SIO Monthly Digest August 2021

1. **Effects of General Anesthesia Combined with Epidural Anesthesia on Cognitive Dysfunction and Inflammatory Markers of Patients after Surgery for Esophageal Cancer: A Randomised Controlled Trial**

J Coll Physicians Surg Pak. 2021 Aug;31(8):885-890. doi: 10.29271/jcpsp.2021.08.885.

Authors

Ping Jiang [1], Mao Jun Li [2], An Qiong Mao [1], Qing Liu [1], Ying Zhang [1]

Abstract

Objective: To evaluate the impact of general anesthesia (GA) combined with epidural anesthesia (GAEA) on postoperative cognitive dysfunction (POCD) and inflammatory markers in patients with esophageal cancer (EC). Study Design: A randomised controlled trial.

Place and duration of study: Department of Anesthesiology, Traditional Chinese Medicine Hospital of Southwest Medical University, Luzhou, Sichuan Province, China, from August 2019 to April 2020.

Methodology: SPSS was used to randomly divide 142 cases into two groups, namely: the GA (n=71) and GAEA (n=71) categories. 128 candidates were used in this study. Cognitive function and the levels of interleukin 6 (IL-6), interleukin 8 (IL-8), and tumor necrosis markers α (TNF-α) in serum were evaluated at baseline, 1, 3 and 7 days after operation by Montreal Cognitive Assessment (MoCA) and enzyme-linked immunosorbent assay (ELISA), respectively. Pearson correlation analysis was used to assess the interrelationships between MoCA score and inflammatory markers levels.

Results: Compared to the GA group (n=64), the GAEA category (n=64) showed significantly higher MoCA score on 1 day and 3 days postoperatively (all $p < 0.05$). IL-6, IL-8 and TNF-α in the GA group were significantly increased on 1, 3 and 7 days after surgery (all $p < 0.05$). Pearson correlation analysis indicated that the three inflammatory markers were inversely correlated with cognitive function score (all $p < 0.05$). The postoperative adverse events between the two groups were comparable (all $p > 0.05$).

Conclusion: Combining general and epidural anesthesia may reduce the incidence of POCD in patients undergoing esophagectomy by suppressing inflammatory response.

2. **Exploration of therapeutic applicability and different signaling mechanism of various phytopharmacological agents for treatment of breast cancer**

Biomed Pharmacother. 2021 Jul;139:111584. doi: 10.1016/j.biopha.2021.111584. Epub 2021 May 10.

Authors

Vandana Singh [1], Kuldeep Kumar [2], Deepika Purohit [3], Ravinder Verma [1], Parijat Pandey [4], Saurabh Bhatia [5], Vinay Malik [6], Vineet Mittal [1], Md Habibur Rahman [7], Ghadeer M Albadrani [8], Mohammed W Arafah [9], Fatma M El-Demerdash [10], Muhammad Furqan Akhtar [11], Ammara Saleem [12], Mohamed Kamel [13], Agnieszka Najda [14], Mohamed M Abdel-Daim [15], Deepak Kaushik [16]

Abstract

Background: Cancer is one of the most dreaded diseases characterized by uncontrolled proliferation of abnormal cells that occurs due to impairment of cell division and apoptosis process. Cancer is categorized into several types on the basis of affected organs and breast cancer (BC) is the most predominant cause of mortality among women. Although, several synthetic and semi-synthetic therapies have been developed for the treatment of BC but they exhibit numerous serious adverse effects therefore; pharmacological agents with fewer/no side effects need to be explored. Plants and phytoconstituents perhaps fulfill the aforementioned requirement and could serve as a potential and alternative therapy for BC treatment. The ongoing biomedical research, clinical trials and number of patents granted have further boosted the acceptance of the plants and plant-derived constituents in the effective treatment of BC.

Purpose of study: Various treatment strategies such as checkpoint inhibitors, targeting micro RNA, apoptotic pathway, BRCA-1 gene, P_{53} protein, P13K/Akt/mTOR pathway, notch signaling pathway, hedgehog/gli-1 signaling pathway, poly-ADP ribose polymerase inhibitors, mitogen-activated protein kinase inhibitors etc. are available for BC. In addition to these synthetic and semi-synthetic drug therapies, several natural constituents such as alkaloids, sesquiterpenes, polyphenols, flavonoids and diterpenoids from medicinal plants, vegetables and fruits are reported to possess promising anti-cancer activity. The purpose of the present review is to highlight the various signaling pathways through which plants/herbs show the anti-cancer potential especially against the BC.

Study design: The literature for the present study was collected from various databases such as Pubmed, Scopus, Chemical Abstracts, Medicinal and aromatic plant abstracts, Web of Science etc. The different patent databases were also reviewed for the anti-cancer (BC) potential of the particular herbs/plants and their formulations.

Result and conclusion: In this review, we have discussed the number of plants along with their patents of different herbal formulations which are being used for the treatment of BC and other types of cancers. We have also delineated the different signaling mechanisms through which they inhibit the growth of BC cells. In nutshell, we can conclude that large numbers of herbs or their extracts are reported for the treatment of BC. But still, there is further need for research in-depth to translate the use of natural products clinically BC treatment.

3. Effects of traditional Chinese medicine combined with chemotherapy for extensive-stage small-cell lung cancer patients on improving oncologic survival: study protocol of a multicenter, randomized, single-blind, placebo-controlled trial

Trials. 2021 Jul 8;22(1):437. doi: 10.1186/s13063-021-05407-1.

Authors

Yuyi Chen [1], Mingwei Yu [1], Zishen Liu [1], Yi Zhang [1], Qiwei Li [1], Guowang Yang [2]

Abstract

Background: Extensive-stage small-cell lung cancer (ES-SCLC) is characterized by extensive metastases, aggressive progression, and poor prognosis. Chemotherapy is applied as a preferred first-line regimen for ES-SCLC, but inadequate for improving its overall survival. Traditional Chinese medicine (TCM) is widely used in the clinical practice of ES-SCLC for its synergy with chemotherapy. However, there is still no substantial evidence to prove that TCM can effectively improve the long-term efficacy of ES-SCLC patients. The study intends to determine whether the TCM with chemotherapy can improve the overall survival (OS) in treating with ES-SCLC when compared with chemotherapy alone.

Method/design: A multicenter, randomized, single-blind, placebo-controlled clinical trial will be conducted to determine whether the TCM granules combined with chemotherapy can improve the OS of ES-SCLC. Two hundred seventy participants will randomly receive 4-6 cycles (21 days per cycle) of chemotherapy plus TCM granules or placebo. The primary outcome measure is OS. The secondary outcome measures includes progression-free survival (PFS), objective response rate (ORR), quality of life (QoL), and tumor markers. Visits will be performed at the end of each cycle during the treatment period and then every 3 months in the follow-up period until the patients' death or study completion.

Discussion: The study's result will provide a high-level evidence for TCM granules using with chemotherapy on the first-line treatment of ES-SCLC.

4. Integrated Treatment of Breast Cancer-related Lymphedema: A Descriptive Review of the State of the Art

Anticancer Res. 2021 Jul;41(7):3233-3246. doi: 10.21873/anticanres.15109. Epub 2021 Jul 5.

Authors

Paolo Marchica [1], Salvatore D'Arpa [2], Stefano Magno [3], Cristina Rossi [3], Luana Forcina [3], Vita Capizzi [2], Sebastiano Oieni [2], Carmela Amato [4], Dario Piazza [5], Vittorio Gebbia [6 7]

Abstract

Background/aim: Upper limb breast cancer-related lymphedema (BCRL) is a chronic and severe condition affecting a significant percentage of breast cancer survivors. Even though its physiopathology is well-known, there is no worldwide consensus on BCRL evaluation and a gold-

standard treatment. This narrative review aims at providing a brief descriptive overview with regard to BCRL treatment modalities.

Materials and methods: We conducted a literature search within the PubMed database, and 33 articles out of 56 were selected, including reviews, systematic reviews, and meta-analyses aiming find the most updated evidence regarding BCRL treatment modalities.

Results: Physical exercise (aerobic exercise, resistance exercise, aquatic therapy), bandages, and intermittent pneumatic compression were shown to be most effective in BCRL patients, in terms of swelling reduction in the acute-intensive phase. Furthermore, physical exercise was beneficial also as a maintenance tool. Manual lymphatic drainage demonstrated efficacy in preventing secondary lymphedema if applied immediately after breast cancer surgery or in early phases of BCRL or as a maintenance tool. Complementary procedures such as acupuncture, reflexology, yoga and photo-biomodulation therapy did not show conclusive results in BCRL treatment. Surgery was shown effective in managing symptoms (liposuction), preventing (lymphaticovenular anastomosis) and treating BCRL (vascularized lymph node transfer).

Conclusion: BCRL is still a challenging condition either for breast cancer survivors and clinicians, deeply impacting patient functioning and quality of life. Due to the lack of globally accepted criteria in evaluating BCRL, to date a gold standard treatment for this widespread issue is still needed.

5. Digestion-Specific Acupuncture Effect on Feeding Intolerance in Critically Ill Post-Operative Oral and Hypopharyngeal Cancer Patients: A Single-Blind Randomized Control Trial

Nutrients. 2021 Jun 19;13(6):2110. doi: 10.3390/nu13062110.

Authors

Eyal Ben-Arie [1], Tzu-Hsuan Wei [2], Hung-Chi Chen [3], Tsung-Chun Huang [3], Wen-Chao Ho [4], Chiu-Ming Chang [2], Pei-Yu Kao [5 6], Yu-Chen Lee [1 2 7]

Abstract

Malnourishment is prevalent in patients suffering from head and neck cancer. The postoperative period is crucial in terms of nutritional support, especially after composite resection and reconstruction surgery. These patients present with a number of risk factors that aggravate feeding intolerance, including postoperative status, prolonged immobility, decreased head elevation, mechanical ventilation, and applied sedative agents. Routine management protocols for feeding intolerance include prokinetic drug use and post-pyloric tube insertion, which could be both limited and accompanied by detrimental adverse events. This single-blind clinical trial aimed to investigate the effects of acupuncture in postoperative feeding intolerance in critically ill oral and hypopharyngeal cancer patients. Twenty-eight patients were randomized into two groups: Intervention group and Control group. Interventions were administered daily over three consecutive postoperative days. The primary outcome revealed that the intervention group reached 70% and 80% of target energy expenditure (EE) significantly earlier than the control group (4.00 ± 1.22 versus 6.69 ± 3.50 days, p = 0.012), accompanied by higher total calorie intake within

the first postoperative week (10263.62 ± 1086.11 kcals versus 8384.69 ± 2120.05 kcals, p = 0.004). Furthermore, the intervention group also needed less of the prokinetic drug (Metoclopramide, 20.77 ± 48.73 mg versus 68.46 ± 66.56 mg, p = 0.010). In conclusion, digestion-specific acupuncture facilitated reduced postoperative feeding intolerance in oral and hypopharyngeal cancer patients.

6. Clinical therapeutic effects of acupuncture in treating patients with dysphagia after radiotherapy in nasopharyngeal carcinoma: A protocol for systematic review and meta-analysis

Medicine (Baltimore). 2021 Jul 2;100(26):e26410. doi: 10.1097/MD.0000000000026410.

Authors

Ying-Huai Wang [1], Hong-Zheng Cheng, Kun Liu, Bin-Lin Cai, Yi Luo, Dan Kan, Jie Zhang

Abstract

Background: Dysphagia is a commonly occurring condition in nasopharyngeal carcinoma (NPC) patients after radiotherapy. There has been an increasing number of studies focused on assessing the use of acupuncture to manage dysphagia. Moreover, the quality of the research has gradually increased. The present research will be conducted to systematically evaluate the efficiency and safety of using acupuncture to treat cases of dysphagia after radiation therapy in NPC patients.

Methods: Literature search will include all potential randomized controlled trials using MEDLINE, Cochrane Library, Web of Science, EMBASE, Chinese National Knowledge Infrastructure, Chinese BioMedical Literature, and WanFang database from their inception to May, 2021 without language or publication status restrictions, to evaluate the efficiency and safety of using acupuncture to treat dysphagia cases following radiation therapy in NPC patients. A couple of independent authors will select related literature, extract data from studies, and estimate this risk in the bias of the selected study articles. In the instance of contrasting opinions, the outcome is mediated through discussion with a different independent author. The data synthesis and statistical analysis will be completed with the RevMan software (version 5.3).

Results: This study will evaluate the efficiency and safety of using acupuncture to treat dysphagia cases after radiation therapy in NPC patients.

Conclusion: This study will determine the suitability of acupuncture as an effective and safe intervention for dysphagia in NPC patients after radiotherapy.

7. NMR Profiling of *Ononis diffusa* Identifies Cytotoxic Compounds against Cetuximab-Resistant Colon Cancer Cell Lines

Molecules. 2021 May 28;26(11):3266. doi: 10.3390/molecules26113266.

Authors

Vittoria Graziani [1], Nicoletta Potenza [1], Brigida D'Abrosca [1], Teresa Troiani [2], Stefania Napolitano [2], Antonio Fiorentino [1], Monica Scognamiglio [1]

Abstract

In the search of new natural products to be explored as possible anticancer drugs, two plant species, namely *Ononis diffusa* and *Ononis variegata*, were screened against colorectal cancer cell lines. The cytotoxic activity of the crude extracts was tested on a panel of colon cancer cell models including cetuximab-sensitive (Caco-2, GEO, SW48), intrinsic (HT-29 and HCT-116), and acquired (GEO-CR, SW48-CR) cetuximab-resistant cell lines. *Ononis diffusa* showed remarkable cytotoxic activity, especially on the cetuximab-resistant cell lines. The active extract composition was determined by NMR analysis. Given its complexity, a partial purification was then carried out. The fractions obtained were again tested for their biological activity and their metabolite content was determined by 1D and 2D NMR analysis. The study led to the identification of a fraction enriched in oxylipins that showed a 92% growth inhibition of the HT-29 cell line at a concentration of 50 µg/mL.

8. A Novel Serum Glycobiomarker for Diagnosis and Prognosis of Cholangiocarcinoma Detected by *Butea monosperma* Agglutinin

Molecules. 2021 May 8;26(9):2782. doi: 10.3390/molecules26092782.

Authors

Karuntarat Teeravirote [1 2], Sukanya Luang [1 2], Sakda Waraasawapati [2 3 4], Patcharee Boonsiri [1], Chaisiri Wongkham [1 2], Sopit Wongkham [1 2 4], Atit Silsirivanit [1 2 4]

Abstract

Plant lectins are widely used in medical glycosciences and glycotechnology. Many lectin-based techniques have been applied for the detection of disease-associated glycans and glycoconjugates. In this study, *Butea monosperma* agglutinin (BMA), a lectin purified from seeds of the medicinal plant *Butea monosperma*, was used for the detection of cholangiocarcinoma (CCA)-associated glycans. Expression of BMA-binding *N*-acetyl galactosamine/galactose (GalNAc/Gal)-associated glycan (BMAG) in CCA tissues was determined using BMA lectin histochemistry; the results showed that BMAG was undetectable in normal bile ducts and drastically increased in preneoplastic bile ducts and CCA. The study in hamsters showed that an increase of BMAG was associated with carcinogenesis of CCA. Using an in-house double BMA sandwich enzyme-linked lectin assay, BMAG was highly detected in the sera of CCA patients. The level of serum BMAG in CCA patients (N = 83) was significantly higher than non-CCA controls (N = 287) and it was applicable for diagnosis of CCA with 55.4% sensitivity, 81.9% specificity, and 76.0% accuracy. A high level of serum BMAG (≥82.5 AU/mL) was associated with unfavorable survival of CCA patients; this information suggested the potential of serum BMAG as a poor prognostic indicator of CCA. In summary, BMAG was aberrantly expressed in preneoplastic bile ducts and CCA, it was also highly detected in patient serum which potentially used as a marker for diagnosis and prognostic prediction of CCA.

9. Factors Influencing Preference for Intervention in a Comparative Effectiveness Trial of Mindfulness-Based Cancer Recovery and Tai Chi/ *Qigong* in Cancer Survivors

J Altern Complement Med. 2021 May;27(5):423-433. doi: 10.1089/acm.2020.0400. Epub 2021 Apr 27.

Authors

Devesh Oberoi [1], Andrew McLennan [1], Katherine-Ann Piedalue [1], Peter M Wayne [2], Jennifer M Jones [3], Linda E Carlson [1]

Abstract

Introduction: An important gap between randomized efficacy research and real-world implementation of complementary therapies is the role of patient preferences in influencing engagement and outcome. Several studies have highlighted the benefits of patient preference on health outcomes, but few have investigated the factors associated with preference for interventions, which may be critical to assure the success of program implementation. The current study sought to explore the factors associated with patient preference in an ongoing randomized preference-based trial of Mindfulness-Based Cancer Recovery (MBCR) versus Tai Chi/*qigong* (TCQ) (the Mindfulness and Tai Chi/*qigong* in Cancer Health [MATCH] study). ***Materials and Methods:*** A multi-method study design was used. A subsample of participants were purposely selected from the ongoing MATCH study to have representation from both intervention arms and from both men and women across different age groups. Open-ended, semi-structured qualitative interviews were conducted to explore the factors influencing initial patient preference. Interviews were transcribed verbatim and analyzed by using inductive thematic analysis. The treatment acceptability and preference measure was administered to determine patients' ratings of acceptability and credibility of both preferred and nonpreferred interventions. ***Results:*** A total of 13 participants were interviewed prior to program attendance, with 8 (62%) preferring TCQ and 5 (38%) choosing MBCR. Major themes related to patients' preference for intervention included: (1) expectations about the preferred intervention; (2) knowledge of the intervention; (3) past experiences with the intervention; and (4) self-efficacy. Participants' mean treatment acceptability scores were higher for their preferred program than their nonpreferred program. ***Conclusion:*** Understanding the factors that influence cancer survivors' preference for mind-body interventions can augment health care providers' knowledge of the barriers and facilitators for successful implementation of interventions in clinical settings, as well as help patients make informed treatment decisions and improve satisfaction and outcomes. Clinical trial registration no.: NCT03641222.

10. Caring for Caregivers-A New Integrative Care Path for Advanced Lung Cancer Patients and Their Caregivers

J Altern Complement Med. 2021 May;27(5):377-378. doi: 10.1089/acm.2020.0396. Epub 2021 Apr 27.

Authors

Heidi McLeod [1], Adam I Perlman [1], Manisha G Salinas [1], Abd Moain Abu Dabrh [1 2]

No abstract available

Spirituality, Religiosity and Coping Strategies Among Spanish People Diagnosed with Cancer

11.

J Relig Health. 2021 Aug;60(4):2830-2848. doi: 10.1007/s10943-021-01247-0. Epub 2021 Apr 3.

Authors

F Arbinaga [1], M I Mendoza-Sierra [2], M R Bohórquez [3], M I Verjano-Cuellar [4], L Torres-Rosado [4], N Romero-Pérez [2]

Abstract

The present study evaluates the influence of spirituality/religiosity (S/R) on the coping strategies used by people with cancer (breast and prostate) compared with those without cancer, in a sample of 445 Spanish participants (160 with cancer and 285 without). Significant interactions between the presence of cancer and S/R are observed in the use of coping strategies such as religion, humor and disconnection. Spirituality as a predictor variable through the use of religion as a strategy, increased the explanatory capacity of age by 58.9% (β = .794) while praying/talking to God predicts the use of this strategy with a β = .383. In people with cancer, active coping was predicted by spirituality (β = .327). However, spirituality was a negative predictor of maladaptive coping, with a beta coefficient equal to .383. The data suggest that patients' beliefs need to be considered by health care professionals when designing interventions.

"Hope to See the Soul": The Relationship Between Spirituality and Hope

12.

J Relig Health. 2021 Aug;60(4):2770-2783. doi: 10.1007/s10943-021-01245-2. Epub 2021 Mar 29.

Author

Gry Espedal [1 2]

Abstract

This research extends recent studies of spirituality and hope from a patient perspective, building on the analysis of an auto-ethnographic self-story of a cancer patient. A connection has been highlighted in the literature that forms a relationship between spirituality and hope. This study suggests that hope is generated through a dynamic and relational process of doing hope together with others. The trauma of illness can cause a dramatic situation of despair in which terrified and worried voices become the norm. Sacred meetings in connection with others can replace these terrified voices with hopeful ones. These meetings are established through people being witnesses

to the situation, alleviating the suffering through presence and reflection, for the patient to become reconciled with oneself and experience something beyond the situation as sacred.

13. Lessons learned from the delivery of virtual integrative oncology interventions in clinical practice and research during the COVID-19 pandemic

Support Care Cancer. 2021 Aug;29(8):4191-4194. doi: 10.1007/s00520-021-06174-0. Epub 2021 Mar 26.

Authors

Robert Knoerl [1], Carolyn S Phillips [2], Juliana Berfield [3], Heather Woods [3], Meghan Acosta [3], Anna Tanasijevic [3], Jennifer Ligibel [3 4]

Abstract

The outbreak of the coronavirus disease 2019 (COVID-19) and subsequent need for disease transmission mitigation efforts have significantly altered the delivery of cancer care (e.g., rise of telemedicine), including within the field of integrative oncology. However, little has been described about how National Cancer Institute-Designated Cancer Centers have transformed integrative oncology care delivery in response to the COVID-19 pandemic. The purpose of this commentary is to describe the delivery of integrative oncology clinical services and conduct of research at The Leonard P. Zakim Center for Integrative Therapies and Healthy Living at Dana-Farber Cancer Institute during the COVID-19 pandemic. Clinical services transitioned from an array of in-person appointment-based services, such as acupuncture and massage, and group programs, such as yoga and nutrition seminars to a combination of live-streamed and on-demand virtual group programs and one-on-one virtual appointments for services such as acupressure and self-care massage. Group program volume grew from 2189 in-person program patient visits in the 6 months prior to onset of the COVID pandemic to 16,366 virtual (e.g., live-streamed or on-demand) patient visits in the first 6 months of the pandemic. From a research perspective, two integrative oncology studies, focused on yoga and music therapy, respectively, were transitioned from in-person delivery to a virtual format. Participant accrual to these studies increased after the transition to virtual consent and intervention delivery. Overall, our clinical and research observations at Dana-Farber Cancer Institute suggest that the delivery of virtual integrative oncology treatments is feasible and appealing to patients. Trial Registration: NCT03824860 (Yoga); NCT03709225 (Music Therapy).

14. An Exploration of Suffering and Spirituality Among Older African American Cancer Patients as Guided by Howard Thurman's Theological Perspective on Spirituality

J Relig Health. 2021 Aug;60(4):2810-2829. doi: 10.1007/s10943-021-01215-8. Epub 2021 Mar 8.

Authors

Jill B Hamilton [1 2], Walter E Fluker [3]

Abstract

The use of the religious experience to mitigate suffering within the context of a cancer diagnosis and treatment is poorly understood. Specifically, in this article, we explore suffering and the religious experience using Howard Thurman's theological perspective. This perspective permits an exploration of the ways in which spirituality enables African American cancer patients to better manage suffering through: (1) a positive self-image as a child of God or the identification with the sufferings of Jesus; (2) seeking harmony in one's environment; (3) the use of spirituality as self-nourishment; and, (4) the perspective of suffering as sacrament. In this paper, we use the narratives of African American cancer patients to argue that these theological perspectives are indeed relevant to the relief of suffering among this population.

15. Traditional Chinese medicine and lung cancer--From theory to practice

Biomed Pharmacother. 2021 May;137:111381. doi: 10.1016/j.biopha.2021.111381. Epub 2021 Feb 15.

Authors

Zhang Li [1], Zhang Feiyue [1], Li Gaofeng [2]

Abstract

With the continuous breakthroughs in molecular biology and biochemistry, we have constantly made great progress in the treatment of lung cancer. There is no doubt that standard treatment (such as surgery, radiotherapy, chemotherapy, targeted therapy, and immunotherapy) has greatly improved the prognosis of lung cancer populations. In particular, the immunotherapy has brought more and more good news to countless lung cancer patients. In contrast to these standard treatments, traditional Chinese medicine (TCM) rarely has a profound and comprehensive overview in the field of lung cancer. This article will summarize the latest progress of TCM in lung cancer which is mainly non-small cell lung cancer (NSCLC) from theory to clinical practice, which would carry forward the sophisticated TCM and promote the development of modern medicine.

16. Polysaccharide-rich extract from Polygonatum sibiricum protects hematopoiesis in bone marrow suppressed by triple negative breast cancer

Biomed Pharmacother. 2021 May;137:111338. doi: 10.1016/j.biopha.2021.111338. Epub 2021 Feb 9.

Authors

Ying Xie [1], Ziwei Jiang [2], Rui Yang [2], Yiyi Ye [2], Lixia Pei [2], Si Xiong [3], Shunchun Wang [3], Lisheng Wang [4], Sheng Liu [5]

Abstract

Polysaccharide is one of main components in Polygonatum sibiricum (PS), which is an herbal medicine widely used in East Asia. Polysaccharides from Polygonatum sibiricum has been shown to exhibit multiple biological activities, such as anti-diabetes, anti-inflammation, antioxidant, immunity modulation, and anticancer. Since hematopoietic system is one of determinant factors in cancer control, we here explored the effect of polysaccharide-rich extract from Polygonatum sibiricum (PREPS) on hematopoiesis in the mice bearing triple negative breast cancer (TNBC). We found that the 4T1 TNBC tumor significantly increased myeloid cells in peripheral blood, bone marrow and spleen, while decreasing bone marrow hematopoietic stem and progenitor cells (HSPCs), indicative of an inhibition of medullary hematopoiesis. When 4T1 TNBC tumor-bearing mice were treated with PREPS, the percentage of myeloid cells within tumor-infiltrating immune cells was reduced. In addition, PREPS also inhibited hematopoietic cell expansion in the spleen, which was induced by TNBC tumors. Importantly, PREPS markedly increased HSPCs and common lymphoid progenitors in the bone marrow that had been suppressed by TNBC tumors. These findings suggest that PREPS protect hematopoiesis inhibited by TNBC tumors in the bone marrow. Although PREPS alone did not achieve statistical significance in the suppression of TNBC tumor growth, it may have a long-lasting anti-tumor effect to assist TNBC therapies by sustaining hematopoiesis and lymphoid regeneration in bone marrow.

17. Deeper Insights on *Alchornea cordifolia* (Schumach. & Thonn.) Müll.Arg Extracts: Chemical Profiles, Biological Abilities, Network Analysis and Molecular Docking

Biomolecules. 2021 Feb 4;11(2):219. doi: 10.3390/biom11020219.

Authors

Kouadio Ibrahime Sinan [1], Gunes Ak [1], Ouattara Katinan Etienne [2], József Jekő [3], Zoltán Cziáky [3], Katalin Gupcsó [4], Maria João Rodrigues [5], Luisa Custodio [5], Mohamad Fawzi Mahomoodally [6], Jugreet B Sharmeen [6], Luigi Brunetti [7], Sheila Leone [7], Lucia Recinella [7], Annalisa Chiavaroli [7], Giustino Orlando [7], Luigi Menghini [7], Massimo Tacchini [8], Claudio Ferrante [7], Gokhan Zengin [1]

Abstract

Alchornea cordifolia (Schumach. & Thonn.) Müll. Arg. is a well-known African medicinal plant traditionally used for various healing purposes. In the present study, methanolic, ethyl acetate and infusion extracts of *A. cordifolia* leaves were studied for their total phenolic and flavonoid contents and screened for their chemical composition. Moreover, the enzyme (acetyl- and butyryl-cholinesterases, α-amylase, α-glucosidase, and tyrosinase) inhibitory and cytotoxicity activities on HepG2: human hepatocellular carcinoma cells, B16 4A5: murine melanoma cells, and S17: murine bone marrow (normal) cells of extracts were evaluated. Finally, components-targets and docking analyzes were conducted with the aim to unravel the putative mechanisms underlying the observed bio-pharmacological effects. Interestingly, the infusion and methanolic extracts showed significantly higher total phenolic and flavonoid contents compared with the ethyl acetate extract (TPC: 120.38-213.12 mg GAE/g and TFC: 9.66-57.18 mg RE/g). Besides, the methanolic extracts followed by the infusion extracts were revealed to contain a higher number of compounds (84 and 74 compounds, respectively), while only 64 compounds were observed for the ethyl acetate extract. Gallic acid, ellagic acid, shikimic acid, rutin, quercetin, myricetin, vitexin, quercitrin, kaempferol, and naringenin were among the compounds that were commonly identified in all the

studied extracts. Additionally, the methanolic and infusion extracts displayed higher antioxidant capacity than ethyl acetate extract in all assays performed. In ABTS and DPPH radical scavenging assays, the methanol extract (500.38 mg TE/g for DPPH and 900.64 mg TE/g for ABTS) exhibited the best ability, followed by the water and ethyl acetate extracts. Furthermore, the extracts exhibited differential enzyme inhibitory profiles. In particular, the methanolic and infusion extracts showed better cytotoxic selectivity activity against human hepatocellular carcinoma cells. Overall, this study demonstrated *A cordifolia* to be a species worthy of further investigations, given its richness in bioactive phytochemicals and wide potentialities for antioxidants and pharmacological agents.

18. Being in touch: narrative assessment of patients receiving online integrative oncology treatments during COVID-19

Support Care Cancer. 2021 Aug;29(8):4819-4825. doi: 10.1007/s00520-021-06026-x. Epub 2021 Feb 4.

Authors

Eran Ben-Arye [1 2], Yael Keshet [3], Orit Gressel [4], Yehudit Tapiro [4], Ofer Lavie [5 6], Noah Samuels [7 8]

Abstract

Objective: We examined the qualitative impact of an online integrative oncology (IO) treatment program, designed in response to the restrictions created by the current COVID-19 pandemic.

Methods: Patients undergoing chemotherapy were seen by an integrative physician (IP), together co-designing an IO treatment program of ≥ 6 weekly treatments to alleviate symptoms and improve quality of life (QoL). IO practitioners guided patients and their caregivers online in self-treatment with manual/touch, movement, and/or mind-body modalities. Narratives of both patients and IO practitioners were analyzed for systematic coding, identifying barriers and advantages of the online treatment program.

Results: Narratives obtained from 30 patients and eight IO-trained practitioners were examined. The patients had undergone 169 online IO sessions with a total of 327 IO interventions during the 3-month study period. Patient narratives included reflections on both non-specific effects (e.g., less of a "sense of isolation") and specific QoL-related outcomes with the online intervention. IO practitioner narratives focused on barriers to providing manual-movement and mind-body modalities, suggesting practical recommendations on how to address specific QoL-related outcomes using the online IO "toolbox."

Conclusions: Effective online IO practitioner-guided treatments are feasible and may induce both specific and non-specific QoL-related effects. Future research needs to explore online IO interventions for additional situations in which access to IO care is limited.

19. Effects of a patient-tailored integrative oncology intervention in the relief of pain in palliative and supportive cancer care

J Cancer Res Clin Oncol. 2021 Aug;147(8):2361-2372. doi: 10.1007/s00432-020-03506-1. Epub 2021 Jan 12.

Authors

Eran Ben-Arye [# 1 2], Dana Elly [# 3], Noah Samuels [4 5], Orit Gressel [6], Katerina Shulman [7], Elad Schiff [3 8], Ofer Lavie [3 9], Amir Minerbi [3 10]

Abstract

Context and objectives: The present study examined the impact of an integrative oncology treatment program in the relief of pain in patients undergoing chemotherapy and/or palliative care.

Methods: In this pragmatic prospective controlled study, patients undergoing chemotherapy and/or palliative care were referred by their oncology healthcare providers to an integrative physician (IP) consultation, followed by weekly integrative treatments. Patients attending ≥ 4 sessions during the first 6 weeks of the study were considered to be highly adherent to integrative care (AIC). Pain was assessed at baseline and at 6 and 12 weeks using the ESAS (Edmonton Symptom Assessment Scale) and EORTC QLQ-C30 (European Organization for Research and Treatment of Cancer Quality of Life Questionnaire) tools.

Results: Of 815 eligible patients, 484 (59.4%) were high-AIC and 331 low-AIC. Mean pain scores decreased significantly from baseline to 6 and 12 weeks in both groups. However, ESAS and EORTC pain scores improved significantly more in the high-AIC group at 6 weeks (p= 0.008), though not at 12 weeks. Between-group analysis of participants undergoing adjuvant/neo-adjuvant chemotherapy showed higher pain reduction in the high-AIC group at 6 weeks (ESAS, p = 0.006; EORTC, p = 0.046), as was the case with patients receiving palliative care (ESAS p = 0.04; EORTC p = 0.056).

Conclusions: High adherence to integrative care was found to be associated with a greater effect on pain relief at 6 weeks but not at 12 weeks in patients undergoing chemotherapy and/or palliative care.

20. Meditative and mind-body practice among patients with genitourinary malignancy

Urol Oncol. 2021 Mar;39(3):192.e15-192.e20. doi: 10.1016/j.urolonc.2020.09.011. Epub 2021 Jan 8.

Authors

William C Daly [1], Paul K J Han [2], Matthew Hayn [1], Stephen T Ryan [1], Moritz H Hansen [1], Joshua P Linscott [1], Quoc-Dien Trinh [3], Jesse D Sammon [4]

Abstract

Introduction and objective: Research on the utility of meditative and mind-body (MB) practices has increased dramatically in the last two decades and both have been suggested as useful adjuncts in coping with stressors associated with cancer survivorship. There exists little data on use among genitourinary (GU) cancer survivors. This study seeks to describe meditative and MB utilization among GU cancer survivors.

Methods: Analysis of data from the 2012 and 2017 National Health Interview Survey was conducted. Patients aged 40 and older reporting a history of any cancer diagnosis (including 3 GU cancers) were included in the analysis. We explored questions about meditative and MB practices in the past 12 months. Complex Samples Logistic regression was performed to compare the relationship between cancer status and use of these practices.

Results: Self-reported meditative practices were more prevalent in 2017 (17%) than in 2012 (5%). Patients who self-reported a cancer diagnosis of any kind were significantly more likely to utilize meditative practices. Patients with kidney cancer were significantly more likely to meditate and trended towards higher MB utilization. In contrast, bladder cancer patients were less likely to meditate and use MB practices. Increases in meditation were greater than those seen for MB in all groups.

Conclusions: Meditative and MB practices increased in prevalence between 2012 and 2017 with notable heterogeneity between cancer types. Given the potential benefit, more broad incorporation into survivorship programs may be warranted. Future work should explore the significance of this heterogeneity and the utility of these practices to patients with urologic malignancy.

21. Gossypol Reduces Metastasis and Epithelial-Mesenchymal Transition by Targeting Protease in Human Cervical Cancer

Am J Chin Med. 2021;49(1):181-198. doi: 10.1142/S0192415X21500105. Epub 2020 Dec 26.

Authors

Yih-Shou Hsieh [1 2 3], Shu-Chen Chu [4], Shih-Chien Huang [5], Shao-Hsuan Kao [2 6], Meng-Shuan Lin [2], Pei-Ni Chen [2 3 6]

Abstract

Metastasis is the most prevalent cause of cancer-associated deaths amongst patients with cervical cancer. Epithelial-mesenchymal transition (EMT) is essential for carcinogenesis, and it confers metastatic properties to cancer cells. Gossypol is a natural polyphenolic compound with anti-inflammation, anti-oxidant, and anticancer activities. In this study, we investigated the antimetastatic and antitumour effects of gossypol on human cervical cancer cells (HeLa and SiHa cells). Gossypol exerted a strong inhibition effect on the migration and invasion of human cervical cancer cells. It reduced the focal adhesion kinase (FAK) pathway-mediated expression of matrix metalloproteinase-2 and urokinase-type plasminogen activator, subsequently inhibiting the invasion of SiHa cells. In addition, gossypol reversed EMT induced by transforming growth factor beta 1 (TGF-[Formula: see text]1) and up-regulated epithelial markers, such as E-cadherin but

significantly suppressed Ras homolog family member (Rho)A, RhoB, and p-Samd3. The tail vein injection model showed that gossypol treatment via oral gavage reduced lung metastasis. Gossypol also decreased tumour growth *in vivo* in the nude mouse xenograft model. All these findings suggest that gossypol suppressed the invasion and migration of human cervical cancer cells by targeting the FAK signaling pathway and reversing TGF-[Formula: see text]1-induced EMT. Hence, gossypol warrants further attention for basic mechanistic studies and drug development.

Keeping abreast about ashwagandha in breast cancer

22.

J Ethnopharmacol. 2021 Apr 6;269:113759. doi: 10.1016/j.jep.2020.113759. Epub 2020 Dec 25.

Authors

Ruju Vashi [1], Bhoomika M Patel [2], Ramesh K Goyal [3]

Abstract

Ethnopharmacological relevance: Ashwagandha has been used as an ayurvedic medicine in the form of 'Rasayana' (as a tonic) even before 3000 BCE in India. As per Ayurveda, it has long been used traditionally for the treatment of inflammation, weakness, impotence, pulmonary tuberculosis. This plant is also beneficial in lumbago and leucorrhea in the female. In the recent past, Withania has shown its anti-cancerous activity in various experimental models. In addition, Withania also possesses many other properties such as anti-oxidant, anti-stress, adaptogenic, and regenerative which will eventually be beneficial and safe in treating cancer patients.

Aim of the study: This review aims to provide experimental evidence along with a deeper insight into molecular mechanisms of Ashwagandha (Withania somnifera (L.) Dunal) through which it acts as a chemotherapeutic agent against different types of breast cancer.

Materials and methods: Literature searches with the help of electronic online databases (Elsevier, Google Scholar, Scopus, Springer Link, ScienceDirect, ResearchGate, PubMed) were carried out. The timeline for collection of data for the review article was from 2000 to 2019. The plant name was validated from The Plant List (2013). Version 1.1. Published on http://www.theplantlist.org/(accessed 21st March 2020).

Results: Various forms of Withania somnifera were used and several in vitro, in vivo, and clinical studies were reported by researchers. They found ashwagandha to exhibit anti-apoptotic, anti-metastatic, anti-invasive and anti-inflammatory properties and gave the evidence that ashwagandha has a capability for averting and treating breast cancer.

Conclusion: Various in vitro and in vivo studies suggested Ashwagandha may possess a potential for treating breast cancer, especially ER/PR positive breast cancer and triple-negative breast cancer. A clinical trial has also been conducted in the past that suggested its potential in refining quality of life in breast cancer patients. Studies directed towards molecular pathways have helped in unravelling the key mechanisms of ashwagandha. Future research should be directed towards

translational studies involving breast cancer patients. These will reinforce the ancient power of our Ayurvedic medicine.

23. Virtual screening of the multi-gene regulatory molecular mechanism of Si-Wu-tang against non-triple-negative breast cancer based on network pharmacology combined with experimental validation

J Ethnopharmacol. 2021 Apr 6;269:113696. doi: 10.1016/j.jep.2020.113696. Epub 2020 Dec 26.

Authors

Zeye Zhang [1], Jia Liu [2], Yifan Liu [3], Danning Shi [4], Yueshuang He [5], Piwen Zhao [6]

Abstract

Ethnopharmacological relevance: Si-Wu-Tang (SWT), a prestigious herbal formula from China, has been extensively used for centuries for female-related diseases. It has been documented that SWT has a significant inhibitory effect on non-triple-negative breast cancer (non-TNBC) cells. However, there has been limited comprehensive analysis of the targeted effects of the anticancer components of SWT and its exact biological mechanism.

Aim of the study: This study aims to uncover the mechanism by which SWT treats non-TNBC by applying a network pharmacological method combined with experimental validation.

Materials and methods: First, SWT compounds were collected from the Traditional Chinese Medicines Systems Pharmacology database (TCMSP) and The Encyclopedia of Traditional Chinese Medicine (ETCM), and then the targets related to SWT were obtained from the TCMSP and SwissTarget databases. Second, a target data set of non-TNBC proteins was established by using the Online Mendelian Inheritance in Man (OMIM), GeneCards and Gene Expression Omnibus (GEO) databases. Third, based on the overlap of targets between SWT and non-TNBC, a protein-protein interaction (PPI) network was built to analyse the interactions among these targets, which focused on screening for hub targets by topology. On these hub genes, we conducted a meta-analysis and survival analysis to screen the best match targets, ESR1, PPARG, CAT, and PTGS2, which had a strong correlation with the ingredients of SWT in our verification by molecular docking. In vitro experiments further proved the reliability of the network pharmacology findings. Finally, FunRich software and the ClusterProfiler package were utilized for the enrichment analysis of Gene Ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) data.

Results: A total of 141 active ingredients and 116 targets of SWT were selected. GO enrichment analysis showed that the biological processes through which SWT acted against non-TNBC (FDR<0.01) mainly involved modulating energy metabolism and apoptosis. According to RT-qPCR and Western blotting, the mRNA and protein expression of ESR1, PPARG and PTGS2 were upregulated ($P < 0.01$), and the mRNA and protein levels of CAT were downregulated ($P < 0.01$), suggesting a multi-gene regulatory molecular mechanism of SWT against non-triple-negative breast cancer.

Conclusions: This research explored the multi-gene pharmacological mechanism of action of SWT against non-TNBC through network pharmacology and in vitro experiments. The findings provide new ideas for research on the mechanism of action of Chinese medicine against breast cancer.

24. Nanomedicines: Redefining traditional medicine

Biomed Pharmacother. 2021 Feb;134:111103. doi: 10.1016/j.biopha.2020.111103. Epub 2020 Dec 15.

Authors

Weijia Lu [1], Jing Yao [2], Xiao Zhu [3], Yi Qi [4]

Abstract

Nanomedicines offer nanoscale drug delivery system. They offer ways of promising drug transportation and address the issues of lack of targeting and permeability of traditional drugs. The physical and chemical properties in the domain of nanomedicine applications in vivo have not been sufficiently delivered. What's more, the metabolic of nanomedicines is not clear enough. Those factors which mentioned above determine that many nanomedicines have not yet realized clinical application due to their safety problems and in vivo efficacy. For example, they may cause immune response and cytotoxicity, as well as the ability to clear organs in vivo, the penetration ability of them and the lack of targeting ability may also cause poor efficacy of drugs in vivo. In this review, the new progresses of different kinds of nanomedicines (including gold nanoparticles, nanorobots, black phosphorus nanoparticles, brain diseases, gene editing and immunotherapy etc.) in anti-tumor, antibacterial, ocular diseases and arteriosclerosis in recent years were summarized. Their shortcomings were pointed out, and the new methods to improve the biosafety and efficacy were summarized.

25. A six-week inspiratory muscle training and aerobic exercise improves respiratory muscle strength and exercise capacity in lung cancer patients after video-assisted thoracoscopic surgery: A randomized controlled trial

Clin Rehabil. 2021 Jun;35(6):840-850. doi: 10.1177/0269215520980138. Epub 2020 Dec 14.

Authors

Jui-Fang Liu [1 2], Nai-Ying Kuo [2], Teng-Pei Fang [1 3], Jui-O Chen [4], Hung-I Lu [5], Hui-Ling Lin [1 3 6]

Abstract

Objective: To compare the postoperative outcomes of inspiratory muscle training and aerobic exercise, along with standard care, on lung cancer patients undergoing video-assisted thoracoscopic surgery (VATS).

Design: A parallel-group, single-blind randomized clinical trial.

Setting: Thoracic surgery ward and outpatient clinic in a teaching hospital.

Subjects: Overall 63 patients underwent VATS were randomly assigned to a triaging (TG, *n* = 32) or control group (CG, *n* = 31). A total of 54 patients (TG, *n* = 26; CG, *n* = 28) completed the study.

Intervention: TG: six-week threshold inspiratory muscle training and aerobic exercise. CG: standard care.

Main measures: Maximum inspiratory pressure (PImax), maximum expiratory pressure (PEmax) lung expansion volume, and 6-min walking test (6MWT) were performed on the day of chest tube removal (baseline), and 2, 6, and 12 weeks postoperatively.

Results: The TG showed significant improvement in PImax at week 6 (71.6 ± 34.9 vs. 94.3 ± 32.8 cmH_2O, *P* = 0.018), PEmax at week 2 (70.9 ± 24.3 vs. 90.9 ± 28.2 cmH_2O, *P* = 0.015) and week 12 (76.1 ± 20.2 vs. 98.6 ± 35.3 cmH_2O, *P* = 0.012), the lung expansion volume at week 2 (1080 ± 433 vs 1457 ± 624 mL, *P* = 0.02) and week 12 (1200 ± 387 vs 1885 ± 678 mL, *P* < 0.001), in addition to the 6MWT at week 2 (332 ± 78 vs 412 ± 74 m, *P* = 0.002), week 6 (360 ± 70 vs 419 ± 60 m, *P* = 0.007) and week 12 (360 ± 58 vs 402 ± 65 m, *P* = 0.036).

Conclusion: A six weeks of inspiratory muscle training and aerobic exercise had improved respiratory muscle strength and aerobic exercise postoperatively in lung cancer patients after VATS as early as 2 weeks.

26. Solvent fractions of selected Ethiopian medicinal plants used in traditional breast cancer treatment inhibit cancer stem cells in a breast cancer cell line

BMC Complement Med Ther. 2020 Nov 25;20(1):366. doi: 10.1186/s12906-020-03154-5.

Authors

Nigatu Tuasha [1 2 3], Daniel Seifu [4], Endalamaw Gadisa [2], Beyene Petros [1], Stina Oredsson [5]

Abstract

Background: The incidence and mortality of breast cancer in women is increasing worldwide. Breast cancer contains a subpopulation of cells known as cancer stem cells (CSCs). The CSCs are believed to be responsible for chemotherapeutic resistance and are also involved in tumor initiation, progression, evolution, and metastasis to distant sites. The present study aimed to investigate the anti-CSC potential of selected Ethiopian medicinal plants traditionally used for breast cancer treatment.

Methods: The solvent fractions of three medicinal plants (the ethyl acetate fraction of Vernonia leopoldi, the aqueous fraction of Sideroxylon oxyacanthum, and the chloroform fraction of Clematis simensis) resulting from the methanolic crude extracts were selected based on their previously demonstrated cytotoxic effects on breast cancer cell lines. The effect of these solvent fractions on the status of the cancer stem cell subpopulation of the JIMT-1 cell line was assessed

by flow cytometric evaluation of the proportion of aldehyde dehydrogenase positive cells and by measuring colony forming efficiency in a serum-free soft agar assay after treatment. Effects on cell migration using a wound healing assay and on tumor necrosis factor-α-induced translocation of nuclear factor-kappa B to the cell nucleus were also investigated.

Results: The solvent fractions showed a dose-dependent reduction in the aldehyde dehydrogenase positive subpopulation of JIMT-1 cells. The chloroform fraction of C. simensis (80 µg/mL) completely blocked colony formation of JIMT-1 cells. The wound healing assay showed that all fractions significantly reduced cell migration. The ethyl acetate fraction of V. leopoldi (0.87 µg/mL) significantly inhibited tumor necrosis factor-α-induced nuclear factor-kappa B translocation to the nucleus.

Conclusion: The solvent fractions of the medicinal plants showed desirable activities against breast cancer stem cells in the JIMT-1 cell line, which warrants further studies.

27. The selective anti-proliferative and pro-apoptotic effect of A. cherimola on MDA-MB-231 breast cancer cell line

BMC Complement Med Ther. 2020 Nov 13;20(1):343. doi: 10.1186/s12906-020-03120-1.

Authors

Maria Younes [1], Carl Ammoury [1], Tony Haykal [1], Leah Nasr [1], Rita Sarkis [1 2], Sandra Rizk [3]

Abstract

Background: Herbal medicines have been a major target for numerous studies through the past years as an alternative treatment for cancer, mainly due to their minimal effects on normal healthy cells. Annona cherimola, popularly known as Cherimoya, is an edible natural fruit rich in phytochemical components and known to possess various biological activities. Previous studies have reported the anti-cancerous effect of A. cherimola ethanolic leaf extract (AELE) on leukemia. This study aims at studying the potential anti-cancer activity of this extract in vitro in two different breast cancer cell lines, namely MDA-MB-231 and MCF-7, in addition to investigating its toxicity on normal mesenchymal stem cells.

Methods: The anti-proliferative effect of AELE was evaluated via cell viability assay. Propidium iodide staining, Cell Death Detection ELISA and flow cytometry analysis of Annexin V binding were used to assess cell cycle progression, DNA fragmentation and apoptosis induction, respectively. Protein expression was determined via Western Blot analysis to decipher the underlying apoptotic molecular mechanism induced upon AELE treatment.

Results: The anti-proliferative effect of the extract was found to be selective on the triple-negative breast cancer cell line (MDA-MB-231) in a time- and dose-dependent manner with an IC_{50} of 390.2 µg/mL at 48 h, with no cytotoxic effects on normal murine mesenchymal stem cells. The pro-apoptotic effect was confirmed by the increase in cellular and DNA fragmentation, flipping of the phosphatidylserine moiety to the outer leaflet, and the increase in Annexin V binding. The underlying molecular mechanism revealed the involvement of the mitochondrial pathway, as

shown by alterations in mitochondrial permeability and the upregulation of cytochrome c expression.

Conclusion: All the data presented in our study suggest that AELE exhibits a selective anti-proliferative and pro-apoptotic effect on the chemo-resistant MDA-MB-231 breast cancer cells, providing evidence for the anti-tumor effects of A. cherimola.

28. Concomitant botanical medicine use among patients participating in commercial prostate cancer trials

Complement Ther Med. 2020 Nov;54:102549. doi: 10.1016/j.ctim.2020.102549. Epub 2020 Aug 29.

Authors

J K Roydhouse [1], L A Menapace [2], H Xia [3], P Song [3], T Berman [4], R Agarwal [5], D L Suzman [4], K Wright [6], J A Beaver [4], P G Kluetz [7]

Abstract

Objectives: Patients with cancer frequently use botanical medications. The concomitant use of such medications by patients on commercial trials has not been well-described, despite the importance of these trials for evaluating the safety and efficacy of new agents. We sought to describe the use of botanical medications taken by patients with prostate cancer enrolled on global commercial trials.

Design: Retrospective study.

Setting: Regulatory repository of commercial clinical trial data.

Interventions: Anti-cancer therapy.

Main outcome measures: Botanical and medication use data were pooled across six international commercial randomized trials for metastatic prostate cancer with detailed information on medication and indications. Botanical products were considered to have potential for drug interaction if they led to a change in drug exposure in human trials. Potential for interaction was ascertained by PubMed review. Descriptive statistics were used for analysis.

Results: Of 7318 enrolled patients, 700 (10 %) reported botanical use at any time and 653 (9%) reported use of botanical products while on trial. Nearly half of botanical product types were not classified by plant (43 %). The highest proportion of botanical use was among patients in Asian countries (32 %), followed by patients in North America (13 %). Eighty-six different types of botanical products were used; of these, nineteen had a patient-reported anti-cancer indication.

Conclusions: Botanical medicine use among patients with prostate cancer in commercial trials is moderate, although it varies by region. Practitioners should be aware of the use of botanical interventions in a clinical trial context.

29. Jianpi Yangwei decoction promotes apoptosis and suppresses proliferation of 5-fluorouracil resistant gastric cancer cells in vitro and in vivo

BMC Complement Med Ther. 2020 Nov 10;20(1):337. doi: 10.1186/s12906-020-03135-8.

Authors

Huijuan Tang [1 2], Wenjie Huang [1], Qiang Yang [3], Ying Lin [4], Yihui Chen [5], Peng Shu [6]

Abstract

Background: The exploration of new therapeutic agents targeting 5-Fu resistance may open a new opportunity to gastric cancer treatment. The objective is to establish a 5-Fu resistant gastric cancer cell line and observe the effect of Jianpi Yangwei decoction (JPYW) on its apoptosis and drug-resistance related proteins.

Methods: MTT assay was used to measure the effect of JPYW on the BGC823 cells proliferation, and the apoptosis was observed by flow cytometry and Hoechst fluorescence staining. The BGC823 xenograft tumor nude mice models were established, the apoptosis was detected by Tunel method. BGC-823/5-Fu was established by repeated low-dose 5-Fu shocks, the drug resistance index and proliferation were detected by the MTT assay; MDR1 mRNA was detected by real-time RT-PCR; Western blot was used to detect the ratio of p-AKT to AKT; The BGC823/5-Fu xenograft tumor nude mice models were established and apoptosis was measured. The expressions of MRP1, MDR1, ABCG2, AKT, p-AKT, caspase-3 and bcl-2 were detected by immunohistochemistry and the AKT mRNA expression was detected by real-time RT-PCR.

Results: JPYW induced apoptosis in BGC823 cells; Drug-resistant cell line BGC-823/5-Fu was sucessfully established; JPYW induced apoptosis of BGC823/5-Fu cells, down-regulated the expression of MRP1, MDR1 and ABCG2 in vitro and in vivo, and further decreased MDR1 expression when combined with pathway inhibitor LY294002 ($P < 0.05$); JPYW down-regulated the ratio of p-AKT to AKT in vitro in a dose-dependent manner, the same as after the combination with LY294002 ($P < 0.05$).

Conclusion: JPYW can induce apoptosis of BGC823 and BGC823/5-Fu cells, and down-regulate the expression of MDR1, MRP1, ABCG2 in vitro and in vivo. Its in vitro effect is related to the PI3K/AKT signaling pathway.

30. A Prospective Randomized Trial of the Influence of Music on Anxiety in Patients Starting Radiation Therapy for Cancer

Int J Radiat Oncol Biol Phys. 2021 Mar 1;109(3):670-674. doi: 10.1016/j.ijrobp.2020.09.048. Epub 2020 Oct 26.

Authors

Lillie O'steen [1], Natalie A Lockney [1], Christopher G Morris [1], Versie Johnson-Mallard [2], Deidre Pereira [3], Robert J Amdur [4]

Abstract

Purpose: One of the most downloaded articles in 2017 from the International Journal of Radiation Oncology, Biology, and Physics was a study suggesting that music therapy during radiation therapy (RT) simulation substantially reduces anxiety. To further evaluate the potential of music's clinical efficacy in the context of radiation therapy, we conducted a randomized trial evaluating the influence of genre-based music chosen by the study participant on anxiety during the first RT treatment session with a method that is applicable to routine clinical practice.

Methods and materials: We conducted a prospective randomized trial of music versus no music during the first RT treatment for cancer. We limited the study to women because prior studies document a higher rate of anxiety in female patients with cancer. Anxiety was evaluated before and after the first RT treatment using the State-Trait Anxiety Inventory (STAI) and Symptom Distress Thermometer (SDT). Patients randomized to music had their preferred genre of music played from a web-based application while in the treatment vault.

Results: In the study, 102 females were enrolled (51 with and 51 without music). Baseline high anxiety score before RT was recorded in 48% of patients using the STAI and 58% using the SDT. The percent decrease in mean STAI score was 16% with music versus 10% without music (P = .2197). The mean SDT percent changes were a 13% decrease with music versus a 2% increase without music (P = .3298).

Conclusions: This study documents that high anxiety is common in women receiving RT for cancer and that music, as used in this study, does not reduce anxiety to a meaningful degree.

31. Anti-Proliferative and Apoptosis-Inducing Activity of Acacia Modesta and Opuntia Monocantha Extracts on HeLa Cells

Asian Pac J Cancer Prev. 2020 Oct 1;21(10):3125-3131. doi: 10.31557/APJCP.2020.21.10.3125.

Authors

Farah Abid [1 2], Muhammad Saleem [3], Christian D Muller [4], Mulazim Hussain Asim [5], Shumaila Arshad [2], Tahir Maqbool [6], Faheem Hadi [6]

Abstract

Background: Cancer is one of the leading causes of death in the world. Numerous phytochemicals from plants have shown antineoplastic effects via programmed cell death (apoptosis). The aim of

this study was to evaluate the effect of anti-proliferative and apoptosis-inducing activity of Acacia modesta and Opuntia monocantha against HeLa cells.

Methods: To estimate anti-proliferative activity of the plants against HeLa cells, ethanol solvent was used for the extraction. For the evaluation of anti-proliferative effects, MTT assay was performed with 100, 200, and 400 µg/mL dose. The antioxidant assays including glutathione reductase (GSH), superoxide dismutase (SOD) and catalase were performed. Moreover, enzyme linked immunosorbent assay (ELISA) was performed. Furthermore, immunocytometry P53 and flow cytometry were also carried out to assess the apoptosis in HeLa cell.

Results: MTT assay showed that the groups treated with Opuntia monocantha and Acacia modest have less level of toxicity as compared to untreated groups. Antioxidant assays confirmed that GSH, SPD and, catalase activities were quite decreased in treated groups as compared to untreated groups. Similarly, ELISA and apoptosis p53 have shown more pronounced apoptosis effect in treated groups as compared to untreated groups.

Conclusion: Based on above findings, treatment of HeLa cells with these plant extracts induced apoptosis, restricts proliferation, and enhances the anti-oxidative index in post treated cells.
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32. Insights into the mechanism of Arnebia euchroma on leukemia via network pharmacology approach

BMC Complement Med Ther. 2020 Oct 27;20(1):322. doi: 10.1186/s12906-020-03106-z.

Authors

Biting Wang [1], Zengrui Wu [2], Jiye Wang [1], Weihua Li [1], Guixia Liu [1], Bo Zhang [3], Yun Tang [4]

Abstract

Background: Arnebia euchroma (A. euchroma) is a traditional Chinese medicine (TCM) used for the treatment of blood diseases including leukemia. In recent years, many studies have been conducted on the anti-tumor effect of shikonin and its derivatives, the major active components of A. euchroma. However, the underlying mechanism of action (MoA) for all the components of A. euchroma on leukemia has not been explored systematically.

Methods: In this study, we analyzed the MoA of A. euchroma on leukemia via network pharmacology approach. Firstly, the chemical components and their concentrations in A. euchroma as well as leukemia-related targets were collected. Next, we predicted compound-target interactions (CTIs) with our balanced substructure-drug-target network-based inference (bSDTNBI) method. The known and predicted targets of A. euchroma and leukemia-related targets were merged together to construct A. euchroma-leukemia protein-protein interactions (PPIs) network. Then, weighted compound-target bipartite network was constructed according to combination of eight central attributes with concentration information through Cytoscape.

Additionally, molecular docking simulation was performed to calculate whether the components and predicted targets have interactions or not.

Results: A total of 65 components of A. euchroma were obtained and 27 of them with concentration information, which were involved in 157 targets and 779 compound-target interactions (CTIs). Following the calculation of eight central attributes of targets in A. euchroma-leukemia PPI network, 37 targets with all central attributes greater than the median values were selected to construct the weighted compound-target bipartite network and do the KEGG pathway analysis. We found that A. euchroma candidate targets were significantly associated with several apoptosis and inflammation-related biological pathways, such as MAPK signaling, PI3K-Akt signaling, IL-17 signaling, and T cell receptor signaling pathways. Moreover, molecular docking simulation demonstrated that there were eight pairs of predicted CTIs had the strong binding free energy.

Conclusions: This study deciphered that the efficacy of A. euchroma in the treatment of leukemia might be attributed to 10 targets and 14 components, which were associated with inhibiting leukemia cell survival and inducing apoptosis, relieving inflammatory environment and inhibiting angiogenesis.

Screening of medicinal herbs for cytotoxic activity to leukemia cells

33.

J BUON. Jul-Aug 2020;25(4):1989-1996.

Authors

Bui Thi Kim Ly [1], Dao My Ly, Pham Hoai Linh, Hoang Kim Son, Nguyen Le Ha, Hoang Thanh Chi

Abstract

Purpose: This study aimed to find a new source of anti-leukemia agents from Vietnamese medicinal plants.

Methods: The human leukemia cell lines TCCY, KU-812, TCC-S, KOPB-26, and HL60 were used. The crude ethanol extracts of 17 medicinal plants were collected and evaluated for their cytotoxicity against these leukemia cell lines by the trypan blue dye exclusion test. Morphological changes of cells were observed under phase-contrast inverted microscope. Bioactive compounds were evaluated using the method described by Ciulei. 2,2-diphenyl-1-picrylhydrazyl (DPPH) method was carried out for evaluating the antioxidant effect.

Results: Among the tested samples, Artemisia vulgaris (A.vulgaris) crude ethanol extract effectively inhibited the viability of leukemia cell in both dose and time-dependent manner. The IC50 value was different for cell lines and ranged from 18.07±1.64 μg/ml to 45.87±3.49 μg/ml. Moreover, the phytoconstituents analysis results showed coumarin, flavonoid, anthocyanin, cardiac glycoside, tannins, reduced sugar compounds were present in the A.vulgaris extract. The total polyphenol and flavonoid contents of the dry extract were calculated as 3.81 mg GAE/g dry

weight and 11.64 mg RUE/g dry weight of A.vulgaris. A.vulgaris exhibited antioxidant activity with IC50 is 145.10 ± 6.34 µg/ml.

Conclusion: Among the 17 Vietnamese plants used to treat a variety of cancer-related diseases, A.vulgaris has been able to suppress the growth of leukemia cells.

34. Shionone suppresses the growth, migration and invasion of human breast cancer cells via induction of apoptosis and inhibition of MEK/ERK and STAT3 signalling pathways

J BUON. Jul-Aug 2020;25(4):1821-1826.

Authors

Nana Xu [1], Jingnuan Hu, Ke Han, Yang Ou, Tingting Ji, Jialiang Xing

Abstract

Purpose: Breast cancer is responsible for high morbidity and mortality across the globe. Studies are focusing to develop novel systemic therapies for the treatment of this disease. The present study was designed to examine the anticancer effects of Shionone against human breast cancer cells along with the underlying mechanism of its action.

Methods: The breast cancer SK-BR-3 and normal breast MB-157 cell lines were used in the study. CCK8 assay was used for cell viability assessment. DAPI was used for the assessment of nuclear morphology. Acridine orange (AO)/ ethidium bromide (EB) and annexin V/propidium iodide (PI) assays were used for detection of apoptosis. Cell cycle analysis was done by flow cytometry. Protein expression was examined by western blot analysis.

Results: The results showed that in vitro administration of Shionone led to decline of proliferation of breast cancer cells. The reduction of proliferative rates was attributed to the induction of apoptosis of breast cancer cells. Shionone caused cleavage of caspase-3 and 9. The expression of Bax was increased and that of Bcl-2 was decreased upon Shionone treatment. The transwell assays showed that Shionone suppressed the migration and invasion of breast cancer cells in a dose-dependent manner. Finally, western blot analysis showed that Shionone blocked the Ras/Raf/MEK/ERK and STAT3 signaling pathways in breast cancer cells.

Conclusion: Taken all together, the study established the anticancer role of triterpenoid Shionone in restricting the growth and proliferation of human breast cancer cells.

35. Targeting Tumor Immunosuppressive Microenvironment for the Prevention of Hepatic Cancer: Applications of Traditional Chinese Medicines in Targeted Delivery

Curr Top Med Chem. 2020;20(30):2789-2800. doi: 10.2174/1568026620666201019111524.

Authors

Le-Yi Zhang [1], Jun-Gang Zhang [2 3], Xue Yang [3], Mao-Hua Cai [1], Cheng-Wu Zhang [2 3], Zhi-Ming Hu [2 3]

Abstract

Traditional Chinese Medicine (TCM) is one of the ancient and most accepted alternative medicinal systems in the world for the treatment of health ailments. World Health Organization recognizes TCM as one of the primary healthcare practices followed across the globe. TCM utilizes a holistic approach for the diagnosis and treatment of cancers. The tumor microenvironment (TME) surrounds cancer cells and plays pivotal roles in tumor development, growth, progression, and therapy resistance. TME is a hypoxic and acidic environment that includes immune cells, pericytes, fibroblasts, endothelial cells, various cytokines, growth factors, and extracellular matrix components. Targeting TME using targeted drug delivery and nanoparticles is an attractive strategy for the treatment of solid tumors and recently has received significant research attention under precise medicine concept. TME plays a pivotal role in the overall survival and metastasis of a tumor by stimulating cell proliferation, preventing the tumor clearance by the immune cells, enhancing the oncogenic potential of the cancer cells, and promoting tumor invasion. Hepatocellular Carcinoma (HCC) is one of the major causes of cancer-associated deaths affecting millions of individuals worldwide each year. TCM herbs contain several bioactive phytoconstituents with a broad range of biological, physiological, and immunological effects on the system. Several TCM herbs and their monomers have shown inhibitory effects in HCC by controlling the TME. This study reviews the fundamentals and applications of targeting strategies for immunosuppressing TME to treat cancers. This study focuses on TME targeting strategies using TCM herbs and the molecular mechanisms of several TCM herbs and their monomers on controlling TME.

36. The Effectiveness of Tai Chi in Patients With Breast Cancer: An Overview of Systematic Reviews and Meta-Analyses

J Pain Symptom Manage. 2021 May;61(5):1052-1059. doi: 10.1016/j.jpainsymman.2020.10.007. Epub 2020 Oct 15.

Authors

Jinke Huang [1], Haolin Liu [1], Jiajie Chen [1], Xiaowen Cai [2], Yong Huang [3]

Abstract

Background: As a mind-body exercise, Tai Chi (TC) may have a positive impact on physical function and psychological well-being in patients with breast cancer (BC). The aim of this current overview of systematic reviews (SRs) and meta-analyses (MAs) was to identify and summarize the existing evidence regarding the effectiveness of TC in patients with BC.

Methods: A computerized search of electronic databases was performed to identify relevant SRs/MAs of TC related to BC from inception to June 2020. The Assessing the Methodological Quality of Systematic Reviews 2 (AMSTAR-2) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklists were used to assess the methodological quality

and reporting quality of SRs and MAs, respectively. The Grades of Recommendations, Assessment, Development and Evaluation (GRADE) approach was used to assess the evidence quality of outcome measures.

Results: Six SRs/MAs in which quantitative synthesis was used to assess various outcomes of TC related to BC were included in this overview. The quality of the SRs/MAs and the evidence quality of the outcome measures were generally unsatisfactory. The limitations of the past SRs/MAs were the lack of a protocol and registration, a list of excluded studies, or inadequately reported computational details of meta-analyses. The critical problems were that the qualitative data synthesis relied on the trials with small sample sizes and of critical low quality.

Conclusions: TC is possibly beneficial to BC treatment. However, further rigorous and comprehensive studies are required to provide robust evidence for definitive conclusions.

37. Yoga Practice Predicts Improvements in Day-to-Day Pain in Women With Metastatic Breast Cancer

J Pain Symptom Manage. 2021 Jun;61(6):1227-1233. doi: 10.1016/j.jpainsymman.2020.10.009. Epub 2020 Oct 14.

Authors

James W Carson [1], Kimberly M Carson [2], Maren Olsen [3], Linda Sanders [4], Kelly Westbrook [4], Francis J Keefe [5], Laura S Porter [5]

Abstract

Context: Women with metastatic breast cancer (MBC) experience a significant symptom burden, including cancer pain. Yoga is a mind-body discipline that has shown promise for alleviating cancer pain, but few studies have included patients with metastatic disease or examined the acute effects of yoga practice.

Objectives: To determine whether daily pain changed significantly during a randomized controlled trial of the Mindful Yoga program among women with MBC and whether time spent in yoga practice was related to daily pain.

Methods: On alternate weeks during the intervention period, we collected daily measures of pain from a subset of 48 women randomized to either yoga (n = 30) or a support group condition (n = 18). We also assessed daily duration of yoga practice among patients randomized to yoga.

Results: Pain levels were low for women in both conditions, and no differential treatment effects were found on daily pain. However, among women randomized to yoga, a dose/response relationship was found between yoga practice duration and daily pain. When patients had spent relatively more time practicing yoga across two consecutive days, they were more likely to

experience lower pain on the next day. This finding is consistent with an earlier MBC study. Meditation practice showed the strongest association with lower daily pain.

Conclusion: Findings suggest that yoga practice (meditation practice in particular) is associated with acute improvements in cancer pain, and that yoga interventions may be more impactful if tested in a sample of patients with advanced cancer in which pain is relatively elevated.

38. The investigation of the healing effect of active ingredients in traditional medicinal plants on lung cancer

Med Oncol. 2020 Oct 15;37(11):102. doi: 10.1007/s12032-020-01428-z.

Author

Faik Gökalp [1]

Abstract

The healing effect of herbal active compounds on lung cancer has been recently investigated. Lung cancer is one of the leading types of cancer. The causes and prevention of lung cancer diagnosis have an important role as the inhibition of proteins in the initial treatment of the disease. The docking score was used to investigate the effect of some active compounds in traditional medicinal plants. The use of widespread medicinal plants and determination of active substances reveal the importance of docking studies in choosing the right active substance in a short time. The inhibition of essentially active compounds on lung cancer has been an important condition as the traditional medicinal plants that are rich in active substance and direct the experimental studies. In this study, the effects of the active ingredients in traditional food supplements used in many countries on the lung cancer were calculated based on the drugs used as standard. It will be hope that these active substances with high healing effects will be tested in the clinical field and turned into drugs.

39. Developing a Community for Patients With Cancer Through Longer-Term Art Therapy

JCO Oncol Pract. 2021 Apr;17(4):e506-e516. doi: 10.1200/OP.20.00419. Epub 2020 Oct 14.

Authors

Sam Brondfield [1], Naike Bochatay [2], Cynthia Perlis [3]

Abstract

Purpose: Art therapy (AT) improves quality of life and symptoms in patients with cancer. However, previous studies that have demonstrated these effects focused on time-limited interventions. The benefits of longer-term AT interventions for patients with cancer remain unexplored. We aimed to delineate the benefits of one such intervention for patients with cancer.

Methods: The Art for Recovery open art studio (OAS) is a weekly experience that provides patients the opportunity to express themselves through art and discussion. In April 2019, we sent a cross-sectional survey with closed- and open-ended components to all patients attending the OAS. We analyzed the closed-ended results using descriptive statistics and the open-ended results using directed content analysis through the theoretical framework of community-based development (CBD).

Results: The response rate was 82% (18 of 22 patients). The median duration of OAS attendance was 2 years, and the median frequency of attendance was three times per month. All respondents found the OAS very helpful, and 17 (94%) of 18 believed that the friendships they had made were very valuable. Directed content analysis revealed three themes: togetherness, active engagement, and familiar surroundings. These themes and our closed-ended results aligned well with the CBD framework.

Conclusion: Longer-term AT experiences may provide benefits, such as community development, that briefer interventions lack. Medical centers should consider providing longer-term AT experiences for patients with cancer to give them access to these benefits.

40. Comparison of Perceptions of Spiritual Care Among Patients With Life-Threatening Cancer, Primary Family Caregivers, and Hospice/Palliative Care Nurses in South Korea

J Hosp Palliat Nurs. 2020 Dec;22(6):532-551. doi: 10.1097/NJH.0000000000000697.

Authors

Kyung-Ah Kang, Shin-Jeong Kim

Abstract

This study aimed to compare perceptions of spiritual care among patients with life-threatening cancer, their primary family caregivers, and hospice/palliative care nurses.Data were collected using both structured and unstructured approaches. Structured questionnaire data were examined using statistical analysis methods, and unstructured data were examined using content analysis to compare the 3 participant groups. The questionnaire revealed that among all 3 groups, spiritual care was commonly perceived to relate to "having the opportunity for internal reflection," "finding meaning," "encouraging hope," and "listening to and being with patients." Content analysis of the unstructured data revealed 5 themes: "Caring with sincerity," "Strengthening spiritual resources," "Alleviating physical pain and discomfort" (among patients and primary family caregivers only), "Improving spiritual care service," and "Multifaceted cooperation" (among hospice/palliative care nurses only). Our findings suggest that for patients with life-threatening illnesses such as terminal cancer, spiritual care should not be limited to religious practice but should also satisfy inner existential needs, for example, by encouraging hope, providing empathy, and helping patients find meaning in their circumstances.

41. **Using thermal imaging to measure changes in breast cancer-related lymphoedema during reflexology**

Br J Community Nurs. 2020 Oct 1;25(Sup10):S6-S11. doi: 10.12968/bjcn.2020.25.Sup10.S6.

Authors

Judith Anne Whatley [1], Sally Kay [2]

Abstract

Reflexology lymph drainage (RLD) for breast cancer-related lymphoedema (BCRL) may have a positive impact on arm swelling and pain. Thermal imaging is a means of tracking temperature change by visual images. This study aimed to explore the use of thermal imaging in treatment for BCRL. The swollen arms of two participants with BCRL were photographed using a thermal imaging camera during a single RLD treatment. Limb Volume Circumferential Measurement (LVCM) of both arms was taken before, after and the next day. The images were examined for visual changes, and temperature data were extracted. Images showed differences in temperature within the affected hand and arm over 45 minutes. LVCM data indicated a loss of limb volume in the affected arm in both cases, which continued to decrease over 24 hours. Thus, thermal imaging may be useful in tracking temperature change during treatment for BCRL.

42. **Acute effects of aerobic exercise and relaxation training on fatigue in breast cancer survivors: A feasibility trial**

Psychooncology. 2021 Feb;30(2):252-259. doi: 10.1002/pon.5561. Epub 2020 Oct 14.

Authors

Jason Cohen [1], Wendy A Rogers [1], Steven Petruzzello [1], Linda Trinh [2], Sean P Mullen [1 3 4]

Abstract

Objective: This three-armed randomized controlled feasibility trial tested the acceptability and acute effects of aerobic exercise and technology-guided mindfulness training (relative to standalone interventions) on cancer-related fatigue among breast cancer survivors (BCS).

Methods: BCS recruited from Central Illinois completed pre- and post-testing using established measures and were randomized to one of three groups (combined aerobic exercise with guided-mindfulness relaxation, aerobic exercise only, and relaxation only), conducted in three 90 min sessions over the course of 7 days in a fitness room and research office on a university campus.

Results: We enrolled 40 BCS (M_{age} = 57.33 ± 8.75), M_{BMI} = 27.38 ± 5.27, $M_{fatigue}$ = 4.56 ± 1.81 as measured by the Piper Fatigue Scale. More favorable post-intervention evaluations were reported by the combined group, compared to aerobic exercise or relaxation only ($p < 0.05$). Reductions in

fatigue favoring the combined group (p = 0.05) showed a modest effect size (Cohen's d = 0.91) compared to aerobic exercise only.

Conclusions: These findings provide preliminary evidence for the feasibility of combining evidence-based techniques to address fatigue among BCS. The combined approach, incorporating mobile health technology, presents an efficacious and well-received design. If replicated in longer trials, the approach could provide a promising opportunity to deliver broad-reaching interventions for improved outcomes in BCS. Preregistered-ClinicalTrials NCT03702712.

43. Mindfulness-based arts interventions for cancer care: A systematic review of the effects on wellbeing and fatigue

Psychooncology. 2021 Feb;30(2):240-251. doi: 10.1002/pon.5560. Epub 2020 Oct 14.

Authors

Kendra L Rieger [1 2], Michelle M Lobchuk [2], Miriam A Duff [3], Wanda M Chernomas [2], Lisa Demczuk [4], Heather J Campbell-Enns [5], Amie-Rae Zaborniak [2], Sochimaobi Nweze [2], Christina H West [2]

Abstract

Objective: Upon receiving a cancer diagnosis, life irrevocably changes and complex experiences of emotional distress often occur. There is a growing interest in mindfulness-based arts interventions (MBAIs) to ameliorate the distress many patients experience. Our review objective was to synthesize the evidence on the effectiveness of MBAIs on psychological wellbeing and fatigue.

Method: Relevant quantitative articles were identified through a systematic search of the grey literature and online databases including MEDLINE, CINAHL, Cochrane CENTRAL, Art Full Text, ART bibliographies Modern, PsycINFO, Scopus, and EMBASE. Two independent reviewers screened titles/abstracts against predetermined inclusion criteria, read full-text articles for eligibility, conducted quality appraisals of included articles, and extracted pertinent data with a standardized data extraction form. The heterogeneity of the included studies precluded a meta-analysis and a narrative synthesis of study outcomes was conducted.

Results: Our systematic search retrieved 4241 titles/abstracts, and 13 studies met our inclusion criteria (eight randomized controlled trials and five quasi-experiments). Most of the studies focused on patients with cancer (92.3%). There is a growing interest in MBAIs over time and significant heterogeneity in the types of interventions. A significant effect was found on several outcomes that are important in psychosocial oncology: quality of life, psychological state, spiritual wellbeing, and mindfulness. The effect on fatigue was equivocal.

Conclusions: This novel intervention demonstrates promise for the psychosocial care of patients with cancer. These findings are an essential antecedent to the continued implementation, development, and evaluation of MBAIs in oncology.

44. **Gambogic acid inhibits proliferation and induces apoptosis of human acute T-cell leukemia cells by inducing autophagy and downregulating β-catenin signaling pathway: Mechanisms underlying the effect of Gambogic acid on T-ALL cells**

Oncol Rep. 2020 Oct;44(4):1747-1757. doi: 10.3892/or.2020.7726. Epub 2020 Aug 11.

Authors

Tongtong Wang [1], Jing Du [2], Dexia Kong [1], Guosheng Yang [1], Qihao Zhou [1], Fei You [1], Yan Lin [1], Ying Wang [1]

Abstract

The main active compound of Garcinia hanburyi (referred to as gamboge) is gambogic acid (GA), which has long been a Chinese herbal medicine for treating several types of cancer. However, the potential therapeutic role and mechanisms of GA in T-cell acute lymphoblastic leukemia (T-ALL) remain unclear. In the present study, the effects of GA on proliferation, cell cycle, apoptosis, and autophagy in T-ALL cell lines were investigated. The possible mechanisms underlying GA activity were also examined. The results showed that GA inhibited proliferation, induced apoptosis, and activated autophagy in T-ALL cell lines (Jurkat and Molt-4 cells). Findings confirmed that GA has an antileukemia effect against peripheral blood lymphocyte cells in patients with ALL. GA inhibited phospho-GSK3β S9 (p-GSK3β S9) protein levels to inactivate Wnt signaling and suppress β-catenin protein levels. In addition, the inhibitory effect of GA on T-ALL was reversed by overexpression of β-catenin. Thus, GA can inhibit the growth and survival of T-ALL cells. GA also had antileukemic activity, at least in part, through the downregulation of the Wnt/β-catenin signaling pathway.

45. **The legitimacy and safety of using alternative diets in cancer**

Rocz Panstw Zakl Hig. 2020;71(3):241-250. doi: 10.32394/rpzh.2020.0120.

Authors

Karolina Dobrowolska [1], Bożena Regulska-Ilow [2]

Abstract

Alternative diets are used by cancer patients, especially among those who are not treated with conventional methods. Due to worrying data published by the World Health Organisation and its Agenda, the International Agency for Research on Cancer and the International Cancer Union, as well as epidemiological data from all over the world, it has been concluded that cancer will be the main cause of death in the world and that, therefore, the popularity of alternative diets among cancer patients may increase. The paper reviews the scientific literature and assesses the legitimacy and safety of selected alternative diets, as well as the description of research in terms of assumed anticancer efficacy in the following diets: ketogenic, Dr. Budwig and macrobiotic. The

article also contains a summary of the analyzed scientific research and conclusions concerning the legitimacy of their use by cancer patients.

46. 'You move as you feel and you feel as you move': the practice and outcomes of a creative dance project for women living with or beyond cancer

Perspect Public Health. 2020 Sep;140(5):249-251. doi: 10.1177/1757913920916778.

Authors

Emily Jenkins [1], Kate Wakeling [2]

No abstract available

47. Therapeutic effects and mechanisms of actions of *Descurainia sophia*

Int J Med Sci. 2020 Aug 1;17(14):2163-2170. doi: 10.7150/ijms.47357. eCollection 2020.

Authors

Po-Chun Hsieh [1 2], Chan-Yen Kuo [3], Yen-Hsien Lee [4 5], Yao-Kuang Wu [5 6], Mei-Chen Yang [5 6], I-Shiang Tzeng [3], Chou-Chin Lan [5 6]

Abstract

Descurainia sophia Webb ex Prantl has been used in traditional medicine globally. It has been shown that *Descurainia sophia*, together with many other bioactive compounds, can modulate the biological functions of various genes. We have viewed the clinical benefits and mechanisms of action of *Descurainia sophia* associated with its current uses and outlined potential further applications. There are many studies documenting its numerous clinical effects in cancer, respiratory, gastrointestinal, and cardiac systems. Further, *Descurainia sophia* has been shown to exhibit anti-inflammatory, anti-oxidative, and anthelmintic activities. The clinical studies did not indicate any significant adverse effects of *Descurainia sophia*, demonstrating that it is a safe and effective herbal medicine. However, more clinical studies demonstrating the therapeutic effects of *Descurainia sophia* are still warranted.

48. Applicability of auriculotherapy in cancer patients: an integrative literature review

Rev Esc Enferm USP. 2020 Sep 7;54:e03609. doi: 10.1590/S1980-220X2019001503609. [Article in Portuguese, English]

Authors

Carolina Lélis Venâncio Contim [1], Fátima Helena do Espírito Santo [2], Isadora Górski Moretto [1]

Abstract

in English, Portuguese, Spanish

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.

49. Application of a mind-body tool in a rural population to improve post-operative outcomes in women with breast cancer: A pilot study

Surg Oncol. 2020 Sep;34:63-66. doi: 10.1016/j.suronc.2020.03.007. Epub 2020 Apr 3.

Authors

David J Linshaw [1], Erin G Floyd [2], Kari M Rosenkranz [3], James E Stahl [4]

Abstract

Background: Breast cancer is the most commonly diagnosed cancer in women in the United States. While improvements in treatment have improved mortality, they can negatively impact quality of life (QOL). Mindfulness-based programs are low-cost interventions shown to improve QOL. The study aim was to evaluate a well-validated mind-body program - determining its feasibility, acceptability, and improvement in symptomatology in post-operative breast cancer patients in a rural setting.

Methods: We recruited patients during post-operative appointments following mastectomy or lumpectomy for breast cancer. Each participant completed 3 surveys before and after the intervention: (8 PROMIS-29, PROMIS -Global QOL, and MAAS (Mindfulness Attention Awareness Scale). The intervention was an 8-week course: "The Stress Management and Resiliency Training (SMART) - Relaxation Response and Resiliency Program (3RP)", which has been well-validated for the treatment of various clinical problems. Feasibility, acceptability, quantitative survey data, and demographics were analyzed.

Results: SMART-3RP was highly acceptable with greater than >80% completion rate. 23% of the invited participants enrolled, although over 70% of patients approached (34/48) expressed interest. The principal recruitment deterrent was scheduling. Sleep and anxiety/depression were improved in participants although not significantly due to small sample size. We also demonstrated improving trends in other QOL measures.

Conclusions: This small pilot study proved feasibility, showed excellent acceptability, and demonstrated a benefit in post-operative breast cancer patients. Even with our small sample size, we found trends in improvement in certain QOL measures which emphasizes SMART-3RP's potential effectiveness. A large-scale randomized controlled trial is warranted.

A Web-Streamed Yoga Intervention for Breast Cancer Survivors

50.

Creat Nurs. 2020 Aug 1;26(3):e70-e76. doi: 10.1891/CRNR-D-19-00005.

Authors

Loren Winters, Kathryn Post, Jane Flanagan

Abstract

Background: Current research indicates that structured yoga practice may improve physical and emotional symptoms related to cancer treatment. Yoga is recommended for patients with cancer, yet there are barriers to participation in community- and hospital-based classes. Wellness interventions such as yoga are easy to access via the internet, but information can be overwhelming and not tailored to people with cancer.

Purpose: The purpose of this study was to develop a nurse-led, breast cancer-specific, web-based gentle yoga video for home use, and to understand the feasibility, utilization, and safety of the video in a sample of breast cancer survivors.

Method: Data was collected via open-ended telephone interviews three times over a 4-week period.

Results: The 14 women participating in the study reported that the web-based video was safe in that it resulted in no injury, and was easy to use, and convenient to access. However, most did not continue to practice the video for the full 4 weeks of the study. A knowledge deficit about gentle yoga as a structured mindful movement-based practice rather than a vigorous exercise was identified.

Implications: Nurses can provide tailored wellness interventions for cancer survivors via video stream. Future work should include instruction that yoga is a mindfulness-based self-care activity requiring regular practice.