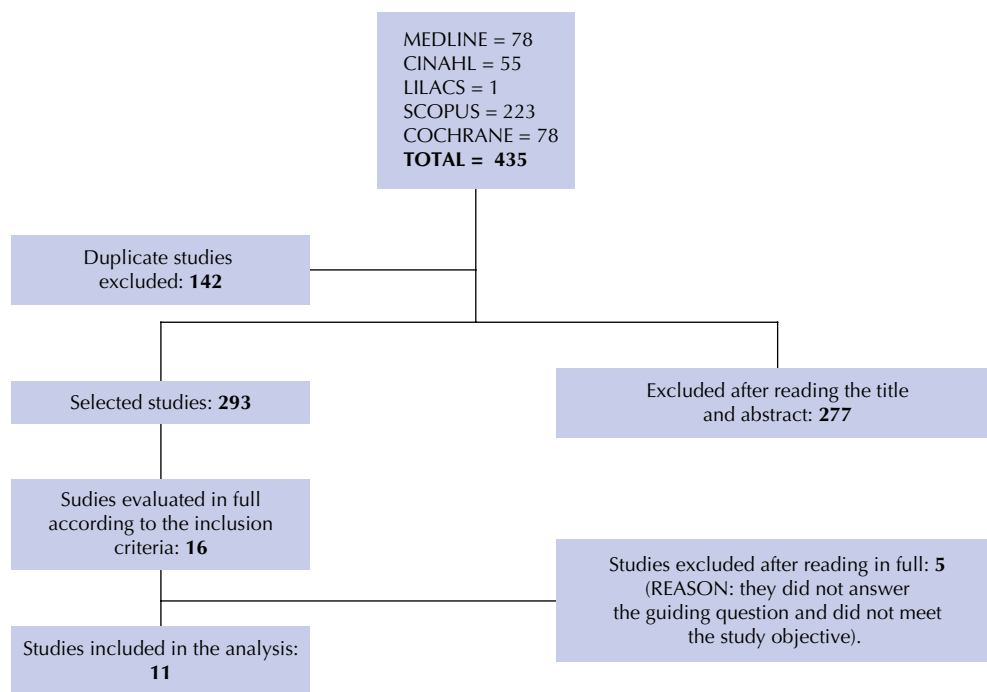
### ETHICAL ASPECTS

This manuscript does not require the opinion of the Ethics Committee because it is not a study involving human beings, but rather a bibliographic research in the literature review category.

## RESULTS

The selection and inclusion method of the studies from the search in the databases occurred by the following steps: first, duplicate articles were removed and 142 of the total of 435 articles were excluded. Then, the titles and abstracts of 293 articles were read, according to the inclusion criteria.

Thereafter, 277 articles were excluded and 16 articles were read in full, with 5 articles then being excluded because they did not answer the guiding question of this review and did not meet the study objective. Therefore, the final sample was composed of 11 selected studies. Figure 1 outlines the study selection process for this integrative review.



**Figure 1** – Selection and inclusion flowchart of integrative review studies.

The final sample of eleven articles was obtained from the study selection, with the oldest article being published in 2015 and the most recent in 2018, of which four (36.5%) were published in 2015, two (18%) in 2016, two (18%) in 2017, and three (27.5%) in 2018. Regarding the origin of the studies, all were published in English and in international journals, six (54.5%) in Nursing journals (among these, two were specific to Oncology Nursing), two (18%) in Complementary Therapy journals, one (9%) in a Palliative Care journal, one (9%) in a Climacteric journal, and one (9%) in an Oncology journal.

Ten among the eleven selected articles were repeated and appeared in more than one database, and eight (72.7%) were retrieved from the PubMed/MEDLINE databases, seven (63.6%) from CINAHL, zero (0 %) in VHL/LILACS, eleven (100%) in SCOPUS and five (45.5%) from COCHRANE. The only study found in the VHL/LILACS database was discarded because it did not fit the inclusion criteria which meant the non-inclusion of national and Latin American studies in this review.

Regarding the location of the studies, four (36.5%) were conducted in the American continent, exclusively in the

United States of America (USA), two (18%) in the European continent in France and England, and five (45.5%) in the Asian continent with an emphasis on South Korea with two works, one in China, one in Taiwan and one in Iran. It was identified that nurses participated in ten (91%) studies, while one article (9%) only refers to the participation of Doctors.

Regarding the methods, there was a predominance of Quantitative design for all eleven articles analyzed (100%), among which ten studies (91%) presented experimental studies, seven (63.5%) randomized clinical trials and three (27.5%) quasi-experiments. Only one study (9%) was of a retrospective observational nature. The analysis of the designs of the selected studies showed that three studies (27.5%) had a high level of evidence, three (27.5%) moderate, four (36%) low and only one (9%) with a very low level. These data are inserted in Chart 2 with the details on the scores of the publications included in the review according to the GRADE system.

Despite only selecting quantitative studies, six experimental studies (54.5%) were pilot studies and suggest that the findings confirm the feasibility of studies with a larger and representative sample.

**Chart 2** – Level of evidence of the studies according to the GRADE system<sup>(16)</sup> – Niterói, RJ, Brazil, 2019.

Author/Year	Study design	Decreasing factors					Increasing factors			Level of evidence
		1	2	3	4	5	6	7	8	
<b>C1:</b> Yeh CH, et al; 2017 <sup>(15)</sup> .	Quasi-Experimental Study	-1	/	/	-1	/	/	/	/	<b>Low</b> - 2 points
<b>C2:</b> Shin J, et al; 2018 <sup>(16)</sup> .	Randomized Clinical Trial	-1	/	/	/	/	/	/	/	<b>Moderate</b> - 3 points
<b>C3:</b> Eghbali M, et al; 2016 <sup>(17)</sup> .	Randomized Clinical Trial	/	/	/	/	/	/	/	/	<b>High</b> - 4 points
<b>C4:</b> Viel E, et al; 2016 <sup>(18)</sup> .	Retrospective Observational Study	/	-1	/	/	/	/	/	/	<b>Very Low</b> - 1 point
<b>C5:</b> Strong RA, et al; 2015 <sup>(19)</sup> .	Randomized Clinical Trial	/	/	/	-1	-1	/	/	/	<b>Low</b> - 2 points
<b>C6:</b> Yeh CH, et al; 2015 <sup>(5)</sup> .	Randomized Clinical Trial	/	/	/	/	/	/	/	/	<b>High</b> - 4 points
<b>C7:</b> Yeh CH, et al; 2015 <sup>(20)</sup> .	Quasi-Experimental Study	-1	-1	/	/	/	1+	/	/	<b>Moderate</b> - 3 points
<b>C8:</b> Shin N, et al; 2018 <sup>(21)</sup> .	Quasi-Experimental Study	-1	-1	/	/	/	/	/	/	<b>Low</b> - 2 points
<b>C9:</b> Kuo HC, et al; 2018 <sup>(22)</sup> .	Randomized Clinical Trial	-1	/	/	/	/	/	/	/	<b>Moderate</b> - 3 points
<b>C10:</b> Li Y, et al; 2017 <sup>(23)</sup> .	Randomized Clinical Trial	/	/	/	/	/	/	/	/	<b>High</b> - 4 points
<b>C11:</b> Hughes JG, et al; 2015 <sup>(24)</sup> .	Randomized Clinical Trial	/	/	/	-1	-1	/	/	/	<b>Low</b> - 2 points

1 - Risk of bias; 2 - Inconsistency; 3 - Indirect Evidence; 4 - Inaccuracy; 5 - Publication bias; 6 - Effect size; 7 - Dose-response gradient; 8 - Possible confounding residual.

\* The bars mean that the study did not obtain deduction or increase in score in the given aspect.

The characterization of the studies included in the review is summarized in Chart 3 and organized according to the authors, article title, publication year, objectives with the highlighted symptom, sample, intervention, measurement,

main results, recommendations, conclusions and treatment line used. The studies were grouped according to the symptoms presented by the patients in which the outcomes related to the applicability of auriculotherapy were evaluated.

**Chart 3** – Summary of the characteristics of the studies included in the review according to the authors, article title, publication year, symptom addressed, intervention, measurement, main results and conclusions, and treatment line used – Niterói, RJ, Brazil, 2019.

Article	Study design	Objective	Sample	Intervention	Measurement	Results/Conclusions	Treatment line
<b>Group 1: Pain</b>							
<b>C1:</b> Yeh CH, et al; 2017 <sup>(17)</sup> . Auricular point acupressure to manage aromatase inhibitor-induced arthralgia in postmenopausal breast cancer survivors: a pilot study.	QES <sup>a</sup>	To assess the viability of punctual ear acupressure in the management of aromatase inhibitor-induced <b>arthralgia</b> .	20 women survivors of breast cancer with aromatase inhibitor-induced arthralgia.	Bilateral ear therapy with seeds once a week for 4 weeks. Auricular points: corresponding to the location of pain and three points to relieve stress and pain (shenmen, subcortex and sympathetic).	Brief Pain Inventory - Short form (BPISF) for assessing the severity of pain, the impact of pain on daily function, the location of pain and use of analgesics; also blood samples (inflammatory cytokines and chemokines).	The mean of the worst pain observed score decreased by 27% (p = 0.05) after the first day of the intervention and reached the greatest reduction of 63% (p<0.0001) on day 28. Pro-inflammatory cytokines and chemokines showed an average percentage reduction trend. Ear acupressure is feasible and may be effective in controlling arthralgia in breast cancer survivors.	Chinese
<b>C6:</b> Yeh CH, et al; 2015 <sup>(5)</sup> . Pilot randomized controlled trial of auricular point acupressure to manage symptom clusters of pain, fatigue, and disturbed sleep in breast cancer patients.	RCT <sup>b</sup>	To assess the viability and tolerability of ear acupressure intervention to control <b>pain, fatigue and sleep disorders</b> in patients with breast cancer.	31 women with breast cancer were randomized to an intervention group (n = 16) or a placebo control group (n = 15).	Auriculotherapy with seeds once a week for 4 weeks. Auricular points: shenmen, sympathetic, occipital, subcortex and anxiety associated with pain-related points in different locations (8 to 12 points).	M. D. Anderson Symptom Inventory (MDASI) scale assessment of the severity of symptoms and interference with daily activities, in addition to a quality of life questionnaire (WHOQOL-BREF).	Participants in active auriculotherapy treatment reported a 71% reduction in pain (p = 0.0217), 44% in fatigue (p = 0.2351), 31% in sleep disorder (p = 0.0642) and 61% in the interference in daily activities (p = 0.2792). Thus, auriculotherapy can provide an inexpensive and effective complementary approach to managing groups of symptoms for breast cancer patients.	Chinese

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Article	Study design	Objective	Sample	Intervention	Measurement	Results/Conclusions	Treatment line
<b>C7:</b> Yeh CH, et al; 2015 <sup>(22)</sup> . Auricular point acupressure as an adjunct analgesic treatment for cancer patients: a feasibility study.	QES <sup>a</sup>	To examine the feasibility of an auriculotherapy protocol in terms of recruitment for evaluating and managing <b>pain</b> in cancer patients.	50 participants diagnosed with cancer with intensity > or = to 3 points on a 11-point numerical pain scale at the time of recruitment.	Auriculotherapy with seeds for 7 days. Auricular points: two fixed points (subcortex and sympathetic) and the corresponding pain points (total of 5 to 9 points). Collection was performed daily for 7 days on pain intensity and medication use.	The Brief Pain Inventory (BPI) form was used to assess the severity and impact of pain on daily functions in the past 24 hours. This assessment included pain intensity and interference, medication used and pain relief by medication.	Auriculotherapy reduced pain intensity by more than 55% for "worse pain" (p<0.0001) and about 57% for "average pain" (p<0.0001) and "pain intensity" (p<0.0001). One of the main results of this study is a decrease in medication use (78%) for pain, which can have a positive effect in decreasing the risk of potential problems related to the use of analgesics in cancer patients. Auriculotherapy therapy can be implemented in clinical practice as a non-invasive and effective intervention for managing cancer-related pain.	Chinese
<b>Group 2: Constipation</b>							
<b>C2:</b> Shin J, et al; 2018 <sup>(18)</sup> . Effects of auricular acupressure on constipation in patients with breast cancer receiving chemotherapy: a randomized control trial.	RCT <sup>b</sup>	To examine the effects of ear acupressure to relieve <b>constipation</b> in breast cancer patients undergoing chemotherapy.	52 breast cancer participants receiving chemotherapy were randomized to an intervention group (n = 26) or a control group (n = 26).	Auricular acupressure with seeds once a week for 6 consecutive weeks. Auricular points: intestine, rectum, San Jiao, spleen, lung, sympathetic and subcortex. The control group received normal care.	Constipation Assessment Scale (CAS), stool form - Bristol Stool Form (BSF), and the effect of constipation on daily life - Patient Assessment of Constipation -Quality of Life (PAC-QOL).	Participants in the intervention group had reduced scores on the constipation assessment (p<0.001), increased scores on the stool form (p = 0.003) and reduced scores on the effect of constipation on daily life (p<0.001) compared to the control group. Ear acupressure was considered a safe, acceptable and effective nursing intervention in relieving constipation in breast cancer patients undergoing chemotherapy.	Chinese
<b>C10:</b> Li Y, et al; 2017 <sup>(25)</sup> . Effect of auricular points treatment combined with acupoints application in patients with constipation after lung cancer surgery.	RCT <sup>b</sup>	To evaluate the effect of treating ear points combined with applying acupuncture points on a patient with <b>constipation</b> after lung cancer surgery.	341 lung cancer patients between 50 and 70 years after pulmonary lobectomy were randomized into the experimental group (n = 174) or the control group (n=167).	Auriculotherapy with seeds* for 1 week combined with acupuncture, in addition to routine nursing care (psychological support, guidance on diet and on postoperative activities). The control group received only routine nursing care.	The Bristol Stool Scale was used to assess the stool form. Postoperative constipation was considered after 3 days of absence of postoperative evacuation .	Compared to the two constipation groups, the constipation incidence in the control group was higher than in the experimental group (p<0.001) and the stool characteristics of the experimental group were better than in the control group (p = 0.047). Routine measures to prevent constipation after lung cancer surgery, plus ear fixation points combined with acupuncture points can effectively decrease the incidence of postoperative constipation.	Chinese
<b>Group 3: Nausea and vomiting</b>							
<b>C3:</b> Eghbali M, et al; 2016 <sup>(19)</sup> . The effect of auricular acupressure on nausea and vomiting caused by chemotherapy among breast cancer patients.	RCT <sup>b</sup>	To determine the effect of ear acupressure on the relief of <b>nausea and vomiting</b> among women who received chemotherapy.	48 women undergoing chemotherapy with drugs such as cisplatin and anthracycline were randomized to experimental and control groups.	Auriculotherapy in 1 cycle of chemotherapy with seeds was maintained for 5 days. Auricular points: zero, stomach, brain stem, shenmen and heart and standard antiemetic medication. The control group received only standard medication. The position of the two groups reversed when patients were referred for chemotherapy.	The Morrow Standard Questionnaire was used to assess nausea and vomiting before, during and after chemotherapy, its duration, intensity and duration with a 7-degree Likert scale.	The use of auriculotherapy led to a decrease in the number and intensity of nausea and vomiting episodes in the acute and late phases in the experimental group, which were significantly lower than in the control group (p = 0.001). The use of auriculotherapy at recommended points, along with other medical therapies, can relieve nausea and vomiting induced by chemotherapy, without producing side effects.	Chinese

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Article	Study design	Objective	Sample	Intervention	Measurement	Results/Conclusions	Treatment line
<b>C8:</b> Shin N, et al; 2018 <sup>(23)</sup> . Effect of auricular acupressure on nausea, vomiting, and retching in patients with colorectal cancer receiving chemotherapy.	QES <sup>a</sup>	To evaluate the effects of ear acupressure on <b>nausea and vomiting</b> in patients with colorectal cancer receiving chemotherapy.	50 participants with colorectal cancer from the second cycle of chemotherapy were divided into two groups of 25 each: experimental and control.	Auriculotherapy with seeds for 2 days. Auricular points: zero, stomach, brain stem, shenmen and heart. The control group received no intervention.	The Korean version of the Index of Nausea, Vomiting, and Retching (INVR) to measure the frequency, distress and duration associated with nausea and the amount of vomiting.	The experimental group showed significantly less nausea ( $p = 0.011$ ) and retching ( $p = 0.014$ ) than the control group. The results propose that auriculotherapy is effective in relieving nausea and vomiting after chemotherapy, and that this procedure be used as a nursing intervention because it helps to improve the quality of life of patients with colorectal cancer.	Chinese
<b>Group 4: Hot flashes</b>							
<b>C4:</b> Viel E, et al; 2016 <sup>(20)</sup> . Efficiency of auricular acupuncture in climacteric symptoms after cancer treatments	ROS <sup>c</sup>	Highlight the efficiency of auriculotherapy in the treatment of post-therapeutic <b>hot flashes</b> in cancer patients.	41 participants with cancer and hot flash symptoms, especially related to chemotherapy and/or hormone therapy	Auriculotherapy with semi-permanent needles or cryotherapy. Auricular points: rhinencephalon, FSH and LH hormones, anterior hypothalamus, epiphysis, main point of the sympathetic nervous system and thyroid plexus. Variation from 1 to 5 applications with an interval of at least 4 weeks between two sessions.	Evaluation of self-reported efficacy recorded in medical records.***	It was recognized that at least 3 sessions are needed before judging whether the intervention has failed. And 69%** of the study participants noticed an improvement in hot flashes. Auriculotherapy is an effective method among patients who have had menopause symptoms related to cancer treatment and has been considered safe and inexpensive to treat hot flashes.	French
<b>Group 5: Dyspnea</b>							
<b>C5:</b> Strong RA, et al; 2015 <sup>(21)</sup> . pilot evaluation of auricular acupressure in end-stage lung cancer patients.	RCT <sup>b</sup>	To evaluate the effects of standardized ear acupressure therapy on the intensity of <b>dyspnea</b> and oxygen saturation in patients with end-stage lung cancer.	11 participants with a lung cancer diagnosis were randomized and assigned to one of three treatment conditions: (1) Control group; (2) Placebo group and (3) Experimental group.	(1) Standard care; (2) False auriculotherapy with seeds in a location not associated with the lung; and (3) Auriculotherapy with seeds* in a specific lung function location in both ears. True and false ear therapy with seeds kept for 3 days.	The 12-item Cancer Dyspnea Scale (CDS) assesses three dimensions of dyspnea (feeling of effort, feeling of anxiety and feeling of discomfort) using a 5-point Likert scale to answer each item. Oxygen saturation was measured by the pulse oximeter at eight moments.	Statistical analyzes suggest the presence of a significant effect of the experimental group on the exertion sensation of dyspnea ( $p = 0.43$ ), but the oximetry values did not change. The intervention seems to be viable and potentially useful, it was well tolerated by the participants and did not have any side effects. Thus, this population, although fragile, is an appropriate focus for intervention studies aimed at reducing dyspnea, since the burden of discomfort is minimized as much as possible.	Chinese
<b>Group 6: Fatigue</b>							
<b>C6:</b> Yeh CH, et al; 2015 <sup>(5)</sup> .	Described in Group 1, but it also fits in Groups 6 and 7 because it addresses the following set of symptoms: Pain, fatigue and sleep disorders.						
<b>Group 6: Sleep disorders</b>							
<b>C6:</b> Yeh CH, et al; 2015 <sup>(5)</sup> .	Described in Group 1, but it also fits in Groups 6 and 7 because it addresses the following set of symptoms: Pain, fatigue and sleep disorders.						
<b>C9:</b> Kuo HC, et al; 2018 <sup>(24)</sup> . Pilot randomized controlled trial of auricular point acupressure for sleep disturbances in women with ovarian cancer.	RCT <sup>b</sup>	To assess the feasibility, acceptability and efficacy of punctual acupressure to reduce <b>sleep disorders</b> in women with ovarian cancer undergoing chemotherapy.	47 women with ovarian cancer with a high level of sleep disorders undergoing chemotherapy were randomized to an intervention group ( $n = 23$ ) or a control group ( $n = 24$ ).	Auriculotherapy for 6 weeks with seeds. Auricular points: anxiety, heart, subcortex and endocrine, in addition to sleep hygiene practices. The participants in the control group only received sleep hygiene practices.	The Pittsburgh Sleep Quality Index (PSQI) and a self-reported questionnaire were used.	The results indicate that high levels of disturbed sleep were observed between the two groups after receiving the third cycle of chemotherapy, and the auriculotherapy intervention was effective in improving sleep by 13-19% in the sleep quality index scores compared to the control group ( $p < 0.001$ ). Auriculotherapy appears to be a promising, viable and effective approach to help women with ovarian cancer with sleep disorders.	Chinese

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Article	Study design	Objective	Sample	Intervention	Measurement	Results/Conclusions	Treatment line
C11: Hughes JG, et al; 2015 <sup>(26)</sup> . A feasibility study of auricular therapy and self-administered acupressure for insomnia following cancer treatment.	RCT <sup>b</sup>	To provide preliminary data on the effectiveness of two variants of auriculotherapy and self-administered acupressure in relieving insomnia in cancer survivors.	7 participants diagnosed with cancer after the end of treatment were randomized to one of three treatment conditions: (1) Auriculotherapy (n = 4); (2) self-administered body acupressure (n = 1); and (3) no treatment (n=2).	Auriculotherapy (1) was bilaterally performed with seeds on the following auricular points: shenmen, insomnia, heart, liver, kidney and subcortex. Body acupressure (2). The third group received no additional treatment (3). All arms of the study received weekly treatment for 5 weeks, according to the respective group.	Pittsburgh Sleep Quality Index (PSQI) which measures sleep quality and the MYCaW questionnaire, which is individualized and evaluated concerns and well-being, and was developed to assess complementary therapies in cancer treatment.	The overall PSQI score was better in the acupressure group than in the untreated group (p<0.00001). Despite the very limited sample size, all patients allocated to receive ear therapy or autoacupressure experienced significant improvements in their insomnia symptoms. Auriculotherapy is a non-invasive intervention which seems safe and acceptable for cancer patients, and can represent an effective treatment for chronic insomnia syndrome.	Chinese

<sup>a</sup>Quasi-Experimental Study (QES); <sup>b</sup>Randomized Clinical Trial (RCT); <sup>c</sup>Retrospective Observational Study (ROS).

\* Studies C5 and C10 did not specify the auricular points. \*\* Study C4 did not show the p-value. \*\*\* Study C4 did not use a scale to assess hot flashes.

Regarding the target population of the studies, all samples consisted of adult and older adult cancer patients who were being monitored by the respective services: in conventional cancer treatment, cancer survivors and patients in palliative care.

Chart 4 shows the types of cancer of the patients participating in the selected studies:

**Chart 4** – Types of cancer addressed in the selected articles – Niterói, RJ, Brazil, 2019.

Types of cancer	Identification of the articles
Breast cancer	C1, C2, C3, C4, C6 and C11
Prostate cancer	C4
Lung cancer	C5 and C10
Colorectal cancer	C8 and C11
Ovarian cancer	C9
Not specified	C7

There was a big difference between the studies regarding the number of participants which ranged from seven to 341 individuals, while the variation for age also had a significant range from 19 to 93 years. Another important data related to the patient characteristics in the research was gender; these groups were formed by participants of both genders in five studies (45.5%), and four studies (36.5%) only had female groups related to ovarian and breast cancers, while the gender of the participants was not specified in two studies (18%).

In addition to the type of cancer, it was found that patients in seven studies (64%) were undergoing some type of conventional treatment when approached for application of auriculotherapy, such as: Chemotherapy, Hormone

Therapy and Surgery. There were no participants who had undergone specific treatments in two studies (18%), C5 and C11, but in post-treatment follow-up and palliative care. The authors of articles C6 and C7 (18%) did not specify which treatment stage the participants were in.

The auriculotherapy intervention was performed through auricular acupressure with seeds in ten studies (91%), while semi-permeable needles and cryotherapy were used for this procedure only in study C4 (9%). Moreover, body acupuncture was specifically added for relief of post-operative constipation, in addition to ear acupressure with seeds in study C9. Article C11 addresses insomnia in the post-treatment of cancer patients with three intervention arms with randomization, in which ear acupressure and self-administered body acupuncture were used or no treatment.

The use of auricular acupressure with seeds was applied in seven studies (64%), which was accompanied by instruction to the participants to apply manual pressure to the seeds at all auricular points, three times a day (morning, afternoon and night) for three minutes each. Participants were instructed to apply manual pressure to the seeds, four times a day for five minutes in a single study (9%), while in another isolated study (9%) patients were instructed to apply manual pressure to the seeds only once, at night, for a minute. Two articles (18%) did not mention this type of guidance to patients, study C4 used auriculotherapy with needles and cryotherapy, and study C5 addressed patients with lung cancer with terminal respiratory distress.

Some authors reported minimal and bearable local side effects of the auriculotherapy intervention in seven studies (63.5%), only one study (9%) reported an absence of these effects, and three others (27.5%) did not mention anything about it in their articles. All analyzed studies (100%) exposed positive effects of auriculotherapy on the symptoms



of patients with cancer and/or its treatment and indicated the use of this intervention.

Ten studies (91%) used scales to quantify their improvement to determine the effectiveness of the auriculotherapy intervention on the treated symptoms, and one article (9%) did not describe which form of measurement was applied.

Regarding the treatment lines used for auricular therapy, publications presented a predominance of the Chinese treatment line with ten studies (91%) and only one article expressed the use of the French treatment line.

## DISCUSSION

The mercantilist view on health prevailing in society is characterized by spending more time and resources focused on diseases, with unrestrained use and development of technologies and medicines aiming at generating profits and fragmenting patient treatments into specializations, as they fail to perceive the totality of the human being. In this context, the progressive advance acquired by integrative and complementary practices (ICPs) has gained prominence and can be understood as the expression of a movement with new ways of learning and practicing health. It is about revealing that there are practices which are capable of making a difference through alternative ways of promoting health, and are non-profit, less costly, more humanized and more able to take care of the human being as a whole<sup>(27)</sup>.

Research has shown that integrative and complementary practices (ICPs) in health can be used as coping strategies for various specializations in the health field, including oncology, due to the fact that treatments are overly invasive, present very evident therapeutic limits and relevant therapeutic damage, and therefore increasingly affect the patients' quality of life<sup>(6)</sup>.

Thus, the high prevalence of unresolved symptoms for cancer patients indicates that better management of these symptoms is necessary, because in addition to the burden that the disease brings, patients also face the side effects of treatments<sup>(5)</sup>. The results of the present review study suggest that there was a predominance of studies (64%) in which the symptoms reported by the patients were related to the side effects arising from the performed treatments.

A Japanese study mentions that cancer patients generally take several drugs to reduce the side effects of chemotherapy, but prefer non-pharmacological intervention measures<sup>(28)</sup>. By means of the results, it was identified that most of the analyzed studies (45.5%) in this review had the use of auriculotherapy concentrated on the Asian continent, which has a rooted Traditional Chinese Medicine culture, and may justify the numerous studies in these places and the great acceptance of patients regarding these practices.

Despite this, research related to integrative and complementary practices (ICPs) is expanding to the West, mainly in the United States, in which four articles (36.5%) were developed on auriculotherapy in Oncology. A confirmation of this interest is the guideline produced by the Society for Integrative Oncology (SIO), based on evidence about the use of integrative therapies during and after breast cancer treatment, which was determined to be

relevant by the American Society of Clinical Oncology (ASCO). The main recommendations include: music therapy, meditation and yoga to reduce anxiety and stress; meditation, relaxation, yoga, massage and music therapy are also recommended for depression and mood disorders; meditation and yoga are recommended to improve the quality of life; and the use of acupressure and acupuncture are recommended to reduce chemotherapy-induced nausea and vomiting<sup>(29)</sup>.

Auriculotherapy is one of the most widely used therapeutic methods in different countries, being extensively applied by doctors and nurses as a preventive-therapeutic measure<sup>(19)</sup>. In the field of nursing, auricular acupressure has been widely used instead of needle acupuncture, as there is no need for acupuncture specialists to apply this practice, as professionals with training courses in the area can perform it<sup>(22)</sup>. The acceptability of these health professionals and ease in applying the technique may justify the data exposed in the result of this review with ten articles (91%) referring to nurses participating in intervention studies with auriculotherapy.

The use of auricular acupressure with seeds was present in nine studies (91%) of this review, being a potentially effective way to control several symptoms. As it is a non-invasive intervention, it does not have side effects such as those that can be caused by acupuncture needles such as local infection and phobia caused by needle insertion<sup>(22)</sup>. In addition, the use of seeds is less costly, safe, fast, adaptable to environmental conditions and can be implemented in clinical practice as a great option within integrative and complementary practices (ICPs)<sup>(19)</sup>.

A systematic literature review was published in 2014 on the adverse effects of auriculotherapy, indicating that all effects reported by 87 clinical trials were considered to be short-term, mild and tolerable reactions, such as: local discomfort, transient pain, irritation on the local skin, as well as dizziness and minor bleeding in rare cases. Some of these symptoms were potentially preventable and no serious adverse effects were detected. As conclusions based on the findings, the authors considered that the safety of auriculotherapy was superior when compared to other alternative therapies<sup>(30)</sup>.

Study C6 mentioned that approximately two thirds of the patients reported ear discomfort in the places where the seeds were inserted during the first days of treatment, and that these effects were gradually decreasing. However, the participants were willing to tolerate some local discomfort because they were motivated to try a new therapy after having suffered pain for a prolonged period<sup>(5)</sup>. On the other hand, the C5 study states that the adverse effects of auriculotherapy reported by the participants were minimal and local, among which the most common were: pain, discomfort and itching in the ear. However, no participant dropped out of the study because of these effects, which implies that they are tolerable. In addition, the participants indicated that any adverse effects were minor compared to suffering from cancer<sup>(21)</sup>. This is in line with the presented results, which show that seven articles (63.5%) confirm the

presence of mild and bearable side effects in view of the presented benefits.

Thus, a series of disorders can be treated by stimulating different auricular points through auriculotherapy such as pain relief and any chronic or acute pain; psychological disorders, such as anxiety and depression; smoking cessation and substance abuse; an adjuvant in treating obesity; nausea and vomiting in pregnancy; constipation; insomnia; in addition to the symptoms related to cancer and its treatment<sup>(19)</sup>.

The results of the present review indicate that the use of auriculotherapy in cancer patients offered improvements in the symptoms presented in all articles (100%), and most studies (91%) proved the effectiveness of the technique through symptom scales. Thus, the symptoms reported by cancer patients and treated with auriculotherapy were: pain (27.5%), constipation (18%), nausea and vomiting (18%), hot flashes (9%), dyspnea (9%), fatigue (9%) and insomnia (27.5%). All of these findings prove the diversity of symptoms which have already been studied regarding auriculotherapy intervention in oncology, but none stood out in relation to the number of studies, and all presented similar percentages with a maximum of three articles related to a symptom.

The search with the descriptors and keywords presented in five databases may have interfered with the obtained results, despite the search for terms which covered the auriculotherapy universe. This review summarizes the evidence on the use of auriculotherapy for symptom relief in cancer patients in the past five years and provides guidance for nurses to reflect on the use of this integrative and complementary practice in their activities, since

pharmacological interventions normally administered are not able to serve this population and may even cause damage due to drug interactions<sup>(5)</sup>.

## CONCLUSION

The results of this integrative review indicate that the use of auriculotherapy in cancer patients improves the presented symptoms, and the authors recommend this practice as a safe and well-tolerated nursing intervention in which the benefits outweigh the small side effects which may arise from the procedure.

From the analyzed studies, it is possible to state that most of the symptoms reported by patients were related to the side effects resulting from the treatments performed for cancer. In addition, the results also suggest that oncology nursing care is highlighted, since most intervention studies with auriculotherapy had nurses' participation.

In this context, the oncologist nurse has an important role in relieving several symptoms resulting from cancer, as they are able to use different techniques to improve the quality of life of patients and increase the variety of care options in order to favor recovery and maintenance of patients' health regarding treatment and rehabilitation.

However, the amount of research on this topic is still limited, mainly in Brazil. There is also a limitation regarding the quality of the studies carried out, since only three of the eleven articles found presented a high level of evidence. Thus, more high quality studies still need to be carried out in order to better understand the use of auriculotherapy to treat the various symptoms presented by cancer patients.

## RESUMO

**Objetivo:** Analisar evidências científicas na literatura do uso da auriculoterapia no alívio de sintomas relacionados ao câncer e/ou seu tratamento. **Método:** Revisão integrativa da literatura nas bases: MEDLINE, CINAHL, LILACS, SCOPUS e COCHRANE, nos últimos cinco anos e nos idiomas inglês, português e espanhol. Critérios de inclusão: estudos primários com o tema central. Critérios de exclusão: artigos de opinião, revisões e relato de experiência. **Resultados:** A busca resultou em 435 publicações e após quatro etapas de seleção restaram 11. A análise dos desenhos dos estudos mostrou que três deles (27,5%) apresentaram nível de evidência alto, três (27,5%) moderado, quatro (36%) baixo e um (9%) muito baixo. Os desfechos avaliados foram relacionados aos seguintes sintomas: dor, constipação, náuseas e vômitos, fogachos, dispneia, fadiga e insônia. E 100% das publicações expuseram efeitos positivos da auriculoterapia em oncologia. **Conclusão:** A auriculoterapia em pacientes oncológicos proporciona melhora dos sintomas e esta prática foi considerada uma intervenção segura e aceitável. Entretanto, é necessário ampliar estudos para obtenção de mais evidências favoráveis já que somente 3 estudos apresentaram alto nível de evidência.

## DESCRITORES

Terapias Complementares; Auriculoterapia; Acupuntura Auricular; Neoplasias; Enfermagem Oncológica; Revisão.

## RESUMEN

**Objetivo:** Analizar evidencias científicas en la literatura del uso de la auriculoterapia en el alivio de los síntomas relacionados al cáncer y/o su tratamiento. **Método:** Revisión integrativa de la literatura en las bases: MEDLINE, CINAHL, LILACS, SCOPUS y COCHRANE, en los últimos cinco años y en los idiomas inglés, portugués y español. Criterios de inclusión: estudios primarios con el tema central. Criterios de exclusión: artículos de opinión, revisiones y relato de la experiencia. **Resultados:** La busca resultó 435 publicaciones y después de cuatro etapas de selección restaron 11. El análisis de los diseños de los estudios mostró que tres de ellos (27,5%) presentaron nivel de evidencia alto, tres (27,5%) moderado, cuatro (36%) bajo y un (9%) muy bajo. Los desfechos evaluados fueron relacionados a los siguientes síntomas: dolor, constipación, náuseas y vómitos, sofocos, disnea, fatiga y insomnio. 100% de las publicaciones expusieron efectos positivos de la auriculoterapia en la oncología. **Conclusión:** La auriculoterapia en pacientes oncológicos proporciona mejora de los síntomas y esta práctica fue considerada una intervención segura y aceptable. Sin embargo, es necesario ampliar estudios para obtención de más evidencias favorables ya que solamente 3 estudios presentaron alto nivel de evidencia.

## DESCRIPTORES

Terapias Complementarias; Auriculoterapia; Acupuntura Auricular; Neoplasias; Enfermería Oncológica; Revisión.

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