SIO Monthly Digest December 2021

1. **[Use of medicinal plants by cancer patients at the National Institute of Oncology, Rabat: a cross-sectional survey](#)**

   Authors

[Nadia El Orfi](#) [1], [Saber Boutayeb](#) [2], [Bouchra Haddou Rahou](#) [3], [Ahlam Aitouma](#) [1], [Amine Souadka](#) [4]
   Abstract
Introduction: the use of medicinal plants has increased significantly in recent years. According to the World Health Organization, 80% of the world's population uses medicinal plants to treat themselves. Our study aims to estimate the prevalence of medicinal plant use by cancer patients, list the different plants and identify their adverse effects cited by users and their reported efficacy.
Methods: this study was realised among 100 patients via a questionnaire with 14-items. Socio-economic and clinical characteristics have been analysed. The bivariate and multivariate analyses have been used to demonstrate the association between the socio-demographic characteristics of the participants, the duration of the disease and the use of medicinal plants.
Results: 45% of participants used medicinal plants. The most commonly reported reason for using medicinal plants was cancer cure (22%). During this study, 32 plants were identified. The Honey was the most commonly used (25%), thyme was also consumed at 15%, fenugreek at 13% and garlic at 7%. According to the multivariate analysis, the residence is predictor of medicinal plant use, urban residents used medicinal plants more than rural patients with an OR: 3,098, IC, 95%: [1,183-8,113] and P = 0,021. Fifty patients reported the moderate efficacy of the use of medicinal plants, and 20% described some side effects such as abdominal pain in 34%.
Conclusion: in order to avoid any interaction with oncological drugs and to improve their effectiveness, a great importance must be given to information, education and awareness sessions.

2. **[Efficacy and safety of traditional Chinese medicine injections combined with FOLFOX4 regimen for gastric cancer: A protocol for systematic review and network meta-analysis](#)**

   Authors

[Yanyan Zhang](#) [1], [Lihao Jiang](#) [1], [Ju Ouyang](#) [1], [Xianfeng Du](#) [1], [Longlong Jiang](#) [2]
   Abstract
Background: Traditional Chinese medicine injections (TCMJs) combined with FOLFOX4 regimen could achieve favorable effects in the treatment of gastric cancer. However, the efficacy and safety of different TCMJs combined with FOLFOX4 in the treatment of gastric cancer have not been fully clarified. Due to the fact that there are as many as 10 kinds of TCMJs, how to choose an appropriate TCMJ has become an urgent clinical problem. The objective of this network meta-analysis is to explore the optimal options among different TCMJs for gastric cancer.
Methods: PubMed, Web of Science, Scopus, Cochrane Library, Embase, China Scientific Journal Database, China National Knowledge Infrastructure, Chinese Biomedical Literature Database, and Wanfang Data were searched to identify randomized controlled trials which focused on TCMJs

combined with FOLFOX4 against gastric cancer from its inception to September 2021. Subsequently, 2 researchers will be independently responsible for literature screening, data extraction, and assessment of their quality. Standard pair-wise and Bayesian network meta-analysis will be performed to compare the efficacy and safety of different TCMJs combined with FOLFOX4 regimen via Stata 14.0 and WinBUGS1.4 software.
Results: The results of this meta-analysis will be submitted to a peer-reviewed journal for publication.
Conclusions: The conclusion of this systematic review will provide evidence for selecting an optimal TCMJ combined with FOLFOX4 for patients with gastric cancer.

3. [**Safety and efficacy of Prunella vulgaris preparation in adjuvant treatment of thyroid nodules: A meta-analysis**](#)
Medicine (Baltimore). 2021 Oct 15;100(41):e27490. doi: 10.1097/MD.0000000000027490.

Authors

[Qing Han](#) [1], [Ning Xu](#) [1], [Bo Chen](#) [2], [Wei Wu](#) [2], [Lei Sheng](#) [2]
Abstract
Background: Prunella vulgaris (PV), a traditional Chinese medical herb, is considered beneficial for some thyroid diseases. However, the effectiveness is not consistent in different studies. This review compiles the evidence from randomized controlled trials (RCTs) and quantifies the effects of PV preparation on thyroid nodules.
Methods: Eight databases were searched up to April 2021 to identify eligible studies. Only RCTs were included. Meta-analysis of homogeneous studies was performed by RevMan5.3 software. Cochrane risk of bias assessment tool version 2.0 was used to assess the risk of bias of each trial. The research screening, data extraction, and risk of bias assessment were employed by 2 reviewers independently, and disagreement will be decided by a third senior reviewer. The risk ratio (RR), mean difference (MD) and corresponding 95% confidence interval (CI) of each study are summarized.
Results: Thirteen RCTs with 1468 patients were included in this study. A meta-analysis showed that the RR of the clinical efficacy of PV combined with levothyroxine sodium tablets was 1.22 (95% CI [1.11, 1.33]). The MD of thyroid nodule diameter was -0.43 (95% CI [-0.63, -0.22]). The MD of free triiodothyronine and free tetraiodothyronine levels was -1.99 (95% CI [-3.14, -0.86]) and -3.20 (95% CI [-5.50, -0.89]), respectively. The RR of the adverse reaction rate was 0.67 (95% CI [0.36, 1.22]), and the RR of the clinical efficacy of PV preparation combined with thyroxin tablets was 1.29 (95% CI [1.03, 1.62]).
Conclusions: PV combined with levothyroxine sodium tablets or thyroxin tablets has more benefits for thyroid nodules, further improving the clinical efficiency, reducing the diameter of nodules and reducing the occurrence of adverse reactions. However, the quality of these studies is uncertain, and higher quality and more RCTs are needed to provide comprehensive evidence-based medical evidence in the future.

4. [**Comparison of the effect of traditional Chinese medicine injection combined with chemotherapy and chemotherapy alone on the prognosis, quality of life and immune function in patients with ovarian carcinoma: A protocol for systematic review and network meta-analysis**](#)

Authors

Xingnong Xu [1], Li Zhu [2], Lin Long [3]

Abstract

Background: The effectiveness of traditional Chinese medicine (TCM) in assisting the reduction of the toxic effects of chemotherapy and enhancing the efficacy of chemotherapy is gradually being recognized. Traditional Chinese medicine injection (TCMJ) has been widely used as a promising adjuvant drug in the treatment of ovarian carcinoma. However, the exact clinical efficacy and safety of TCMJ have not been well studied due to the wide variety. This study aims to conduct a network meta-analysis of randomized controlled trials (RCTs) about comparing the effect of TCMJ combined with chemotherapy and chemotherapy alone on the treatment of ovarian cancer, thus summarizing the effects of TCMJ on the prognosis, quality of life and immune function of ovarian carcinoma patients and providing a reference for developing therapeutic regimens for ovarian carcinoma.

Methods: Randomized controlled trials reporting the effect of TCMJ combined with chemotherapy and chemotherapy alone on the prognosis, quality of life and immune function in patients with ovarian carcinoma published before September 2021 will be screened out from online databases like PubMed, Web of Science, Scopus, Cochrane Library, Embase, China Scientific Journal Database, China National Knowledge Infrastructure, Chinese Biomedical Literature Database, and Wanfang Database. Subsequently, 2 researchers will be independently responsible for literature screening, data extraction and assessment of their quality. All data will be processed by R.4.1.0.

Results: The results of this meta-analysis will be submitted to a peer-reviewed journal for publication.

Conclusions: Evidence-based medicine supports the efficacy and safety of TCMJ combined with chemotherapy for the treatment of ovarian carcinoma, which is better than that of chemotherapy alone.

5. **Medicinal Plants from Brazilian Cerrado Biome: Potential sources of new anti-inflammatory compounds and antitumor agents on Ehrlich carcinoma**

Authors

Fábio A Malara [1], Djamile C Matos [1], Lívia C A Ribeiro [1], Thais O R Falcoski [1], Teresinha J A S Andrade [1], Vanessa N C Santos [2], Nerilson M Lima [3], Iracilda Z Carlos [1]

Abstract

This work describes a pharmacological screening of Brazilian medicinal plants through their anti-inflammatory and cytotoxicity activities. Cytotoxicity activity of Mouriri elliptica and Alchornea glandulosa as well as the drugs celecoxib and doxorubicin were evaluated in cultures of peritoneal macrophages. The immune system influence of these samples was analyzed by determining production/inhibition of NO, production of tumor necrosis factor-α and production of interleukin-10. Regarding the production/inhibition of NO, there was NO production by M.

elliptica and NO inhibition when the cells were exposed to A. glandulosa; Macrophages generally produce more NO, plus TNF-α and less IL-10, when associated to the tumor phenomenon, characterizing the inflammation involved in cancer. A. glandulosa showed anti-inflammatory effect, inhibited NO production and it was associated with low TNF-α production, although not as low as the macrophages associated with celecoxib and doxorubicin. These cytokines were not different in animals with tumor. Celecoxib confirms its anti-inflammatory action by markedly inhibiting NO and TNF-α, but also inhibiting IL-10 which is an anti-inflammatory cytokine. Doxorubicin inhibited NO in a higher percentage in the group of animals with tumor, although the literature reports that this drug stimulates the production of NO and this collaborates with its cytotoxic effect.

6. **Efficacy and safety of acupuncture and moxibustion combined with the external application of traditional Chinese medicine in the treatment of primary liver cancer: A protocol for systematic review and meta-analysis**
Medicine (Baltimore). 2021 Oct 29;100(43):e27659. doi: 10.1097/MD.0000000000027659.

Authors

Song Wang [1], Zhuang Xiong [1] [2], Yangyang Liu [1] [3], Yan Leng [1] [2], Houbo Deng [1] [2], Dong Shen [1], Xiangtong Meng [1], Tiejun Liu [1] [2]

Abstract
Background: Primary liver cancer (PLC) is one of the most common malignant tumors in the world, and its incidence and fatality rate are increasing year by year. Due to the large population base in China, the aging population is severely affected by environmental pollution, eating habits, and unhealthy lifestyles. And many other influences have caused the number of new PLC cases and deaths in China to rank first in the world. Acupuncture combined with external application of Chinese medicine to treat PLC is currently one of the commonly used treatments in China. However, this combined treatment still lacks evidence-based medicine support. Therefore, this systematic review and meta-analysis aims to evaluate the efficacy and safety of acupuncture combined with external application of traditional Chinese medicine in the treatment of PLC.
Method: We will search PubMed, Web of Science, GCBI, Embase, OVID, AMED, Cochrane Library, CNKI, VIP, CBM, and Wanfang databases. As of September 15, 2021, there are no restrictions on search language, publication time, and publication status. We will use the following medical keywords to search, including: "acupuncture", "external application of traditional Chinese medicine", and "primary liver cancer". At the same time, we will manually search all reference lists from relevant systematic reviews to find other eligible studies. We will use the random effects model in REVMAN v5.3 for meta-analysis. The study for acupuncture combined with Chinese herbal medicine in the treatment of PLC was a randomized controlled study. Two researchers will independently review the research selection, data extraction, and research quality assessments. Finally, we will observe the outcome measures.
Results: This study will provide evidence-based guidance for the treatment of PLC with acupuncture and the external application of traditional Chinese medicine and offers new ideas and methods for the treatment of PLC.

7. **[Acupuncture combined with traditional Chinese medicine preparation for the treatment of marrow suppression after chemotherapy: A protocol for systematic review and meta-analysis](#)**
Medicine (Baltimore). 2021 Oct 29;100(43):e27646. doi: 10.1097/MD.0000000000027646.

Authors

[Qiongjie Zhu](#) [1] , [Wenjin Xu](#), [Xuesong Li](#)

Abstract
Background: From the perspective of evidence-based medicine, the efficacy and safety of combined therapy for marrow suppression after chemotherapy is still unclear. Given that there is no high-quality meta-analysis to incorporate existing evidence, the purpose of this protocol is to design a systematically review and meta-analysis of the level I evidence to ascertain the efficacy and safety of acupuncture combined with traditional Chinese medicine preparation for marrow suppression after chemotherapy.
Methods: The following databases will be searched electronically by keyword combination mode: 4 British literature databases including PubMed, EMBASE, Scopus, and Cochrane Library, and 4 Chinese literature databases, including Chinese national knowledge infrastructure, VIP, and Wan fang database. The randomized controlled trials on acupuncture plus traditional Chinese medicine preparation for marrow suppression after chemotherapy will be included. The primary outcome is the elevation of hemoglobin, platelets, leukocytes, and neutrophils. The other outcomes include clinical symptoms, quality of life, and absolute value of reticulocyte. Risk bias analysis of the studies will be performed independently by 2 reviewers using the Cochrane Risk of Bias Assessment Tool.
Results: The review will add to the existing literature by showing compelling evidence and improved guidance in clinic settings.
Conclusion: This protocol will provide a reliable theoretical basis for the following research.

8. **[Molecular quantification, a new strategy for quality control of Chinese patent medicine containing animal-derived crude drug: Qi She in Jinlong capsule as an example](#)**
J Pharm Biomed Anal. 2022 Jan 5;207:114428. doi: 10.1016/j.jpba.2021.114428. Epub 2021 Oct 19.

Authors

[Chan Li](#) [1] , [Fang Li](#) [2] , [Haoting Ye](#) [3] , [Xuena Xie](#) [2] , [Yongshan Liang](#) [2] , [Enwei Tian](#) [2] , [Zhi Chao](#) [4]

Abstract
Quality control for Chinese patent medicine (CPM) containing animal-derived crude drug(s) is rather difficult. The methods based on chemical composition analysis, which are commonly used in CPM consisted of plant-derived crude drugs, are often not applicable for CPM containing animal-derived crude drug, because the effective constituents of most animal-derived crude drugs remain unknown. Even if there are such methods, they are usually qualitative rather than quantitative, and the specificity is generally poor. Here we proposed a molecular quantification method for CPM containing animal-derived crude drug, based upon the hypothesis that the amount of remnant DNA fragments could reflect feeding quantity of the crude drugs and thus ensure the quality of the CPM. Take Jinlong capsule [a hepatocellular carcinoma-resisting Chinese

patent medicine comprising of three fresh animal drugs, i.e. Shougong (Peking gecko, Gekko swinhonis), Qi She (sharp-snouted pitviper, Deinagkistrodon acutus), and Jinqian Baihua She (many-banded krait, Bungarus multicinctus)] as an example, we established a qPCR assay for Qi She in the capsule, which verified the feasibility of the quality control method based on molecular quantification. Species-specific primers and TaqMan probe for Qi She were designed, and the qPCR assay system was then established. The assay exhibited a good specificity; there's a good linearity between Ct values and logarithm of the target amplicon copy numbers within the range of 8.8×10^1 to 8.8×10^6 copies/μL, and the limit of detection was 88 copies/μL. The method was validated through reproducibility, stability assessment. Recovery of spiked samples was between 91.59% and 101.69%. It was verified that the copy numbers reflected the original feeding amount of an animal-derived crude drug by self-made Jinlong capsules. The assay was successfully applied in Qi She-specific amplicon determination in 20 batches of Jinlong capsule. The study was expected to provide a new strategy for quality control of CPM containing animal-derived crude drug.

9. **Palmatine, a Bioactive Protoberberine Alkaloid Isolated from *Berberis cretica*, Inhibits the Growth of Human Estrogen Receptor-Positive Breast Cancer Cells and Acts Synergistically and Additively with Doxorubicin**
Molecules. 2021 Oct 15;26(20):6253. doi: 10.3390/molecules26206253.

Authors

Aneta Grabarska [1] , Paula Wróblewska-Łuczka [2] , Wirginia Kukula-Koch [3] , Jarogniew J Łuszczki [2] , Eleftherios Kalpoutzakis [4] , Grzegorz Adamczuk [5] , Alexios Leandros Skaltsounis [4] , Andrzej Stepulak [1]

Abstract

Palmatine (PLT) is a natural isoquinoline alkaloid that belongs to the class of protoberberines and exhibits a wide spectrum of pharmacological and biological properties, including anti-cancer activity. The aim of our study was to isolate PLT from the roots of *Berberis cretica* and investigate its cytotoxic and anti-proliferative effects in vitro alone and in combination with doxorubicine (DOX) using human ER^+/$HER2^-$ breast cancer cell lines. The alkaloid was purified by column chromatography filled with silica gel NP and Sephadex LH-20 resin developed in the mixture of methanol: water (50:50 *v/v*) that provided high-purity alkaloid for bioactivity studies. The purity of the alkaloid was confirmed by high resolution mass measurement and MS/MS fragmentation analysis in the HPLC-ESI-QTOF-MS/MS-based analysis. It was found that PLT treatment inhibited the viability and proliferation of breast cancer cells in a dose-dependent manner as demonstrated by MTT and BrdU assays. PLT showed a quite similar growth inhibition on breast cancer cells with IC_{50} values ranging from 5.126 to 5.805 μg/mL. In contrast, growth of normal human breast epithelial cells was not affected by PLT. The growth inhibitory activity of PLT was related to the induction of apoptosis, as determined by Annexin V/PI staining. Moreover, PLT sensitized breast cancer cells to DOX. Isobolographic analysis revealed synergistic and additive interactions between studied agents. Our studies suggest that PLT can be a potential candidate agent for preventing and treating breast cancer.

10. **Inhibitory Role of Berberine, an Isoquinoline Alkaloid, on NLRP3 Inflammasome Activation for the Treatment of Inflammatory Diseases**

Authors

Paromita Sarbadhikary [1] , Blassan P George [1] , Heidi Abrahamse [1]
Abstract
The pyrin domain-containing multiprotein complex NLRP3 inflammasome, consisting of the NLRP3 protein, ASC adaptor, and procaspase-1, plays a vital role in the pathophysiology of several inflammatory disorders, including neurological and metabolic disorders, chronic inflammatory diseases, and cancer. Several phytochemicals act as promising anti-inflammatory agents and are usually regarded to have potential applications as complementary or alternative therapeutic agents against chronic inflammatory disorders. Various in vitro and in vivo studies have reported the anti-inflammatory role of berberine (BRB), an organic heteropentacyclic phytochemical and natural isoquinoline, in inhibiting NLRP3 inflammasome-dependent inflammation against many disorders. This review summarizes the mechanism and regulation of NLRP3 inflammasome activation and its involvement in inflammatory diseases, and discusses the current scientific evidence on the repressive role of BRB on NLRP3 inflammasome pathways along with the possible mechanism(s) and their potential in counteracting various inflammatory diseases.

11. **Dietary Barley Leaf Mitigates Tumorigenesis in Experimental Colitis-Associated Colorectal Cancer**

Authors

Daotong Li [1] [2] , Yu Feng [2] , Meiling Tian [2] , Xiaosong Hu [2] , Ruimao Zheng [1] , Fang Chen [2]
Abstract
Dietary barley (*Hordeum vulgare* L.) leaf (BL) is a popular functional food known to have potential health benefits; however, the effect of BL in colorectal cancer prevention has not been examined. Here, we examined the role of BL on the prevention of colorectal carcinogenesis and defined the mechanism involved. BL supplementation could protect against weight loss, mitigate tumor formation, and diminish histologic damage in mice treated with azoxymethane (AOM) and dextran sulfate sodium (DSS). Moreover, BL suppressed colonic expression of inflammatory enzymes, while improving the mucosal barrier dysfunctions. The elevated levels of cell proliferation markers and the increased expression of genes involved in β-catenin signaling were also reduced by BL. In addition, analyses of microbiota revealed that BL prevented AOM/DSS-induced gut microbiota dysbiosis by promoting the enrichment of *Bifidobacterium*. Overall, these data suggest that BL is a promising dietary agent for preventing colitis-associated colorectal cancer.

12. **Network meta-analysis of 6 kinds of Chinese patent medicines combined with mifepristone in the treatment of uterine fibroids: A protocol for systematic review and network meta-analysis**

Authors

[Chenhao Bi] [1], [Mingqi Qiao] [1], [Yuqi Jia] [2], [Haijun Wang] [1]
Abstract
Background: Uterine fibroids are benign. They belong to the category of "abdominal mass" in traditional Chinese medicine, and pathogenesis is mainly caused by weakness of the body, qi stagnation, and blood stasis. Drug therapy is the preferred treatment of uterine fibroids in clinical practice, and mifepristone is the most commonly used drug. In the past decade, a large number of clinical randomized controlled trials have proven that Chinese patent medicine combined with mifepristone in the treatment of uterine fibroids has a better curative effect, fewer adverse reactions, and higher safety than mifepristone alone. However, there is a lack of evidence-based research. This study aims to integrate clinical data through network meta-analysis to provide more evidence-based medical evidence for clinical medication.
Methods: The comprehensive search included Chinese and other-language databases, such as MEDLINE (PubMed), Web of Science, The Cochrane Library, China National Knowledge Infrastructure, Wanfang Data Knowledge Service Platform, China Scientific Journal Database, and China Biomedical Literature Database. Clinical randomized controlled trials of 6 Chinese patent medicines combined with mifepristone for the treatment of uterine fibroids, including Guizhi Fuling Capsule, Gongliuxiao Capsule, Gongliuqing Capsule, Danbie Capsule, Gongliuning Capsule, and Xiaojiean Capsule were retrieved. The search period was from January 2010 to April 2021. Two researchers screened the literature through EndNote and used Excel to extract data. RevMan 5.3 was used to evaluate the quality of the literature. Treatment measures were analyzed in R language, and a forest map and probability ranking map of various interventions were drawn. The network evidence map and correction comparison funnel map of various interventions were drawn by STATA 14.0 software.
Results: This study provides the clinical efficacy and safety of network meta-analysis of 6 kinds of Chinese patent medicines combined with mifepristone in the treatment of uterine fibroids will be systematically evaluated or descriptively analyzed.
Conclusion: This study's purpose is to provide a reference for the clinical treatment of uterine fibroids to choose more effective intervention therapies.

13. **[Combined effects of acupuncture and auricular acupressure for relieving cancer-related fatigue in patients during lung cancer chemotherapy: A protocol for systematic review and meta-analysis]**

Authors

[Han Li] [1], [Huan Liu] [2]
Abstract
Background: Increasing attention has been paid to acupuncture and auricular acupressure as alternative strategies for cancer related fatigue (CRF) management. Therefore, we design this systematic review and meta-analysis to explore the efficacy and safety of acupuncture and auricular acupressure for relieving CRF in patients during lung cancer chemotherapy.

Methods: From the inception to August 2021, the Web of Science, EMBASE, PubMed, and Cochrane Library electronic databases were searched using the key phrases "acupuncture", "auricular acupressure", and "lung cancer" for all relevant trials. Trials that compared acupuncture (including electroacupuncture) and auricular acupressure with acupuncture alone were included. The primary outcome was the measurement of the CRF symptoms. Secondary outcome measures were physical activity, quality of life, and adverse events. A P value of <.05 was considered to be statistically significant.
Results: It will be the first such study and will obtain evidence for utilizing acupuncture and auricular acupressure for lung cancer patients.
Conclusion: Combined acupuncture and auricular acupressure may be effective for relieving CRF in patients during lung cancer chemotherapy.

14. **[Beyond the Standard of Care: An Exploratory Qualitative Study of an Implemented Integrative Therapeutic Care Program in a Brazilian Pediatric Oncology Unit](#)**
    J Altern Complement Med. 2021 Nov;27(11):1002-1010. doi: 10.1089/acm.2021.0058. Epub 2021 Oct 20.

    Authors

[Marc Tröndle](#) [1] , [Wiebke Stritter](#) [1] , [Vicente Odone](#) [2] , [Karina Peron](#) [2] , [Ricardo Ghelman](#) [2] , [Georg Seifert](#) [1] [2]
    Abstract
Introduction: This article examines the feedback of health care providers within the implementation of an integrative care project in a clinic for pediatric oncology in São Paulo, Brazil. Since 2017, the project has implemented external anthroposophic therapies in the activities of daily nursing. The objective is to evaluate how the project evolved and what impact it had on the daily operation of the hospital. A special focus emphasizes the perspective of study nurses.
Materials and Methods: Twelve qualitative semistructured interviews were conducted. Audio files were transcribed, translated to German, and underwent a MAXQDA software-assisted analysis. Using a thematic approach, coherent cross-case topics were defined. *Results:* Three main topics emerged from analysis of the data. (1) The implementation and its effects on daily patient care demonstrated positive outcomes in patients and were well accepted with minimal changes in daily activities. (2) The perspective of study nurses showed a large motivation due to beneficial and stress-relieving effects of the application and a growing patient-health care provider relationship. (3) Problems and aspirations for improvement were the lack of time and the urge to make the project grow in the future. *Conclusion:* Not only patients but also health care providers seem to benefit from integrative methods. They have the potential to improve the working atmosphere and to strengthen relations between patients, caregivers, and family members. General feedback was positive and acceptance in the team arose over time when beneficial effects became visible.

15. **[Integrated Network Pharmacology Analysis and *In Vitro* Validation Revealed the Potential Active Components and Underlying Mechanistic Pathways of Herba Patriniae in Colorectal Cancer](#)**
    Molecules. 2021 Oct 5;26(19):6032. doi: 10.3390/molecules26196032.

Authors

Huihai Yang [1], Man-Kit Cheung [2], Grace Gar-Lee Yue [1], Ping-Chung Leung [1], Chun-Kwok Wong [1] [3], Clara Bik-San Lau [1] [4]

Abstract
Herba Patriniae (HP) are medicinal plants commonly used in colorectal cancer (CRC) patients. In this study, network pharmacology was used to predict the active components and key signaling pathways of HP in CRC. *Patrinia heterophylla*, one type of HP, was chosen for validation of the network pharmacology analysis. The phytochemical profile of *Patrinia heterophylla* water extract (PHW) was determined by UHPLC-MS. MTT, RT-PCR, and Western blot assays were performed to evaluate the bioactivities of PHW in colon cancer cells. Results showed that 15 potentially active components of HP interacted with 28 putative targets of CRC in the compound-target network, of which asperglaucide had the highest degree. Furthermore, the ErbB signaling pathway was identified as the pathway mediated by HP with the most potential against CRC. Both RT-PCR and Western blot results showed that PHW significantly downregulated the mRNA and protein levels of EGFR, PI3K, and AKT in HCT116 cells. Asperglaucide, present in PHW, exhibited an anti-migratory effect in HCT116 cells, suggesting that it could be an active component of PHW in CRC treatment. In conclusion, this study has provided the first scientific evidence to support the use of PHW in CRC and paved the way for further research into the underlying mechanisms of PHW against CRC.
Keywords: CRC; ErbB signaling pathway; FoxO signaling pathway; Herba Patriniae; Patrinia heterophylla; colorectal cancer; network pharmacology.

16. **Intranasal Administration of *Codium fragile* Polysaccharide Elicits Anti-Cancer Immunity against Lewis Lung Carcinoma**

Authors

Yuhua Wang [1], Eun-Koung An [2] [3], So-Jung Kim [2] [3], SangGuan You [4], Jun-O Jin [2] [3] [5]

Abstract
Natural polysaccharides have shown promising effects on the regulation of immunity in animals. In this study, we examined the immune stimulatory effect of intranasally administered *Codium fragile* polysaccharides (CFPs) in mice. Intranasal administration of CFPs in C57BL/6 mice induced the upregulation of surface activation marker expression in macrophages and dendritic cells (DCs) in the mediastinal lymph node (mLN) and the production of interleukin-6 (IL-6), IL-12p70, and tumor necrosis factor-α in bronchoalveolar lavage fluid. Moreover, the number of conventional DCs (cDCs) was increased in the mLNs by the upregulation of C-C motif chemokine receptor 7 expression, and subsets of cDCs were also activated following the intranasal administration of CFP. In addition, the intranasal administration of CFPs promoted the activation of natural killer (NK) and T cells in the mLNs, which produce pro-inflammatory cytokines and cytotoxic mediators. Finally, daily administration of CFPs inhibited the infiltration of Lewis lung carcinoma cells into the lungs, and the preventive effect of CFPs on tumor growth required NK and CD8 T cells. Furthermore, CFPs combined with anti-programmed cell death-ligand 1 (PD-L1) antibody (Ab)

improved the therapeutic effect of anti-PD-L1 Ab against lung cancer. Therefore, these data demonstrated that the intranasal administration of CFP induced mucosal immunity against lung cancer.

Keywords: Codium fragile polysaccharide; Lewis lung carcinoma; anti-cancer; immunotherapy; mucosal adjuvant.

17. **Acupoint stimulation for cancer-related fatigue: A quantitative synthesis of randomised controlled trials**
Complement Ther Clin Pract. 2021 Nov;45:101490. doi: 10.1016/j.ctcp.2021.101490. Epub 2021 Oct 7.

Authors

Jing-Yu Benjamin Tan [1], Tao Wang [2], Marilynne N Kirshbaum [3], Isabella Zhao [4], Sabina Eliseeva [5], Mary Janice Polotan [6], Li-Qun Yao [7], Hou-Qaing Huang [8], Si-Lin Zheng [9]

Abstract

Background and purpose: This study aimed to identify the research evidence on acupoint stimulation (AS) for cancer-related fatigue (CRF) management.

Methods: Randomised controlled trials that utilised AS for CRF management were retrieved. The Cochrane Back Review Group Risk of Bias Tool was used for quality appraisal. RevMan 5.3 was used for meta-analysis.

Results: Fifteen studies were included. Both the overall (SMD = -0.95, p = 0.008) and sub-group (acupuncture: SMD = -1.25, p = 0.002; short-term AS: SMD = -0.95, p = 0.02; medium-term AS: SMD = -0.96, p = 0.003) analyses indicated that AS was more effective in alleviating CRF than standard treatment/care. A comparison between the true and sham AS interventions favoured the true AS for CRF management, although the difference did not reach statistical significance.

Conclusion: This study identified a promising role of AS in improving CRF. However, the study findings should be interpreted prudently due to the limited quality and sample sizes of some of the included studies.

18. **Music interventions for improving psychological and physical outcomes in people with cancer**
Cochrane Database Syst Rev. 2021 Oct 12;10(10):CD006911. doi: 10.1002/14651858.CD006911.pub4.

Authors

Joke Bradt [1], Cheryl Dileo [2], Katherine Myers-Coffman [3], Jacelyn Biondo [1][4]

Abstract

Background: This is an update of the review published on the Cochrane Library in 2016, Issue 8. Having cancer may result in extensive emotional, physical and social suffering. Music interventions have been used to alleviate symptoms and treatment side effects in people with cancer. This review includes music interventions defined as music therapy offered by trained music therapists, as well as music medicine, which was defined as listening to pre-recorded music offered by medical staff.

Objectives: To assess and compare the effects of music therapy and music medicine interventions for psychological and physical outcomes in people with cancer.

Search methods: We searched the Cochrane Central Register of Controlled Trials (CENTRAL; 2020, Issue 3) in the Cochrane Library, MEDLINE via Ovid, Embase via Ovid, CINAHL, PsycINFO, LILACS, Science Citation Index, CancerLit, CAIRSS, Proquest Digital Dissertations, ClinicalTrials.gov, Current Controlled Trials, the RILM Abstracts of Music Literature, http://www.wfmt.info/Musictherapyworld/ and the National Research Register. We searched all databases, except for the last two, from their inception to April 2020; the other two are no longer functional, so we searched them until their termination date. We handsearched music therapy journals, reviewed reference lists and contacted experts. There was no language restriction.

Selection criteria: We included all randomized and quasi-randomized controlled trials of music interventions for improving psychological and physical outcomes in adults and pediatric patients with cancer. We excluded patients undergoing biopsy and aspiration for diagnostic purposes.

Data collection and analysis: Two review authors independently extracted the data and assessed the risk of bias. Where possible, we presented results in meta-analyses using mean differences and standardized mean differences. We used post-test scores. In cases of significant baseline difference, we used change scores. We conducted separate meta-analyses for studies with adult participants and those with pediatric participants. Primary outcomes of interest included psychological outcomes and physical symptoms and secondary outcomes included physiological responses, physical functioning, anesthetic and analgesic intake, length of hospitalization, social and spiritual support, communication, and quality of life (QoL) . We used GRADE to assess the certainty of the evidence.

Main results: We identified 29 new trials for inclusion in this update. In total, the evidence of this review rests on 81 trials with a total of 5576 participants. Of the 81 trials, 74 trials included adult (N = 5306) and seven trials included pediatric (N = 270) oncology patients. We categorized 38 trials as music therapy trials and 43 as music medicine trials. The interventions were compared to standard care. Psychological outcomes The results suggest that music interventions may have a large anxiety-reducing effect in adults with cancer, with a reported average anxiety reduction of 7.73 units (17 studies, 1381 participants; 95% confidence interval (CI) -10.02 to -5.44; very low-certainty evidence) on the Spielberger State Anxiety Inventory scale (range 20 to 80; lower values reflect lower anxiety). Results also suggested a moderately strong, positive impact of music interventions on depression in adults (12 studies, 1021 participants; standardized mean difference (SMD): -0.41, 95% CI -0.67 to -0.15; very low-certainty evidence). We found no support for an effect of music interventions on mood (SMD 0.47, 95% CI -0.02 to 0.97; 5 studies, 236 participants; very low-certainty evidence). Music interventions may increase hope in adults with cancer, with a reported average increase of 3.19 units (95% CI 0.12 to 6.25) on the Herth Hope Index (range 12 to 48; higher scores reflect greater hope), but this finding was based on only two studies (N = 53 participants; very low-certainty evidence). Physical outcomes We found a moderate pain-reducing effect of music interventions (SMD -0.67, 95% CI -1.07 to -0.26; 12 studies, 632 adult participants; very low-certainty evidence). In addition, music interventions had a small treatment effect on fatigue (SMD -0.28, 95% CI -0.46 to -0.10; 10 studies, 498 adult participants; low-certainty evidence). The results suggest a large effect of music interventions on adult participants' QoL, but the results were highly inconsistent across studies, and the pooled effect size was accompanied by a large confidence interval (SMD 0.88, 95% CI -0.31 to 2.08; 7 studies, 573 participants; evidence is very uncertain). Removal of studies that used improper

randomization methods resulted in a moderate effect size that was less heterogeneous (SMD 0.47, 95% CI 0.06 to 0.88, P = 0.02, I^2 = 56%). A small number of trials included pediatric oncology participants. The findings suggest that music interventions may reduce anxiety but this finding was based on only two studies (SMD -0.94, 95% CI -1.9 to 0.03; very low-certainty evidence). Due to the small number of studies, we could not draw conclusions regarding the effects of music interventions on mood, depression, QoL, fatigue or pain in pediatric participants with cancer. The majority of studies included in this review update presented a high risk of bias, and therefore the overall certainty of the evidence is low. For several outcomes (i.e. anxiety, depression, pain, fatigue, and QoL) the beneficial treatment effects were consistent across studies for music therapy interventions delivered by music therapists. In contrast, music medicine interventions resulted in inconsistent treatment effects across studies for these outcomes.

Authors' conclusions: This systematic review indicates that music interventions compared to standard care may have beneficial effects on anxiety, depression, hope, pain, and fatigue in adults with cancer. The results of two trials suggest that music interventions may have a beneficial effect on anxiety in children with cancer. Too few trials with pediatric participants were included to draw conclusions about the treatment benefits of music for other outcomes. For several outcomes, music therapy interventions delivered by a trained music therapist led to consistent results across studies and this was not the case for music medicine interventions. Moreover, evidence of effect was found for music therapy interventions for QoL and fatigue but not for music medicine interventions. Most trials were at high risk of bias and low or very low certainty of evidence; therefore, these results need to be interpreted with caution.

Update of

- [Music interventions for improving psychological and physical outcomes in cancer patients.](#)
  Bradt J, Dileo C, Magill L, Teague A.

19. [**The effect of progressive relaxation exercises on treatment-related symptoms and self-efficacy in patients with lung cancer receiving chemotherapy**](#)
    Complement Ther Clin Pract. 2021 Nov;45:101488. doi: 10.1016/j.ctcp.2021.101488. Epub 2021 Oct 2.

Authors

[Kamile Kırca](#) [1] , [Sevinç Kutlutürkan](#) [2]

Abstract

Background: Patients with lung cancer receiving chemotherapy experience many symptoms, simultaneously or separately, that limit their daily living activities. This study aimed to determine the effect of progressive relaxation exercises on treatment-related symptoms and self-efficacy in patients with lung cancer receiving chemotherapy.

Materials and methods: This randomized controlled experimental study was conducted in a university hospital chemotherapy outpatient clinic in Turkey. The study sample consisted of 84 patients, randomly allocated to an experimental group (n = 42) and a control group (n = 42). The experimental group received applied training in progressive relaxation exercises using an MP3 player. The control group received only standard nursing interventions in the chemotherapy unit. Data were collected from patients using a personal information form, a telephone counseling follow-up form, the Memorial Symptom Assessment Scale and the Strategies Used by People to

Promote Health Scale. Data collection tools were administered at four different times (at first interview and three times on the seventh day of the end of the chemotherapy cycle) and weekly telephone follow-ups were performed.

Results: The symptom scores (frequency, severity and level of distress) significantly decreased in the experimental group, compared with the control group (p = 0.0001). Similarly, self-efficacy scores significantly improved in the experimental group (p = 0.001).

Conclusion: Progressive relaxation exercises were potentially effective in promoting symptom management and improving the level of self-efficacy.

20. **Sustained effects of mantra meditation compared to music listening on neurocognitive outcomes of breast cancer survivors: A brief report of a randomized control trial**
J Psychosom Res. 2021 Nov;150:110628. doi: 10.1016/j.jpsychores.2021.110628. Epub 2021 Sep 25.

Authors

Ashley M Henneghan [1], Heather Becker [2], Carolyn Phillips [2], Shelli Kesler [3]

Abstract

Objective: Cancer-related cognitive impairment is common following the end of adjuvant treatment and there are limited treatment options for it. We compared the sustained cognitive (primary) and psychological (secondary) effects of mantra meditation to classical music listening 8 weeks after interventions ended (Time 3) compared to baseline (Time 1).

Methods: A two-group parallel random assignment experimental design was used in a community setting. Thirty one breast cancer survivors (ages 21 to 75, received chemotherapy, and reported cognitive complaints) were randomly assigned to practice mantra meditation (n = 16) or listen to classical music (n = 15) 12 min a day for 8 weeks. No blinding was used. Repeated measures analysis of variance models were used to compare Time 1 and Time 3 data for the 26 survivors (13 per group) who completed the interventions and Time 3 data collection.

Results: Verbal fluency (p < .001, η_p^2 = 0.58), attention (p = .002, η_p^2 = 0.33), immediate memory recall (p < .001, η_p^2 = 0.38), perceived cognitive impairment (p < .001, η_p^2 = 0.39), and quality of life (p = .001, η_p^2 = 0.35) improved significantly across time for both groups. The two conditions did not differ significantly in changes across time. There were no adverse effects.

Conclusion: Daily mantra meditation or classical music listening may be beneficial for cognitive outcomes and quality of life of breast cancer survivors with cancer-related cognitive impairment. The cognitive benefits appear to be sustained beyond the initial intervention period. Clinical Trials Registration number: NCT03696056, recruitment status completed. The study details can be accessed at: https://clinicaltrials.gov/ct2/show/NCT03696056 KEY MESSAGE: There are limited treatment options for managing cancer-related cognitive impairments. Daily mantra meditation or classical music listening for 12 min a day may improve cognitive outcomes and quality of life for cancer survivors, with no negative side effects.

21. **Potential Health Benefits of Curcumin on Female Reproductive Disorders: A Review**
Nutrients. 2021 Sep 7;13(9):3126. doi: 10.3390/nu13093126.

Authors

[Datu Agasi Mohd Kamal](#) [1] [2], [Norizam Salamt](#) [1], [Allia Najmie Muhammad Yusuf](#) [2], [Mohd Izhar Ariff Mohd Kashim](#) [3] [4], [Mohd Helmy Mokhtar](#) [1]

Abstract
Curcumin is one of the main polyphenolic compounds in the turmeric rhizome. It possesses antioxidant, anti-inflammatory, anti-cancer, anti-arthritis, anti-asthmatic, anti-microbial, anti-viral and anti-fungal properties. This review aims to provide an overview of the potential health benefits of curcumin to treat female reproductive disorders, including polycystic ovary syndrome (PCOS), ovarian failure and endometriosis. Comprehensive information on curcumin was retrieved from electronic databases, which were MEDLINE via EBSCOhost, Scopus and Google Scholar. The available evidence showed that curcumin reduced the high level of androgen in PCOS. Studies in rodents suggest that curcumin resulted in the disappearance of cysts and the appearance of healthy follicles and corpora lutea. Furthermore, animal studies showed curcumin improved the overall function of the ovary in ovarian diseases and reversed the disturbance in oxidative stress parameters. Meanwhile, in vitro and in vivo studies reported the positive effects of curcumin in alleviating endometriosis through anti-inflammatory, anti-proliferative, anti-angiogenic and pro-apoptotic mechanisms. Thus, curcumin possesses various effects on PCOS, ovarian diseases and endometriosis. Some studies found considerable therapeutic effects, whereas others found no effect. However, none of the investigations found curcumin to be harmful. Curcumin clinical trials in endometriosis and ovarian illness are still scarce; thus, future studies need to be conducted to confirm the safety and efficacy of curcumin before it could be offered as a complementary therapy agent.

22. [**Network pharmacological mechanism of Cinobufotalin against glioma**](#)
    Prog Brain Res. 2021;265:119-137. doi: 10.1016/bs.pbr.2021.06.001. Epub 2021 Aug 13.

Authors

[Cong Li](#) [1], [Hanyu Guo](#) [1], [Chao Wang](#) [1], [Wengang Zhan](#) [1], [Qijia Tan](#) [1], [Caijun Xie](#) [1], [Aruna Sharma](#) [2], [Hari Shanker Sharma](#) [3], [Lin Chen](#) [4], [Zhiqiang Zhang](#) [5]

Abstract
Objective: Cinobufotalin was extracted from the skin of Chinese giant salamander or black sable with good clinical effect against tumor. This study aims to explore the mechanism of Cinobufotalin components and predict the target of action of Cinobufotalin on glioma.
Methods: The active components of Cinobufotalin were screened by the Chinese medicine pharmacology database and analysis platform (TCMSP), PubChem database, etc. The potential molecular components and targets were identified and enrichment analysis was conducted through the construction of related networks and analysis of their characteristics. Relevant targets of glioma were searched through TTD, DRUGBANK, and other databases, and the intersection was found and the key targets were found too.
Results: A total of 21 active components and 184 target genes of Cinobufotalin were found. According to the enrichment analysis results, the pharmacological mechanism of Cinobufotalin mainly includes inhibition of the cell cycle, promotion of cell apoptosis, and regulation of

immunity. On this basis, RAC1, FOS, and NOS3 can be preliminarily predicted as potential targets of Cinobufotalin in the treatment of glioma.

Conclusions: The screening of active ingredients and target prediction based on network pharmacology can provide a new research idea for the multi-target treatment of glioma with Cinobufotalin.

23. [**Determinants of use of oral complementary-alternative medicine among women with early breast cancer: a focus on cancer-related fatigue**](#)

Authors

Pietro Lapidari [1] [2], Nardjes Djehal [3], Julie Havas [1], Arnauld Gbenou [1], Elise Martin [1], Cecile Charles [4], Sarah Dauchy [5], Barbara Pistilli [3], Claire Cadeau [6], Aurélie Bertaut [7], Sibille Everhard [8], Anne-Laure Martin [8], Charles Coutant [9], Paul Cottu [10], Gwenn Menvielle [11], Agnes Dumas [12], Fabrice Andre [1], Stefan Michiels [13] [14], Ines Vaz-Luis [1], Antonio Di Meglio [15]

Abstract

Background: Despite the questionable effectiveness of oral complementary and alternative medicine (OCAM) in relieving cancer-related symptoms, including fatigue (CRF), many patients use it aiming to improve their quality of life. We assessed factors associated with OCAM use, focusing on CRF.

Methods: Women with stage I-III breast cancer (BC) were included from CANTO (NCT01993498). OCAM use was defined as taking homeopathy, vitamins/minerals, or herbal/dietary supplements. Multivariable multinomial logistic regressions evaluated associations of CRF (EORTC QLQ-C30), patient, and treatment characteristics with OCAM use.

Results: Among 5237 women, 23.0% reported OCAM use overall (49.3% at diagnosis, 50.7% starting post-diagnosis), mostly homeopathy (65.4%). Mean (SD) CRF score was 27.6 (24.0) at diagnosis and 35.1 (25.3) at post-diagnosis. More intense CRF was consistently associated with OCAM use at diagnosis and post-diagnosis [adjusted odds ratio (aOR) for 10-point increase 1.05 (95% Confidence interval 1.01-1.09) and 1.04 (1.01-1.09) vs. never use, respectively]. Odds of using OCAM at diagnosis were higher among older [for 5-year increase, 1.09 (1.04-1.14)] and more educated patients [college vs. primary 1.80 (1.27-2.55)]. Women with income > 3000 [vs. < 1500 euros/month, 1.44 (1.02-2.03)], anxiety [vs. not, 1.25 (1.01-1.54)], and those receiving chemotherapy [vs. not, 1.32 (1.04-1.68)] had higher odds of using OCAM post-diagnosis.

Conclusion: One-in-four patients reported use of OCAM. More severe CRF was consistently associated with its use. Moreover, older, better educated, wealthier, more anxious women, and those receiving chemotherapy seemed more prone to use OCAM. Characterizing profiles of BC patients more frequently resorting to OCAM may help deliver targeted information about its benefits and potential risks.

24. [**Integrative Therapies in Cancer Pain**](#)

Authors

[Anna Woodbury] [1] , [Bati Myles] [2]
Abstract
Integrative medicine is an approach to medical care that embraces all effective therapies including complementary treatments such as acupuncture and hypnosis. There is growing use of complementary therapies in the cancer patient population, making it important that health care providers be aware of both the risks and benefits of treatments that lie outside of the traditional allopathic medicine paradigm. This chapter will explore some of the most common and well-investigated complementary therapies for the treatment and prevention of cancer-related pain. This will include discussions of: acupuncture, dietary supplements, massage, guided imagery and cryotherapy among others. The goal of this is to provide a framework for discussions between medical providers and their patients to ensure safety, discussion of all available treatments, and to facilitate open lines of communication.

25. **[Traditional Chinese medicine for prevention and treatment of hepatocellular carcinoma: A focus on epithelial-mesenchymal transition]**
J Integr Med. 2021 Nov;19(6):469-477. doi: 10.1016/j.joim.2021.08.004. Epub 2021 Aug 25.

Authors

[Jia-Jia Li] [1] , [Qing Liang] [1] , [Guang-Chun Sun] [2]
Abstract
Hepatocellular carcinoma (HCC) is one of the most prevalent malignant cancers worldwide. Epithelial-mesenchymal transition (EMT), which endows epithelial cells with mesenchymal properties, plays an important role in the early stages of metastasis. Conventional cancer therapies have promising effects, but issues remain, such as high rates of metastasis and drug resistance. Thus, exploring and evaluating new therapies is an urgent need. Traditional Chinese medicines (TCMs) have been acknowledged for their multi-target and coordinated intervention effects against HCC. Accumulating evidence indicates that TCM can inhibit the malignancy of cells and the progression of EMT in HCC. However, studies on the effects of TCM on EMT in HCC are scarce. In this review, we summarized recent developments in anti-EMT TCMs and formulae, focusing on their underlying pharmacological mechanisms, to provide a foundation for further research on the exact mechanisms through which TCM affects EMT in HCC.

26. **[Foot Reflexology: An Intervention for Pain and Nausea Among Inpatients With Cancer]**
Clin J Oncol Nurs. 2021 Oct 1;25(5):539-545. doi: 10.1188/21.CJON.539-545.

Authors

[Kristen D Anderson] [1] , [Marty Downey] [2]
Abstract

Background: Pain and nausea affect a significant number of patients with cancer. Applying foot reflexology to this population has had some positive effects, but more studies are needed to confirm its efficacy.
Objectives: The purpose of this study was to conduct a randomized controlled trial to evaluate the effects of foot reflexology on pain and nausea among inpatients with cancer as compared to traditional nursing care alone.
Methods: A pilot study was conducted with adult patients with cancer hospitalized on a 24-bed inpatient oncology unit. Using convenience sampling, 40 patients provided consent and were randomized into either the intervention or control group. Each group had a treatment session of 20-25 minutes in which pre- and postsession surveys were completed, with reflexology performed in the intervention group only.
Findings: Results show that foot reflexology significantly decreases pain for inpatients with cancer as compared to traditional nursing care alone. Although the effects on nausea are not statistically significant, they may be clinically relevant; the mean changes in pre- and postsession nausea ratings indicate at least some decreased nausea among patients in the intervention group.

27. **Spirituality in Cancer Care: Introduction**
Semin Oncol Nurs. 2021 Oct;37(5):151208. doi: 10.1016/j.soncn.2021.151208. Epub 2021 Aug 28.

Author

Elizabeth Weathers [1]
No abstract available

28. **Spiritual Care for Individuals with Cancer: The Importance of Life Review as a Tool for Promoting Spiritual Well-Being**
Semin Oncol Nurs. 2021 Oct;37(5):151209. doi: 10.1016/j.soncn.2021.151209. Epub 2021 Aug 28.

Authors

Michael Connolly [1], Fiona Timmins [2]
Abstract
Objective: To discuss spirituality in the context of cancer, focusing on the use of life review as a tool to help promote spiritual well-being among individuals with cancer.
Data sources: Literature regarding spirituality and life review of the author in cancer care provided the foundation for this article.
Conclusion: Reliance on spirituality as an untapped supportive resource may surprise patients and their families when dealing with a diagnosis of cancer. Coming to terms with advancing disease can be a time of internal and spiritual growth. It is important that all members of the health care team make efforts to understand that spirituality is part of the journey that the person with advanced cancer is going through and that life review is one way to promote spiritual well-being among patients with advanced cancer.
Implications for nursing practice: Nurses are ideally placed to provide spiritual care. Using life review, nurses can assist individuals coming to terms with their diagnosis and can positively impact spiritual and psychosocial well-being.

29. **[Effect of Reiki Therapy on Quality of Life and Fatigue Levels of Breast Cancer Patients Receiving Chemotherapy](#)**
Cancer Nurs. 2021 Nov-Dec 01;44(6):E652-E658. doi: 10.1097/NCC.0000000000000970.

Authors

[Seda Karaman](#) [1] , [Mehtap Tan](#)

Abstract

Background: The quality of life of patients receiving chemotherapy decreases, and fatigue is one of the most common symptoms. Reiki is used for cancer patients as an energy-based complementary and alternative method.

Objective: The aim of this study was to determine the effect of Reiki therapy on the quality of life and fatigue levels in breast cancer patients receiving chemotherapy.

Methods: This was a pretest-posttest, quasi-experimental study with a control group: 70 patients enrolled with 35 participants in the experimental group and 35 in the control group. The experimental group received 6 sessions of Reiki therapy. The data were collected using a Patient Information Form, the Piper Fatigue Scale, and the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire.

Results: The mean scores on the general well-being subscale in the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire increased in the experimental group and decreased in the control group, whereas the mean scores on the general function and general symptom subscales decreased in the experimental group and increased in the control group. The differences between the groups were statistically significant ($P < .001$). The mean Piper Fatigue Scale scores of the experimental group decreased, whereas that of the control group increased; the group differences were statistically significant ($P < .001$).

Conclusion: Reiki can reduce fatigue and increase the quality of life of breast cancer patients receiving chemotherapy.

Implications for practice: Reiki therapy can be used as a nursing intervention to increase the quality of life and reduce fatigue in breast cancer patients receiving chemotherapy.

30. **[The Effect of Acupressure on Relieving Cancer-Related Fatigue: A Systematic Review and Meta-Analysis of Randomized Controlled Trials](#)**
Cancer Nurs. 2021 Nov-Dec 01;44(6):E578-E588. doi: 10.1097/NCC.0000000000000997.

Authors

[Shu-Hua Hsieh](#) [1] , [Chia-Rung Wu](#), [Debby Syahru Romadlon](#), [Faizul Hasan](#), [Pin-Yuan Chen](#), [Hsiao-Yean Chiu](#)

Abstract

Background: Fatigue, a common complaint reported by patients with cancer or in survivorship, has been negatively associated with quality of life, emotional health, and cognitive functions. Acupressure, a traditional Chinese medicine, has been increasingly practiced in clinical and community settings. However, little evidence supports the beneficial effects of acupressure on the reduction of general, physical, and mental fatigue in cancer survivors.

Objective: The aim of this study was to examine the effect of acupressure on fatigue in cancer survivors and the moderators of the effect of acupressure on cancer-related fatigue relief.
Methods: Databases, namely, PubMed, Embase, CINAHL, and ProQuest, were searched from their inception to July 17, 2020. No language and publication period restrictions were applied. Only randomized controlled trials that examined the effects of acupressure on cancer-related fatigue were included. A random-effects model was used for data analyses.
Results: Fourteen articles involving 776 participants with cancers were included. Acupressure considerably alleviated cancer-related general, physical, and mental fatigue (g = -0.87, -0.87, and -0.37) compared with controls. Increasing female percentage of participants significantly reduced the effects of acupressure on fatigue (B = -0.01, P < .001). The executor and operation approach as well as treatment period during chemotherapy did not moderate the effects of acupressure on fatigue relief.
Conclusion: Acupressure is effective at alleviating cancer-related fatigue.
Implications for practice: Health professionals and patients can use acupressure to alleviate fatigue during and after chemotherapy. Nursing personnel could incorporate acupressure into clinical practice as part of a multimodal approach to alleviating fatigue in cancer survivors.

31. **Availability of Integrative Medicine Therapies at National Cancer Institute-Designated Comprehensive Cancer Centers and Community Hospitals**
J Altern Complement Med. 2021 Nov;27(11):1011-1013. doi: 10.1089/acm.2021.0102. Epub 2021 Aug 2.

Authors

Krupali Desai [1] , Kevin Liou [1] , Kacy Liang [1] , Christina Seluzicki [1] , Jun J Mao [1]
Abstract
Introduction: The authors compared the availability of integrative medicine therapies in National Cancer Institute-Designated Comprehensive Cancer Centers and community hospitals. *Methods:* The authors reviewed 51 Comprehensive Cancer Center and 100 community hospital websites and collected race and median household income data for community hospital populations. *Results:* Availability of acupuncture (56% vs. 76.5%, *p* = 0.01), meditation (63% vs. 82.4%, *p* = 0.02), and music therapy (55% vs. 74.5%, *p* = 0.02) was significantly lower at community hospitals compared with Comprehensive Cancer Centers. Integrative medicine availability was also significantly lower in community hospitals serving lower-income populations. *Conclusion:* Equitable access to evidence-based integrative medicine in community hospitals is needed.

32. **In-depth investigation of the effective substances of traditional Chinese medicine formula based on the novel concept of co-decoction reaction-using Zuojin decoction as a model sample**
J Chromatogr B Analyt Technol Biomed Life Sci. 2021 Aug 1;1179:122869. doi: 10.1016/j.jchromb.2021.122869. Epub 2021 Jul 24.

Authors

Runhua Liu [1] , Yu Sun [1] , Hao Wu [1] , Shiting Ni [1] , Jiaqi Wang [1] , Tianyi Li [1] , Yuelin Bi [1] , Xin Feng [1] , Chenning Zhang [2] , Yikun Sun [3]

Abstract

Zuojin decoction (ZJD) is a classic pair composed of Coptidis Rhizoma and Evodiae Fructus, which is suitable for treating gastrointestinal diseases and tumours, etc. In recent years, scientists have been widely focused on research into the treatment of liver cancer using ZJD; however, the effective substances have not yet been comprehensively elucidated. The difference between the co-decoction and the single decoction of ZJD is revealed in this paper based on the UPLC-QE-Orbitrap-MS, and the chemical components absorbed into the blood and liver of mice have been analyzed simultaneously. In addition, the combination of prototype components absorbed into the liver with liver cancer-related targets has been performed via molecular docking to explore the mechanism of ZJD in treating liver cancer. By comparing the co-decoction and single decoction of ZJD, 44 new components appeared during co-decoction and 76 known chemical compounds have been identified at the same time. It has been confirmed that 35 known components and 11 new components were absorbed into the blood. Furthermore, 20 known components were discovered from the sample of liver tissue. Molecular docking results showed that 3-O-feruloylquinic acid has good conjugation with Bcl-2, Stat3, mTOR, and mmp9. Catechin has the lowest binding energy with CDK6 and β-catenin. The study provides data for the further confirmation of the material basis and mechanism of ZJD in treating liver cancer, and provides a new idea for the researches on the compatibility mechanism of prescriptions of traditional Chinese medicine.

33. **Chocolate consumption and all-cause and cause-specific mortality in a US population: a post hoc analysis of the PLCO cancer screening trial**

Authors

Guo-Chao Zhong [1], Tian-Yang Hu [2], Peng-Fei Yang [3], Yang Peng [4], Jing-Jing Wu [5], Wei-Ping Sun [6], Long Cheng [7], Chun-Rui Wang [8]

Abstract

Few studies with mixed results have examined the association between chocolate consumption and mortality. We aimed to examine this association in a US population. A population-based cohort of 91891 participants aged 55 to 74 years was identified. Chocolate consumption was assessed via a food frequency questionnaire. Cox regression was used to estimate risk estimates. After an average follow-up of 13.5 years, 19586 all-cause deaths were documented. Compared with no regular chocolate consumption, the maximally adjusted hazard ratios of all-cause mortality were 0.89 [95% confidence interval (CI) 0.84-0.94], 0.84 (95% CI 0.79-0.90), 0.86 (95% CI 0.81-0.93), and 0.87 (95% CI 0.82-0.93) for >0-0.5 servings/week, >0.5-1 serving/week, >1-2 servings/week, and >2 servings/week, respectively (P_{trend} = 0.009). A somewhat stronger inverse association was observed for mortality from cardiovascular disease and Alzheimer's disease. A nonlinear dose-response pattern was found for all-cause and cardiovascular mortality (all $P_{nonlinearity}$ < 0.01), with the lowest risk observed at chocolate consumption of 0.7 servings/week and 0.6 servings/week, respectively. The favorable associations with all-cause and cardiovascular mortality were found to be more pronounced in never smokers than in current or former smokers (all

$P_{interaction}$ < 0.05). In conclusion, chocolate consumption confers reduced risks of mortality from all causes, cardiovascular disease, and Alzheimer's disease in this US population.
Keywords: cancer; cardiovascular disease; chocolate; mortality.

34. **[Curcumin in combination with homoharringtonine suppresses lymphoma cell growth by inhibiting the TGF-β/Smad3 signaling pathway](#)**

Authors

Yu Zhang [1], Jingjing Xiang [1], Ni Zhu [1], Hangping Ge [1], Xianfu Sheng [1], Shu Deng [1], Junfa Chen [1], Lihong Yu [2], Yan Zhou [2], Jianping Shen [1]
Abstract
Both homoharringtonine (HHT) and curcumin exhibit anti-proliferative effects on lymphoma cells, but the effects of combined HHT and curcumin treatment remain unclear. Here, we investigated the effects of HHT/curcumin combination on the proliferation, apoptosis, and invasion in lymphoma cells. CCK-8, flow cytometry, and transwell assays were used to assess proliferation, apoptosis, and invasion of U937 and Raji cells. p-Smad3, E-cadherin, and N-cadherin expression were also measured in Raji cells using Western blot assays. Combination of HHT and curcumin synergistically inhibited U937 and Raji cell proliferation and invasion. In addition, the combination treatment markedly increased apoptosis of Raji cells as evidenced by increased Bax, cleaved caspase 3, and cleaved caspase 9 expression. Meanwhile, the combination treatment promoted anti-tumor mechanisms in Raji cells as indicated by decreases in p-Smad3 and N-cadherin and increases in E-cadherin. *In vivo* experiments showed that the combination treatment suppressed tumor growth in a mouse Raji xenograft model. Our findings indicate that combination of HHT and curcumin inhibited lymphoma cell growth by downregulating the TGF-β/Smad3 pathway. These results suggest that HHT combined with curcumin might be a promising therapeutic approach for the treatment of lymphoma.

35. **[Impact of Low Frequency Electro-acupuncture on Glucose and Lipid Metabolism in Unmarried PCOS Women: A Randomized Controlled Trial](#)**

Authors

Hao-Xu Dong [1] [2], Qing Wang [3], Zhi Wang [1], Xiao-Ke Wu [4], Ling Cheng [5], Zhong-Ming Zhou [6], Li Yang [1], Ping Yi [3], Dong-Mei Huang [7]
Abstract
Objective: To explore the effect of electro-acupuncture (EA) on glucose and lipid metabolism in unmarried patients with polycystic ovary syndrome (PCOS).
Methods: Fifty-four PCOS patients were equally randomized into true acupuncture group and sham acupuncture group (control) for totally 16 weeks of treatment by random method with a computerized randomization program. Patients in true acupuncture group accepted traditional acupuncture methods with EA and two sets of acupoint groups were used alternatively. The first

set consisted of Zhongji (CV 3), Qihai (CV 6), Guilai (ST 29), Sanyinjiao (SP 6), Yinlingquan (SP 9), Hegu (LI4) and Baihui (GV 20), and the second set consisted of Tianshu (ST 25), ST 29, CV 3, CV 6, SP 6, Taichong (LR 3), Neiguan (PC) 6 and GV 20. Patients in the sham acupuncture group accepted shallow acupuncture methods through EA without electricity at 4 non-meridian points in each shoulder and upper arm. Outcome measures included body mass index (BMI), waist-hip-ratio (WHR), oral glucose tolerance test (OGTT), insulin release test, glucose and lipid metabolism indicators such as total cholesterol (TC), triglycerides, high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol, adiponectin, leptin, visfatin, resistin, and interleukin (IL-6).
Results: Twenty-six subjects in the true acupuncture group and 20 subjects in the sham group completed the clinical trial. After 16 weeks of treatment, no significant difference in the outcome measures were observed between the two groups (P>0.05). However, as compared with baseline data, a reduction in weight, BMI, hipline, WHR, fasting glucose, homeostatic model assessment of insulin sensitivity, visfatin and HDL-C, and an increase in resistin and IL-6 were observed in the true acupuncture group (P<0.05). In addition, a reduction in visfatin and an increase in TC were also observed in the sham group (P<0.05).
Conclusions: Acupuncture may have a beneficial effect in the treatment of PCOS by improving glucose and lipid metabolism. Moreover, the sham acupuncture may be not completely ineffective. Sham acupuncture may improve some of the aspects of the glucose and lipid metabolism of PCOS patients through a placebo effect. (Registration Nos. ChiCTR-TRC-12002529 and NCT01812161).

36. **Payer Coverage of Integrative Medicine Interventions for Symptom Control in Patients With Cancer**
JCO Oncol Pract. 2021 Oct;17(10):587-590. doi: 10.1200/OP.21.00361. Epub 2021 Jul 26.

Authors

Ramy Sedhom [1], Arjun Gupta [2], Lin Wang [3] [4], Channing Paller [2], Ting Bao [5]

No abstract available

37. **Yoga versus massage in the treatment of aromatase inhibitor-associated knee joint pain in breast cancer survivors: a randomized controlled trial**
Sci Rep. 2021 Jul 21;11(1):14843. doi: 10.1038/s41598-021-94466-0.

Authors

Chia-Lin Tsai [1] [2], Liang-Chih Liu [3], Chih-Ying Liao [4], Wen-Ling Liao [1] [5], Yu-Huei Liu [# 6 7 8], Ching-Liang Hsieh [# 9 10 11]
Abstract
Aromatase inhibitors (AIs) are standard adjuvant therapy for postmenopausal women with oestrogen receptor-positive, early-stage, and metastatic breast cancer. Although effective, the risk of falls due to AI-associated knee joint pain significantly increased. The aim of this study was to evaluate the therapeutic effects of yoga and massage on AI-associated knee joint pain. Breast

cancer survivors were randomly assigned to a 6-week yoga intervention-2-week rest-6-week massage exposure (Yoga first, n = 30) or a 6-week massage intervention-2-week rest-6-week yoga exposure (Massage first, n = 30). Evaluations of the treatment efficacy were made at baseline, post-intervention, and post-exposure using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scale, plasma cytokine levels, and changes in meridian energy. The results showed that yoga, superior to massage intervention, significantly reduced AI-associated knee joint pain, as demonstrated by the WOMAC pain score. The yoga intervention improvements were also associated with changes in plasma cytokine levels and meridian energy changes. In conclusion, this study provides scientific evidence that yoga was more effective than massage for reducing AI-associated knee joint pain. Meridian energy changes may provide another scientific, objective, non-invasive way to monitor the therapeutic effects of yoga and investigate another alternative, complementary medicine.

38. **Therapeutic efficacy of biofeedback pelvic floor muscle exercise in women with dysfunctional voiding**

Authors

Ching-Hsiang Chiang [1], Yuan-Hong Jiang [1], Hann-Chorng Kuo [2]

Abstract

Dysfunctional voiding (DV), a voiding dysfunction due to hyperactivity of the external urethral sphincter or pelvic floor muscles leading involuntary intermittent contractions during voiding, is not uncommon in neurologically normal women with lower urinary tract symptoms (LUTS). We aimed to investigate the therapeutic efficacy of biofeedback pelvic floor muscle training (PFMT) in female patients with DV and to identify the therapeutic efficacy. Thirty-one patients diagnosed with DV. All participates completed the 3-month biofeedback PFMT program, which was conducted by one experienced physiotherapist. At 3 months after treatment, the assessment of treatment outcomes included global response assessment (GRA), and the changes of clinical symptoms, quality of life index, and uroflowmetry parameters. 25 (80.6%) patients had successful outcomes (GRA ≥ 2), and clinical symptoms and quality of life index significantly improved after PFMT. Additionally, uroflowmetry parameters including maximum flow rate, voided volume, voiding efficiency, total bladder capacity, voiding time, and time to maximum flow rate significantly improved after PFMT treatment. Patients with the history of recurrent urinary tract infection in recent 1 year were found to have unsatisfied therapeutic outcomes. In conclusion, biofeedback PFMT is effective in female patients with DV with significant improvements in clinical symptoms, quality of life, and uroflowmetry parameters. The history of urinary tract infection in recent 1 year is a negative predictor of successful outcome.

39. **Complementary and alternative medicine in sarcoma patients treated in an Italian sarcoma center**

Authors

[Alessandra Longhi](#) [1], [Elisabetta Setola](#) [1], [Cristina Ferrari](#) [1], [Elisa Carretta](#) [2]

Abstract

Background: Bone and soft-tissue sarcoma are rare tumors. Complementary and alternative medicine (CAM) is often used in cancer patients however limited data are available in sarcoma patients. The aim of the present study is to explore the use of CAM in patients with bone and soft-tissue sarcoma.

Methods: Patients in follow-up visit for high grade bone or soft-tissue sarcoma at the Rizzoli outpatient clinic from September 1, 2014, to December 31, 2015, were asked, after written consent, to fill out a questionnaire with items pertaining to sociodemographic factors and their use of CAM before, during, or after chemotherapy.

Results: Four hundred and sixty-nine participated to the survey: 409 were adults and 60 were <18 years old. The percentage of use of CAM in adults was 44.7% and in minors 38.3%. The most common type of CAM was vitamins and minerals, followed by phytotherapy and homeopathy. The majority of patients used CAM after the sarcoma diagnosis. None used CAM alone instead of conventional chemotherapy. Benefits from use of CAM were reported by 75% of patients (some benefit in 53% plus high benefit in others 22%) and side effects in 6.7%. A significant correlation was found with CAM use and female gender, young age (18-44) and higher education. Disclosure to the oncologist was 56% and 69% to their family doctors.

Conclusions: This study shows that CAM use is frequent among adults and pediatric patients with bone and soft tissue sarcoma as in other cancer patients. Moreover, the profile of these Italian CAM consumers in sarcoma patients is similar to other studies. Patients disclosure to their oncologist or physician about the use of CAM was similar to other Italian studies, but higher compared to other international studies.

40. **[Out-of-Pocket Costs of Complementary Medicine Following Cancer and the Financial Impact in a Setting With Universal Health Coverage: Findings From a Prospective Cohort Study](#)**

Authors

[Nirmala Bhoo-Pathy](#) [1], [Shridevi Subramaniam](#) [2], [Sadia Khalil](#) [1], [Merel Kimman](#) [3], [Yek-Ching Kong](#) [1], [Chiu-Wan Ng](#) [1], [Ros Suzanna Bustamam](#) [4], [Cheng-Har Yip](#) [5]

Abstract

Purpose: To determine household spending patterns on complementary medicine following cancer and the financial impact in a setting with universal health coverage.

Methods: Country-specific data from a multinational prospective cohort study, Association of Southeast Asian Nations Costs in Oncology Study, comprising 1,249 cancer survivors were included. Household costs of complementary medicine (healthcare practices or products that are not considered as part of conventional medicine) throughout the first year after cancer diagnosis were measured using cost diaries. Study outcomes comprised (1) shares of household expenditures on complementary medicine from total out-of-pocket costs and health costs that were respectively incurred in relation to cancer, (2) incidence of financial catastrophe

(out-of-pocket costs related to cancer ≥ 30% of annual household income), and (3) economic hardship (inability to pay for essential household items or services).

Results: One third of patients reported out-of-pocket household expenditures on complementary medicine in the immediate year after cancer diagnosis, accounting to 20% of the total out-of-pocket costs and 35% of the health costs. Risk of financial catastrophe was higher in households reporting out-of-pocket expenditures on complementary medicine (adjusted odds ratio: 1.39 [95% CI, 1.05 to 1.86]). Corresponding odds ratio within patients from low-income households showed that they were substantially more vulnerable: 2.28 (95% CI, 1.41 to 3.68). Expenditures on complementary medicine were, however, not associated with economic hardship in the immediate year after cancer diagnosis.

Conclusion: In settings with universal health coverage, integration of subsidized evidence-based complementary medicine into mainstream cancer care may alleviate catastrophic expenditures. However, this must go hand in hand with interventions to reduce the use of nonevidence-based complementary therapies following cancer.

41. [**Chinese Medicine Syndromes and Stages of Early Breast Cancer: Hierarchical Cluster Analysis and Implication for Clinical Practice**](#)

Authors

Qianqian Guo [1] [2], Qianjun Chen [1] [3], Charlie Changli Xue [1] [2], Anthony Lin Zhang [1], Meaghan E Coyle [1]

Abstract

Background: Chinese medicine (CM) has been widely used for women's health, including those with early breast cancer. Contemporary literature varies in descriptions of the CM syndromes that are critical for determining CM treatment options for breast cancer patients. However, the corresponding syndromes have not been standardized to align with the conventional medicine treatment stages. This review aimed to address this knowledge gap to enhance the quality and consistency of CM interventions for early breast cancer patients. *Methods:* In total, eight Chinese and English language databases were searched, and textbooks and clinical care documents were gathered. Sources were classified according to five treatment stages: preoperative, postoperative, chemotherapy, radiation therapy, and endocrine therapy. Descriptive statistics were used to examine the syndromes, and hierarchical cluster analysis was conducted to investigate clusters of signs and symptoms. *Results:* The CM syndrome of dual deficiency of *qi* and Blood was one of the most common syndromes across all treatment stages, whereas lack of strength and lassitude were the most common clinical presentations throughout all stages, except the preoperative stage. Cluster analyses identify three or four syndromes in each treatment stage. Cluster results for the preoperative stage were: Blood stasis, Liver depression and *qi* stagnation, and Kidney *yin* deficiency. Dual deficiency of *qi* and Blood existed at different stages except for the preoperative stage. In the postoperative stage and chemotherapy stages, some symptoms were categorized into clusters that related to the Spleen and Stomach. Syndromes such as *yin* deficiency with fire toxin and *yin* deficiency with fluid depletion were unique to the radiation therapy stage. Clusters for endocrine therapy stage included the dual deficiency of Spleen and Kidney, Liver depression and *qi*

stagnation, and Kidney *yin* deficiency. ***Conclusions:*** Systematic review of the contemporary literature for early breast cancer revealed that the most frequently seen CM syndromes and cluster results have some similarities but some important distinctions. Clinical data are needed to confirm whether the syndromes described in contemporary literature reflect those seen in women with early breast cancer.

42. **Identification of dihydrotanshinone I as an ERp57 inhibitor with anti-breast cancer properties via the UPR pathway**
Biochem Pharmacol. 2021 Aug;190:114637. doi: 10.1016/j.bcp.2021.114637. Epub 2021 May 29.

Authors

Wei Shi [1], Han Han [1], Jia Zou [1], Ying Zhang [1], Haitao Li [1], Hefeng Zhou [1], Guozhen Cui [2]

Abstract

Salvia miltiorrhiza (Danshen) is a well-known traditional Chinese medicine for treating various diseases, such as breast cancer. However, knowledge regarding its mechanisms is scant. Herein, the active ingredient dihydrotanshinone I (DHT) in Salvia miltiorrhiza extract (SME), which binds ERp57 was identified and verified by an enzymatic solid-phase method combined with LC-MS/MS. DHT potentially inhibited ERp57 activity and suppressed ERp57 expression at both the RNA and protein levels. Molecular docking simulation indicated that DHT could form a hydrogen bond with catalytic site of ERp57. Moreover, ERp57 overexpression decreased DHT-induced cytotoxicity in MDA-MB-231 cells. Thereafter, the signaling pathway downstream of ERp57 was investigated by Western blot analysis. The mechanistic study revealed that DHT treatment resulted in activation of endoplasmic reticulum (ER) stress, the unfolded protein response (UPR), and cellular apoptosis. In conclusion, our data implied that DHT targeted ERp57 for inhibition and induced ER stress and UPR activation, which in turn triggered breast cancer cell apoptosis.

43. **Momordin Ic induces G0/1 phase arrest and apoptosis in colon cancer cells by suppressing SENP1/c-MYC signaling pathway**
J Pharmacol Sci. 2021 Aug;146(4):249-258. doi: 10.1016/j.jphs.2021.04.007. Epub 2021 May 11.

Authors

Fang Xianjun [1], Xian Xirui [2], Tang Jie [3], Mu Huiwen [2], Zheng Shaojun [2], Ling Qiaoyun [4], Liu Yunxin [5], Sun Xuqun [6]

Abstract

Momordin Ic (MI) is a natural pentacyclic triterpenoid enriched in various Chinese natural medicines such as the fruit of Kochia scoparia (L.) Schrad. Studies have shown that MI presents antitumor properties in liver and prostate cancers. However, the activity and potential mechanisms of MI against colorectal cancer remain elusive. Here, we showed that MI inhibited cell proliferation with G0/1 phase cell cycle arrest in colon cancer cells. Moreover, it was observed that MI increased apoptosis compared to untreated cells. Further investigation showed that the SUMOylation of c-Myc was enhanced by MI and led to the down-regulated protein level of c-Myc, which is involved in regulating cell proliferation and apoptosis. SENP1 has been demonstrated to be critical for the SUMOylation of c-Myc. Meanwhile, knockdown of SENP1 by siRNA abolished the

effects of MI on c-Myc level and cell viability in colon cancer cells. Together, these results revealed that MI exerted an anti-tumor activity in colon cancer cells via SENP1/c-Myc signaling pathway. These finding provide an insight into the potential of MI for colon cancer therapy.

44. **Malayoside, a cardenolide glycoside extracted from Antiaris toxicaria Lesch, induces apoptosis in human non-small lung cancer cells via MAPK-Nur77 signaling pathway**

Authors

Qiong-Ying Hu [1], Xiao-Kun Zhang [2], Jia-Nan Wang [3], Hao-Xuan Chen [3], Lian-Ping He [3], Jin-Shan Tang [4], Xin-Sheng Yao [4], Jie Liu [5]

Abstract

Lung cancer is the leading cause of cancer deaths in the world. Non-small cell lung cancer (NSCLC), with poor prognosis and resistance to chemoradiotherapy, is the most common histological type of lung cancer. Therefore, it is necessary to develop new and more effective treatment strategy for NSCLC. Nur77, an orphan member of the nuclear receptor superfamily, induces apoptosis in cancer cells including NSCLC cells, by high expression and translocation to mitochondria. Small molecules trigger expression and mitochondrial localization of Nur77 may be an ideal anti-cancer drug candidate. Here, we report malayoside, a cardiac glycoside in the extract of Antiaris toxicaria Lesch., had different sensitivities to NSCLC cells. Malayoside induced apoptosis in NCI-H460 cells. Meanwhile, malayoside induced Nur77 expression and mitochondrial localization, and its induction of apoptosis was Nur77-dependent. To investigate the molecular mechanism of malayoside inducing Nur77 and apoptosis, we found that malayoside activated MAPK signaling pathway, including both ERK and p38 phosphorylation. The suppression of MAPK signaling activation inhibited the expression of Nur77 and apoptosis induced by malayoside. Our studies in nude mice showed that malayside potently inhibited the growth of tumor cells in vivo. Furthermore, the anti-cancer effect of malayosidwas in vivo was also related to the elevated expression of Nur77, p-ERK, and p-p38 proteins. Our results suggest that malayoside possesses an anti-NSCLC activity in vitro and in vivo mainly via activation of MAPK-Nur77 signaling pathway, indicating that malayoside is a promising chemotherapeutic candidate for NSCLC.

45. **A novel Apigenin derivative suppresses renal cell carcinoma via directly inhibiting wild-type and mutant MET**

Authors

Jing Li [1], Guishan Tan [2], Yabo Cai [3], Ruihuan Liu [4], Xiaolin Xiong [3], Baohua Gu [3], Wei He [3], Bing Liu [3], Qingyun Ren [3], Jianping Wu [1], Bo Chi [3], Hang Zhang [3], Yanzhong Zhao [5], Yangrui Xu [1], Zhenxing Zou [1], Fenghua Kang [1], Kangping Xu [6]

Abstract

MET, the receptor of hepatocyte growth factor (HGF), is a driving factor in renal cell carcinoma (RCC) and also a proven drug target for cancer treatment. To improve the activity and to investigate the mechanisms of action of Apigenin (APG), novel derivatives of APG with improved

properties were synthesized and their activities against Caki-1 human renal cancer cell line were evaluated. It was found that compound 15e exhibited excellent potency against the growth of multiple RCC cell lines including Caki-1, Caki-2 and ACHN and is superior to APG and Crizotinib. Subsequent investigations demonstrated that compound 15e can inhibit Caki-1 cell proliferation, migration and invasion. Mechanistically, 15e directly targeted the MET kinase domain, decreased its auto-phosphorylation at Y1234/Y1235 and inhibited its kinase activity and downstream signaling. Importantly, 15e had inhibitory activity against mutant MET V1238I and Y1248H which were resistant to approved MET inhibitors Cabozantinib, Crizotinib or Capmatinib. In vivo tumor graft study confirmed that 15e repressed RCC growth through inhibition of MET activation. These results indicate that compound 15e has the potential to be developed as a treatment for RCC, and especially against drug-resistant MET mutations.

46. **Multimodal Exercise Program: A Pilot Randomized Trial for Patients With Lung Cancer Receiving Surgical Treatment**
Clin J Oncol Nurs. 2021 Jun 1;25(3):E26-E34. doi: 10.1188/21.CJON.E26-E34.

Authors

Rui-Chen Ma [1], Yong Zhao [1], Xin Liu [1], Hui-Ping Cao [1], Ya-Qing Wang [1], Ying-Ying Yin [1], Jiao Xie [1]

Abstract
Background: Curative lung resection is the best option for patients with stage I-III lung cancer, and the best exercise intervention in these patients has not been determined.
Objectives: This pilot study explored whether a short-term pre- and postsurgery multimodal exercise program affected dyspnea, exercise capacity, inspiratory capacity, anxiety, and depression.
Methods: A total of 101 patients were randomly allocated into the combined intervention group (n = 34), the breathing exercise group (n = 32), or the control group (n = 35). During hospitalization, patients in the two intervention groups received one or more kinds of exercise intervention, and patients in the control group only received usual care. Outcomes were assessed at admission, on the day before surgery, and at discharge.
Findings: Both intervention groups achieved significant improvements in dyspnea, exercise capacity, and inspiratory capacity, and patients in the combined intervention group exhibited greater improvements in outcomes as compared to those randomized to the breathing exercise group.

47. **Application of digital holographic tomography in antitumor effect of cantharides complex on 4T1 breast cancer cells**
Appl Opt. 2021 Apr 20;60(12):3365-3373. doi: 10.1364/AO.416943.

Authors

Chen-Wen Lu, Andrey V Belashov, Anna A Zhikhoreva, Irina V Semenova, Chau-Jern Cheng, Li-Yu Su, Chung-Hsin Wu

Abstract
The study focuses on a methodology providing noninvasive monitoring and evaluation of the antitumor effect of traditional Chinese medicine, cantharides complex (canth), on 4T1 breast

tumor cells. Digital holographic tomography (DHT) and developed data post-processing algorithms were used for quantitative estimation of changes in optical and morphological parameters of cells. We calculated and compared data on the refractive index, thickness, and projected area of 4T1 breast tumor cells in control untreated specimens and those treated with doxorubicin hydrochloride (DOX), canth, and their combinations. Post-treatment changes in cellular morphology recorded by DHT demonstrated that the two drugs led to noticeably different morphological changes in cells that can be presumably associated with different pathways of their death, apoptosis, or necrosis. The effect of combined treatment with these two drugs strongly depended on their relative concentrations and could lead to changes characteristic either for DOX or for canth; however, being more profound than those obtained when using each drug solely. The results obtained by DHT are in a good correspondence with commonly used cell viability analysis and immunofluorescent analysis of changes in cellular cytoskeleton.

48. **MUSIC INTERVENTIONS IN PEDIATRIC ONCOLOGY: Systematic review and meta-analysis**
Complement Ther Med. 2021 Jun;59:102725. doi: 10.1016/j.ctim.2021.102725. Epub 2021 May 5.

Authors

Ivone Nunes da Silva Santa [1] , Mariana Cabral Schveitzer [2] , Maria Lucia Barbosa Maia Dos Santos [3] , Ricardo Ghelman [4] , Vicente Odone Filho [5]
Abstract
Background: Pain is a disagreeable and distressing feeling that affects human beings in multi-dimensional ways. A number of non-pharmacological interventions have had varying degrees of success in treating cancer-related pain, such as breathing and relaxation techniques, and music therapy, which have been identified as beneficial therapies for alleviating pain and anxiety.
Objective: Identify the therapeutic effects of music interventions in psychological and physiological terms and on the quality of life of children undergoing cancer treatment.
Method: Systematic review of effectiveness based on the methodology of the Joanna Briggs Institute.
Results: Eleven articles were included with a total of 429 children, whose ages ranged from 0 to 18 years. The mean duration of the music intervention was 30.6 (±SD 9.8) min. In a combined estimate of five studies for pain and anxiety outcomes, there were benefits to using music when compared with the control group (SMD -1.05; CI 95 % -1.70 - 0.40 N = 453 I^2 = 90 %). A combined analysis of five studies to assess quality of life showed that the use of music was favorable when compared with the control (SMD -0.80; CI 95 % -1.17-0.43 N = 457= I^2 = 71 %).
Conclusion: After completing this review, it was determined that there is evidence to support the use of music to reduce pain and anxiety and improve the quality of life of children undergoing cancer treatment.

49. **Effects of non-pharmacological interventions on preoperative anxiety and postoperative pain in patients undergoing breast cancer surgery: A systematic review**
J Clin Nurs. 2021 Dec;30(23-24):3369-3384. doi: 10.1111/jocn.15827. Epub 2021 May 3.

Authors

[Yetunde Oluwafunmilayo Tola](#) [1] [2], [Ka Ming Chow](#) [1], [Wei Liang](#) [1]

Abstract

Background: Poorly managed preoperative anxiety and pain were reported to slow the postoperative recovery of breast cancer patients. Thus, proactive management using non-pharmacological interventions becomes essential for decreasing opioid or anxiolytics consumption, anxiety level, pain intensity, postoperative complications and improving patients' haemodynamics and satisfaction with care.

Purpose: To identify, analyse and synthesise the effects of non-pharmacological interventions on preoperative anxiety and acute postoperative pain in women undergoing breast cancer surgery.

Method: For this systematic review, 12 databases including Ovid Nursing, PsycInfo, British Nursing Index, CINAHL, Cochrane Library were searched to identify relevant studies. A total of 6,012 articles were identified from the search, six RCTs and one quasi-experimental study that met the inclusion criteria were included after eligibility screening. Narrative synthesis was used to analyse data extracted from the included articles. The review adhered to the PRISMA guideline.

Results: Twelve outcomes were measured in the included studies, including preoperative anxiety, and acute postoperative pain. Music, massage, aromatherapy and acupuncture were the interventions delivered. Music had a small-to-large effect size and aromatherapy had a small effect size on reducing preoperative anxiety. Also, music had a large effect size whilst acupuncture had a medium effect size on minimising postoperative pain in women undergoing breast cancer surgery.

Conclusion: Music, aromatherapy and acupuncture appeared to be effective for reducing preoperative anxiety and postoperative pain in women undergoing breast cancer surgery. However, the small number of studies available for each intervention prevents conclusive statements about which the most effective method.

Implication for clinical practice: A nursing care pathway that standardises the use of non-pharmacological interventions for the management of both preoperative anxiety and postoperative pain in breast cancer surgery patients should be developed.

50. [**The Apoptotic Properties of Leaf Extracts of Simarouba glauca against Human Leukemic Cancer Cells**](#)

Authors

[Vikas Biba](#) [1], [Sujathan Kunjiraman](#) [2], [Suja Somasekharan Nair Rajam](#) [1], [Sukumaran Anil](#) [3] [4]

Abstract

Background and objective: Simarouba glauca is a plant belonging to the family of Simaroubaceae. It is a potent source of secondary metabolites. The aim of this study was to evaluate the apoptotic properties of leaf extracts of Simarouba glauca against human leukemic cancer cells.

Materials and methods: Cytotoxicity of Simarouba glauca was assessed in the leaf extract of petroleum ether against leukemic cells by MTT assay. To detect the apoptotic features, fluorescence microscopy analysis was done with dual acridine orange/ethidium bromide fluorescent staining and Hoechst staining. To determine the externalization of phosphatidylserine,

annexin v staining was done. Mitochondrial or death receptor activation was confirmed by caspase 3 analysis by flow cytometry.

Results: This study revealed that Simarouba glauca was able to treat leukemia. Among the four extracts, petroleum ether extract showed a higher order of in vitro anticancer activity. The petroleum ether extract strongly inhibited the proliferation of K562 cell lines with IC50 values of 186 μg/ml. Dual acridine orange/ethidium bromide fluorescent staining and Hoechst staining revealed the characteristic features of apoptosis. Annexin V confirmed early and late stage apoptosis. Caspase-3 analysis revealed that cell death was due to mitochondrial or death receptor activation in mitochondrial pathway.

Conclusion: These findings suggested that Simarouba glauca leaf extracts inhibited leukemic cells in a time- and dose-dependent manner either through mitochondrial or death receptor activation. The leaf extracts of Simarouba glauca was found to be nontoxic to lymphocytes. It can be concluded that Simarouba glauca is an important source of phytochemicals posing efficacy against leukemic cancer cells.
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51. **[Astragalus-mediated stimulation on antigen-presenting cells could result in higher IL-21 production from CXCR5 ± Tfh-like cells and better IL-21-mediated effector functions](#)**
Hum Immunol. 2021 Jun;82(6):429-437. doi: 10.1016/j.humimm.2021.03.012. Epub 2021 Apr 16.

Authors

[Qin Dong](#) [1] , [Jin Pu](#) [2] , [Tingting Du](#) [2] , [Shenqian Xu](#) [2] , [Wuxia Liu](#) [2] , [Ling Liu](#) [2] , [Zhenlong Wang](#) [3] , [Chen Cai](#) [4]

Abstract

T cells in renal cell carcinoma (RCC) patients display multiple features of impairment and exhaustion. Here, we hypothesize that Astragalus membranaceus, a herbal medicine commonly used to accompany chemotherapy, might have adjuvating effects on T cells from RCC patients. To investigate this, circulating T cells from healthy individuals and RCC patients were cocultured ex vivo with aqueous extract from Astragalus. Functional characteristics of T cells in the absence and presence of Astragalus extract were then compared. We first identified a downregulation of IL-21 expression in RCC patients in association with a functional dysregulation of $CXCR5^+$ Tfh-like cells. Astragalus extract could significantly increase IL-21 expression in a dose-dependent manner. This Astragalus-mediated effect depended on the presence of antigen-presenting cells (APCs), as purified $CXCR5^+$ Tfh-like cells presented little IL-21 upregulation following Astragalus stimulation. APCs primed by Astragalus extract also promoted IL-21 expression from Tfh-like cells. Interestingly, Astragalus-stimulated Tfh-like cells presented enhanced helper function and resulted in higher humoral responses and better CD8 T cell survival. This effect was dependent on the presence of IL-21. Overall, these data indicated that Astragalus could enhance IL-21 production and effector function from $CXCR5^+$ Tfh-like cells in a manner that depended on the presence of APCs.

52. **[Ethanol Extracts of *Solanum lyratum Thunb* Regulate Ovarian Cancer Cell Proliferation, Apoptosis, and Epithelial-to-Mesenchymal Transition (EMT) via the ROS-Mediated p53 Pathway](#)**
J Immunol Res. 2021 Apr 1;2021:5569354. doi: 10.1155/2021/5569354. eCollection 2021.

Authors

Chen Zhang [1], Zheming Li [2], Jie Wang [1], Xuelu Jiang [1], Mengting Xia [1], Jianfen Wang [1], Shenyi Lu [3], Shouye Li [2], Hanmei Wang [4]

Abstract
Ovarian cancer is a type of common gynecological tumors with high incidence and poor survival. The anticancer effects of the traditional Chinese medicine *Solanum lyratum Thunb* (SLT) have been intensively investigated in various cancers but in ovarian cancer is rare. The current study is aimed at investigating the effect of SLT on ovarian cancer cells. Lactate dehydrogenase (LDH) and MTT assays indicated that SLT concentrations of 0.25 and 0.5 μg/mL were not cytotoxic and had significant inhibitory effects on the cell viabilities of A2780 and SKOV3 cells, hence were used for subsequent experiments. Flow cytometric and western blot analysis revealed that SLT effectively suppressed ovarian cancer cell proliferation via inducing cell cycle arrest and increasing apoptosis. Cell cycle and apoptosis-related protein expressions were also regulated in SLT-treated cells. Moreover, DCFH-DA and western blot assays demonstrated that SLT enhanced ROS accumulation and subsequently activated the p53 signaling pathway. However, SLT-regulated ovarian cancer cell proliferation, apoptosis, migration, invasion, and EMT were significantly reversed by an ROS inhibitor (NAC, N-acetyl-L-cysteine). Furthermore, A2780 and SKOV3 cells cocultured with M0 macrophages showed that SLT activated the polarization of M0 macrophages to M1 macrophages and inhibited the polarization to M2 macrophages, with the increased percentage of CD86+ cells and decreased percentage of CD206+ cells were detected. In summary, this study illustrated the anticancer effects of SLT on ovarian cancer cells, suggesting that SLT may have the potential to provide basic evidence for the discovery of antiovarian cancer agents.

53. **The Gut Microbiota and Traditional Chinese Medicine: A New Clinical Frontier on Cancer**

Authors

Yan-Zhen Chen [1], Meng-Yun Yuan [1], Ya Ling Chen [2], Xingxing Zhang [1], Xin-Tian Xu [2], Shen-Lin Liu [1], Xi Zou [1], Jia-Lei Tao [1], Yong-Hu Qiang [2], Jian Wu [1], Qing-Min Sun [1]

Abstract
Gut microbiota is a complex microecosystem, which is called the second genome of the human body. Herbal medicine can balance tumor-suppressing bacteria and tumor-promoting bacteria and exert its anti-cancer effect by regulating gut microbiota. Traditional Chinese medicine (TCM) has a history of thousands of years in prevention and treatment of diseases in China. In recent decades, TCM has been shown to have an obvious advantage in prolonging the survival time and improving the living quality of patients with cancer. Notably, gut microbiota has become a new pathway to understanding TCM. In this review, we will focus on gut microbiota and tumor progression, especially the diversity, functionality and metabolites of gut microbiota affected by TCM in various cancer. We will also discuss the potential mechanism of gut microbiota for exploring TCM in anti-cancer effect. This article aims to comprehensively review the anti-cancer research of TCM by regulating gut microbiota, and address future perspectives and challenges of gut microbiota in TCM intervention for cancer.

54. **[Pharmacoinformatics and molecular dynamics simulation-based phytochemical screening of neem plant (Azadiractha indica) against human cancer by targeting MCM7 protein](#)**
    Brief Bioinform. 2021 Sep 2;22(5):bbab098. doi: 10.1093/bib/bbab098.

Authors

[Foysal Ahammad](#) [1] [2] [3], [Rahat Alam](#) [2] [3], [Rasel Mahmud](#) [4], [Shahina Akhter](#) [2] [5], [Enamul Kabir Talukder](#) [2] [3], [Al Mahmud Tonmoy](#) [2] [6], [Salman Fahim](#) [2] [7], [Khalid Al-Ghamdi](#) [1], [Abdus Samad](#) [2] [3], [Ishtiaq Qadri](#) [1]

Abstract

Minichromosome maintenance complex component 7 (MCM7) belongs to the minichromosome maintenance family that is important for the initiation of eukaryotic DNA replication. Overexpression of the MCM7 protein is relative to cellular proliferation and responsible for aggressive malignancy in various cancers. Mechanistically, inhibition of MCM7 significantly reduces the cellular proliferation associated with cancer. To date, no effective small molecular candidate has been identified that can block the progression of cancer induced by the MCM7 protein. Therefore, the study has been designed to identify small molecular-like natural drug candidates against aggressive malignancy associated with various cancers by targeting MCM7 protein. To identify potential compounds against the targeted protein a comprehensive in silico drug design including molecular docking, ADME (Absorption, Distribution, Metabolism and Excretion), toxicity, and molecular dynamics (MD) simulation approaches has been applied. Seventy phytochemicals isolated from the neem tree (Azadiractha indica) were retrieved and screened against MCM7 protein by using the molecular docking simulation method, where the top four compounds have been chosen for further evaluation based on their binding affinities. Analysis of ADME and toxicity properties reveals the efficacy and safety of the selected four compounds. To validate the stability of the protein-ligand complex structure MD simulations approach has also been performed to the protein-ligand complex structure, which confirmed the stability of the selected three compounds including CAS ID:105377-74-0, CID:12308716 and CID:10505484 to the binding site of the protein. In the study, a comprehensive data screening process has performed based on the docking, ADMET properties, and MD simulation approaches, which found a good value of the selected four compounds against the targeted MCM7 protein and indicates as a promising and effective human anticancer agent.

55. **[Traits of cancer patients and CAM usage](#)**
    J Cancer Res Clin Oncol. 2021 Dec;147(12):3685-3692. doi: 10.1007/s00432-021-03605-7. Epub 2021 Apr 2.

Authors

[Sabine Andrea Dufter](#) [1], [Jutta Hübner](#) [2], [Emadaldin Ahmadi](#) [2], [Bijan Zomorodbakhsch](#) [3]

Abstract

Background: The use of Complementary Alternative Medicine (CAM) Methods is increasing and therefore gaining importance also in conventional western medicine. Identifying personal traits to

make out by whom and why CAM is used can help physicians in successful physician-patient interaction, and thus improve patient's compliance and trust towards their physician.

Patients and methods: A questionnaire was passed on to cancer patients in an ambulant clinical and a rehabilitation setting. Multiple regression analyses were run to examine possible predictors for CAM use, such as gender, age, level of education, spirituality, attentiveness, self-efficacy and resilience. To differentiate within CAM users, two dependent variables were created: "holistic and mind-body methods", such as Yoga, meditation or Homeopathy and "material based methods", such as food supplements or vitamins.

Results: Higher level of education, younger age and religion-independent attentiveness were significant predictors for the use of "material based methods". Female gender, higher education and religious spirituality were detected as significant predictors for "holistic and mind-body methods".

Conclusion: This study is among the first to take a more detailed look at how numerous personal traits are associated with the use of CAM methods and differentiate between the applied methods. Our finding should be considered by conventional health care providers and could be integrated into a holistic assessment, to offer information about complementary medicine and meeting patients' needs.

56. [Cytotoxicity mechanisms of plumbagin in drug-resistant tongue squamous cell carcinoma](#)
J Pharm Pharmacol. 2021 Mar 1;73(1):98-109. doi: 10.1093/jpp/rgaa027.

Authors

[Danfeng Xue](#) [1], [Xiongming Zhou](#) [1], [Jiaxuan Qiu](#) [1]

Abstract

Objectives: To evaluate the inhibitory effect and mechanism of plumbagin (PLB) against drug-resistant tongue squamous cell carcinoma (TSCC), and whether its antitumour effect is not affected by tumour drug resistance.

Methods: TSCC sensitive CAL27 cells and drug-resistant CAL27/RE cells were used to study the cytotoxicity and mechanism of PLB in vitro, including CCK-8 analysis, colony formation, DAPI staining, flow cytometry assay, transmission electron microscopy, western blotting assay, autophagy, apoptosis and ROS fluorescent probes. BALB/c nude mice xenograft models were used to study the growth inhibitory effect of PLB in vivo.

Key findings: The results showed that the cell viability and proliferation inhibition and apoptosis induction abilities of PLB on drug-resistant cells were more obvious than that on sensitive cells. And PLB induced protective autophagy in TSCC cells. Mechanistically, PLB induced apoptosis and autophagy by generating reactive oxygen species to mediate JNK and AKT/mTOR pathways. Finally, the growth inhibitory effect of PLB against drug-resistant TSCC was also confirmed in vivo.

Conclusions: PLB will be a promising anticancer agent to overcome drug-resistant TSCC without being affected by its drug resistance properties.

57. [Synergistic Effect of Barbadensis miller and Marsdenia Condurango Extracts Induces Apoptosis Promotes Oxidative Stress by Limiting Proliferation of Cervical Cancer and Liver Cancer Cells](#)
Asian Pac J Cancer Prev. 2021 Mar 1;22(3):843-852. doi: 10.31557/APJCP.2021.22.3.843.

Authors

[Tahir Maqbool] [1], [Faheem Hadi] [1], [Sehrish Razzaq] [1], [Sadia Naz] [1], [Saira Aftab] [1], [Sameera Khurshid] [1], [Sana Javaid Awan] [1], [Aisha Nawaz] [1], [Farah Abid] [1], [Arif Malik] [1]

Abstract
Background: Drug synergy is the combine effect of drug efficacy. Synergistic combinations of active ingredients have proven to be highly effective and more useful in therapeutics. In contrast, the individual effect of drug is usually undesirable and mostly used for selecting drug-resistant mutations. Purpose of this study was to check synergistic effects of both plants (Barbadensis miller and Marsdenia condurango) against liver and cervical cancer.
Methodology: Culturing of HeLa (cervical cancer cell line) and HepG2 (liver cancer cell line) cells, IC50 evaluation, viability assays (trypan blue, crystal violet), p53 ELISA and immunocytochemistry, MUSE analysis (count and viability), antioxidants (GSH, SOD, CAT), at the end RT-PCR was performed.
Results: IC50 evaluation was done of each plant individually and with combination for synergistic effects, IC50 with plants combination (synergism) was applied on further viability assays (trypan blue, crystal violet, MUSE analysis via count and viability kit) p53 ELISA and immunocytochemistry for evaluation of cellular apoptosis, antioxidants assays (GSH, SOD, CAT), and RT-PCR with proliferative and apoptotic markers along with internal control.
Conclusion: According to current study it was observed that synergistic effect of these plants has more anticancer properties with minimum effective dose. It was also observed that extracts possess the ability to induce apoptosis, restrict proliferation and enhanced oxidative stress.

58. **The Effect of Indian Fig Fruit Extract on Human Papilloma Virus containing Cervical Cancer Cells (HeLa) by Decreasing the HPV18 L1 Gene Load**

Authors

[V M Berlin Grace] [1], [Lydia B] [1], [D David Wilson] [2]

Abstract
Background: Global trend is moving towards the use of natural phytochemicals to fight against pathogens. Human cervical cancer is directly associated with onco-potent type of Human Papilloma Virus (HPV). There is no known medicine for clearance of HPV type whose persistence is the cause of occurrence and re-occurrence of cervical cancer. The different species of fig fruit and their latex are reported to have HPV associated genital warts clearance capability.
Methods: In the current investigation, the effect of the methanol extract of Ficus benghalensis L. fruits on HPV type18 viral load in HeLa cell line was tested by doing PCR using HPV L1 primers (MY09/My011) and the cytotoxicity was also analysed by MTT assay. The induction of apoptotic activity in terms of DNA fragmentation and hyper-chromic effects of DNA was analysed.
Results: The PCR results showed a reduction in the HPV18 DNA and also the treatment exhibited a promising cytotoxicity with IC50 value at 211.86 µg/ml. The DNA samples from treated HeLa cells showed DNA shearing and laddering as a mark of apoptotic DNA fragmentation (Fig. 2) and the UV

absorbance value at 260 nm was found to be significantly (p <0.01) higher in the DNA sample treated with fruit extract compared to the untreated DNA sample.

Conclusion: The Ficus benghalensis L. fruit extract reduced the HPV viral load in HPV18 containing HeLa cells and showed an effective cytotoxicity on HeLa cell line. It also could induce the apoptotic activity in HeLa cell line and this study results suggest that the Ficus benghalensis L. fruits can be used to fight against cervical carcinoma, acting on HPV load.

59. **Phytochemicals from Ayurvedic plants as potential medicaments for ovarian cancer: an in silico analysis**
J Mol Model. 2021 Mar 25;27(4):114. doi: 10.1007/s00894-021-04736-x.

Authors

Sahar Qazi [1], Khalid Raza [2]

Abstract

Ovarian cancer is one of the highly prominent gynecological malignancies after breast cancer. Although myriad literature is available, there is no specific biomarker available for the personalized treatment strategy. The unavailability of effective drug therapy for ovarian cancer calls for an urgent push in its development from the multidisciplinary scientific community. Indian Ayurvedic medicine pharmacology is widely appreciated and accepted for its immense healthcare benefits. Bioinformatics and cheminformatics approaches can be effectively used to screen phytochemicals present in the Indian Ayurvedic plants against ovarian cancer target receptors. Recent studies discern that POTE, a cancer-testis antigen (CTA) family, plays a crucial role in the proliferation and progression of cancers including ovarian cancer. Specifically, POTEE paralog has been observed to be hypermethylated in ovarian cancer. This study undertakes an in silico analysis of Indian Ayurvedic plants for their anticancer efficacy against ovarian cancer proliferation target receptor POTEE. Structures of 100 phytochemicals from 11 Ayurvedic plants were screened with ADME criteria, and qualified phytochemicals were subjected to molecular docking and interaction analysis. Only 6 phytochemicals having a high affinity to the target receptor (POTEE) were then subjected to an all-atom replica exchange molecular dynamics simulation for 50 ns. Binding affinities of 6 phytochemicals cedeodarin, deodarin, hematoxylin, matairesinol, quercetin, and taxifolin with POTEE were -8.1, -7.7, -7.7, -7.9, -8.0, and - 7.7 kcal/mol, respectively, and their RMSD were recorded as zero. This study concludes that phytochemicals present in Indian Ayurvedic plants namely Cedrus deodara and Asparagus racemosus possess inhibitory effects against ovarian cancer proliferation receptor POTEE.

60. **Exploring the mechanism of Cremastra Appendiculata (SUANPANQI) against breast cancer by network pharmacology and molecular docking**
Comput Biol Chem. 2021 Oct;94:107396. doi: 10.1016/j.compbiolchem.2020.107396. Epub 2020 Oct 1.

Authors

Lei Zhang [1], Kai Yang [2], Min Wang [3], Lizhong Zeng [4], Enze Sun [1], Fuxin Zhang [1], Zhen Cao [1], Xinxin Zhang [1], Hui Zhang [5], Zengjun Guo [6]

Abstract

Background: SUANPANQI, the pseudo phosphorous stem of Cremastra appendiculata, is one of the most well-known traditional Chinese medicine, which has been shown to inhibit tumorigenesis in various human cancers. However, the underlying mechanism of SUANPANQI treatment against breast cancer (BRCA) remains unclear. In this study. we aim to investigate the bioactive compounds and mechanisms of SUANPANQI in the treatment of BRCA based on network pharmacology and molecular docking.

Methods: The compounds were collected from previous research. SwissADME was used to screen bioactive compounds. The targets corresponding to SUANPANQI and BRCA were obtained using MalaCards and SwissTargetPrediction. SUANPANQI-related and BRCA-related targets were found and then overlapped to get intersections, which represented potential anti-BRCA targets of SUANPANQI. The Cytoscape software was used to construct bioactive compounds targeting the BRCA network. Gene ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) enrichment analysis of the targets was extracted from the metascape database, then conducted using the Cluster Profiler package in R software. Protein-Protein interaction (PPI) network was constructed using the STRING online database and analyzed using Cytoscape software. Pivotal genes were screened using the topological analysis, survival analysis, and pathological stage analysis. Molecular docking analysis was used to verify whether the bioactive compounds had a definite affinity with the pivotal targets.

Results: Sixty-five bioactive compounds of SUANPANQI were involved with 225 predicted BRCA targets. Then, a compound-target network and a PPI network were constructed. The GO analysis and KEGG enrichment analysis suggested that SUANPANQI worked against BRCA via PI3K-Akt, Ras, FoxO, Rap1, and ErbB signaling pathways, etc. After topological analysis, survival analysis, and pathological stage analysis of the SUANPANQI potential targets against BRCA, 6 pivotal target genes (AR, HSP90AA1, MMP9, PGR, PTGS2, TNF) that were highly responsible for the therapeutic effects of SUANPANQI against BRCA were obtained. Molecular docking results showed that 6 bioactive compounds of SUANPANQI had strong binding efficiency with the 6 pivotal genes.

Conclusions: The present study clarifies the mechanism of SUANPANQI against BRCA through multiple targets and pathways, and provides evidence to support its clinical use.

61. ***Ganoderma lucidum* Spore Polysaccharide Inhibits the Growth of Hepatocellular Carcinoma Cells by Altering Macrophage Polarity and Induction of Apoptosis**

Authors

Ming Song [1], Zhen-Hao Li [2], Hong-Shun Gu [3], Ru-Ying Tang [4], Rui Zhang [1], Ying-Li Zhu [4], Jin-Lian Liu [1], Jian-Jun Zhang [1], Lin-Yuan Wang [4]

Abstract

Background: *Ganoderma lucidum* has certain components with known pharmacological effects, including strengthening immunity and anti-inflammatory activity. *G. lucidum* seeds inherit all its biological characteristics. *G. lucidum* spore polysaccharide (GLSP) is the main active ingredient to enhance these effects. However, its specific biological mechanisms are not exact. Our research is aimed at revealing the specific biological mechanism of GLSP to enhance immunity and inhibit the growth of H22 hepatocellular carcinoma cells.

Methods: We extracted primary macrophages (Mø) from BALB/c mice and treated them with GLSP (800 μg/mL, 400 μg/mL, and 200 μg/mL) to observe its effects on macrophage polarization and cytokine secretion. We used GLSP and GLSP-intervened macrophage supernatant to treat H22 tumor cells and observed their effects using MTT and flow cytometry. Moreover, real-time fluorescent quantitative PCR and western blotting were used to observe the effect of GLSP-intervened macrophage supernatant on the PI3K/AKT and mitochondrial apoptosis pathways.

Results: In this study, GLSP promoted the polarization of primary macrophages to M1 type and the upregulation of some cytokines such as TNF-α, IL-1β, IL-6, and TGF-β1. The MTT assay revealed that GLSP+Mø at 400 μg/mL and 800 μg/mL significantly inhibited H22 cell proliferation in a dose-dependent manner. Flow cytometry analysis revealed that GLSP+Mø induced apoptosis and cell cycle arrest at the G2/M phase, associated with the expression of critical genes and proteins (PI3K, p-AKT, BCL-2, BAX, and caspase-9) that regulate the PI3K/AKT pathway and apoptosis. GLSP reshapes the tumor microenvironment by activating macrophages, promotes the polarization of primary macrophages to M1 type, and promotes the secretion of various inflammatory factors and cytokines.

Conclusion: Therefore, as a natural nutrient, GLSP is a potential agent in hepatocellular carcinoma cell treatment and induction of apoptosis.

62. [**A network pharmacology-based investigation on the bioactive ingredients and molecular mechanisms of Gelsemium elegans Benth against colorectal cancer**](#)

Authors

[Wancai Que](#) [# 1], [Maohua Chen](#) [# 1], [Ling Yang](#) [2], [Bingqing Zhang](#) [3], [Zhichang Zhao](#) [1], [Maobai Liu](#) [1], [Yu Cheng](#) [4], [Hongqiang Qiu](#) [5] [6]

Abstract

Background: Colorectal cancer (CRC) remains one of the leading causes of cancer-related death worldwide. Gelsemium elegans Benth (GEB) is a traditional Chinese medicine commonly used for treatment for gastrointestinal cancer, including CRC. However, the underlying active ingredients and mechanism remain unknown. This study aims to explore the active components and the functional mechanisms of GEB in treating CRC by network pharmacology-based approaches.

Methods: Candidate compounds of GEB were collected from the Traditional Chinese Medicine@Taiwan, Traditional Chinese Medicines Integrated Database, Bioinformatics Analysis Tool for Molecular mechanism of Traditional Chinese Medicine, and published literature. Potentially active targets of compounds in GEB were retrieved from SwissTargetPrediction databases. Keywords "colorectal cancer", "rectal cancer" and "colon cancer" were used as keywords to search for related targets of CRC from the GeneCards database, then the overlapped targets of compounds and CRC were further intersected with CRC related genes from the TCGA database. The Cytoscape was applied to construct a graph of visualized compound-target and pathway networks. Protein-protein interaction networks were constructed by using STRING database. The DAVID tool was applied to carry out Gene Ontology and Kyoto Encyclopedia of Genes and Genome pathway enrichment analysis of final targets. Molecular docking was employed to validate the interaction between compounds and targets. AutoDockTools was used to

construct docking grid box for each target. Docking and molecular dynamics simulation were performed by Autodock Vina and Gromacs software, respectively.

Results: Fifty-three bioactive compounds were successfully identified, corresponding to 136 targets that were screened out for the treatment of CRC. Functional enrichment analysis suggested that GEB exerted its pharmacological effects against CRC via modulating multiple pathways, such as pathways in cancer, cell cycle, and colorectal cancer. Molecular docking analysis showed that the representative compounds had good affinity with the key targets. Molecular dynamics simulation indicated that the best hit molecules formed a stable protein-ligand complex.

Conclusion: This network pharmacology study revealed the multiple ingredients, targets, and pathways synergistically involved in the anti-CRC effect of GEB, which will enhance our understanding of the potential molecular mechanism of GEB in treatment for CRC and lay a foundation for further experimental research.

63. **Herbal supplement usage among cancer patients: A questionnaire-based survey**

Authors

Thirunavukkarasu Kanimozhi [1], Kalluru Hindu [1], Yuvaraj Maheshvari [1], Y Gulab Khushnidha [1], Mahendrian Kumaravel [1], K Satish Srinivas [2], M Manickavasagam [3], Kalachaveedu Mangathayaru [1]

Abstract

Background: Herbal supplements (HS) are one of the most commonly used complementary and alternative medicines in cancer. Reduced therapeutic efficacy of prescription anticancer agents through unwarranted herb-drug interactions is a major efficacy/safety concern. In view of the rising cancer prevalence in India along with a high degree of reliance and cultural acceptability in favor of traditional medicine drugs, prevalence data exclusively of HS usage during cancer treatment are of considerable epidemiological significance.

Methodology: This questionnaire-based prospective observational study aimed at estimating the prevalence of HS among cancer patients during treatment at our tertiary care medical center. Taken on a population of 220 patients within a period of 9 months, data were generated by a customized validated questionnaire and the same processed by IBM SPSS Statistics for Windows, version XXIV, Armonk, NY: IBM Corp. Differences between HS use and nonuse with respect to demographic, disease, and treatment characteristics were assessed by Chi-square test. For examining the latter variables as possible predictors of HS usage, they were entered into bivariate logistic regression with odds ratio and confidence intervals calculated for each.

Results: Out of 220 patients, 57 (26%) were HS users and 163 (74%) were nonusers. Majority of the users (42.1%) were on self-prepared folklore herbal medicine postdiagnosis of cancer (57.9%), the most common reason cited being symptom palliation (35.1%) on the advice of friends and family (64.9%). Fear of disapproval was the most common reason cited (68.4%) for not disclosing HS usage to the physician.

Conclusion: Chemotherapy and unemployment are predictors of HS usage, and there is a significant association between occupation status and HS usage. This first study on HS prevalence among South Indian population proposes the need for a more robust evidence base for understanding all aspects of HS use in cancer.

64. **Traditional Chinese medicines and their active ingredients sensitize cancer cells to TRAIL-induced apoptosis**

Authors

Bingyu Sun [1] [2], Yongqiang Liu [3], Danhua He [3], Jinke Li [4], Jiawei Wang [5], Wulin Wen [6], Ming Hong [7] [8]

Abstract
The rapidly developing resistance of cancers to chemotherapy agents and the severe cytotoxicity of such agents to normal cells are major stumbling blocks in current cancer treatments. Most current chemotherapy agents have significant cytotoxicity, which leads to devastating adverse effects and results in a substandard quality of life, including increased daily morbidity and premature mortality. The death receptor of tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) can sidestep p53-dependent pathways to induce tumor cell apoptosis without damaging most normal cells. However, various cancer cells can develop resistance to TRAIL-induced apoptosis via different pathways. Therefore, it is critical to find an efficient TRAIL sensitizer to reverse the resistance of tumor cells to TRAIL, and to reinforce TRAIL's ability to induce tumor cell apoptosis. In recent years, traditional Chinese medicines and their active ingredients have shown great potential to trigger apoptotic cell death in TRAIL-resistant cancer cell lines. This review aims to collate information about Chinese medicines that can effectively reverse the resistance of tumor cells to TRAIL and enhance TRAIL's ability to induce apoptosis. We explore the therapeutic potential of TRAIL and provide new ideas for the development of TRAIL therapy and the generation of new anti-cancer drugs for human cancer treatment. This study involved an extensive review of studies obtained from literature searches of electronic databases such as Google Scholar and PubMed. "TRAIL sensitize" and "Chinese medicine" were the search keywords. We then isolated newly published studies on the mechanisms of TRAIL-induced apoptosis. The name of each plant was validated using certified databases such as The Plant List. This study indicates that TRAIL can be combined with different Chinese medicine components through intrinsic or extrinsic pathways to promote cancer cell apoptosis. It also demonstrates that the active ingredients of traditional Chinese medicines enhance the sensitivity of cancer cells to TRAIL-mediated apoptosis. This provides useful information regarding traditional Chinese medicine treatment, the development of TRAIL-based therapies, and the treatment of cancer.

65. **Effect of Reiki on the stress level of caregivers of patients with cancer: Qualitative and single-blind randomized controlled trial**

Authors

Ulviye Özcan Yüce [1], Sultan Taşcı [2]
Abstract

Objective: This study aimed to evaluate the effect of Reiki on stress levels of individuals caring for patients with cancer.

Methods: The study was conducted a pretest-posttest, single-blind randomized controlled trial and qualitative study using a semi-structured in-depth interview. In this study, women who were primary caregivers of patients with cancer treated in a university hospital were randomized to Reiki and sham Reiki groups. The Reiki group received Reiki to nine main points for 45 min, once a week for 6 weeks, while the sham Reiki group received the same points during the same period without starting energy flow. CSI scores and salivary cortisol levels were evaluated at baseline and at the end of the study, whereas systolic and diastolic blood pressure and pulse rate were evaluated before and after application every week. After the study, the opinions of the Reiki group on Reiki experience were collected by using a questionnaire consisting of semi-structured questions.

Results: The study was completed with a total of 42 caregivers. The sample size was calculated based on the difference in Caregiver Strain Index (CSI) scores before and after the intervention. According to the power analysis, with $\alpha = 0.05$ and $\beta = 0.20$, the effect size was 1.71 and the power 99 %. Post-intervention CSI scores declined in the Reiki group compared with that in the sham Reiki group ($p < 0.05$). No significant difference was found between the groups in terms of saliva cortisol levels ($p > 0.05$). According to the results of the general linear model repeated measure and Friedman tests, which were conducted to evaluate the change in systolic and diastolic blood pressure and pulse rate over a 6-week period, the values of these parameters decreased before and after each application compared with the caregivers in the sham Reiki group ($p < 0.05$). All caregivers stated that they found the caring process less stressful after the Reiki sessions and felt relieved compared with the pre-therapy period, and some of their physical complaints decreased.

Conclusion: Reiki reduces the stress levels of caregivers, is effective in regulating blood pressure and pulse rate, does not cause a significant change on saliva cortisol level, and provides relief to caregivers.

66. **Improving End of Life Cancer Outcomes Through Development and Implementation of a Spiritual Care Advocate Program**

Authors

Toni Cipriano-Steffens [1], John F Cursio [2], Fay Hlubocky [1], Marsha Sumner [1], Deborah Garnigan-Peters [1], Judy Powell [1], Nicole Arndt [1], Lee Phillips [1], Rev Herbert Lassiter [3] [4], Marie Gilliam [4], Lou Ester Petty [4], Rev Scott Onque Pastor [4] [5], Monica Malec [1], George Fitchett [6], Blase Polite [1]

Abstract

Background: Explored whether increased support for spiritual concerns between the healthcare team and patients through the provision of a Spiritual Care Advocate (SCA) would improve end of life outcomes in a metastatic cancer population.

Design: Newly diagnosed metastatic cancer patients were recruited at the University of Chicago Medical Center and received spiritual support from a Spiritual Care Advocate during

chemotherapy treatments. The final sample consisted of 42 patients (58% of those approached) who completed the baseline survey and had known survival status.
Measurement: Patients completed pre/post surveys measuring spiritual support and palliative quality of life. Baseline measurements of religious practice and externalizing religious health beliefs were also obtained. Receipt of aggressive EOL care was derived from the electronic medical record.
Result: Median age was 61 years, with 48% Black, and predominantly male (62%). Of the 42 patients, 30 (70%) had died by the time of this analysis. Perceived spiritual support from the medical team increased in 47% of those who received non-aggressive EOL care and by 40% in those who received aggressive EOL care (p=0.012). Patient perceptions of spiritual support from the medical community increased from 27% at baseline to 63% (p=0.005) after the SCA intervention. Only 20% of recipients received aggressive treatments at end of life.
Conclusion: The SCA model improved the perceived spiritual support between the healthcare team and patients. Although limited by a small sample size, the model was also associated with an improvement in EOL patients' quality of life, spiritual wellbeing, and decreased aggressive EOL care.

67. **Case report of visual biofeedback-driven, magnetic resonance-guided single-fraction SABR in breath hold for early stage non-small-cell lung cancer**
Med Dosim. 2021 Autumn;46(3):247-252. doi: 10.1016/j.meddos.2021.01.003. Epub 2021 Feb 26.

Authors

Michael D Chuong [1], Rupesh Kotecha [2], Minesh P Mehta [2], Sonia Adamson [3], Tino Romaguera [2], Matthew D Hall [2], Diane Alvarez [2], Alonso N Gutierrez [2], Vivek Mishra [2], Fernando De Zarraga [4], Kathryn E Mittauer [2]

Abstract

Stereotactic ablative body radiation therapy (SABR) is a well-established alternative to surgery for early stage non-small-cell lung cancer (NSCLC). While SABR is typically delivered in 3 to 5 fractions, randomized trials have shown single-fraction SABR to be a reasonable alternative. We present the case of a 66-year-old male with history of cholangiocarcinoma who was subsequently diagnosed with peripheral early stage NSCLC and treated in mid-inspiration breath hold (BH) to 34 Gy in 1 fraction on a magnetic resonance (MR)-guided linear accelerator, with treatment delivery completed in 17 minutes. Visual biofeedback was utilized to maximize patient compliance with appropriate depth of inspiration BH and improve overall treatment delivery time efficiency. The benefits of single- vs multifraction SABR and unique advantages of MR guidance that are particularly well-suited for single-fraction SABR are reviewed.

68. **Acupuncture treatment in pediatric acute transverse myelitis: a case report**
Acupunct Med. 2021 Oct;39(5):557-559. doi: 10.1177/0964528420987564. Epub 2021 Feb 11.

Authors

Chi-Wen Huang [1], Lih-Lian Chen [1] [2], Yen-Jung Chou [3] [4], Hung-Rong Yen [5] [6] [7], Chin-Hsien Chang [1] [8] [9]

No abstract available

69. **In silico identification of natural products from Traditional Chinese Medicine for cancer immunotherapy**
Sci Rep. 2021 Feb 8
;11(1):3332. doi: 10.1038/s41598-021-82857-2.

Authors

Chuipu Cai [# 1 2], Qihui Wu [# 3], Honghai Hong [# 4], Liying He [2], Zhihong Liu [5], Yong Gu [3], Shijie Zhang [2], Qi Wang [2], Xiude Fan [6], Jiansong Fang [7]

Abstract

Advances in immunotherapy have revolutionized treatments in many types of cancer. Traditional Chinese Medicine (TCM), which has a long history of clinical adjuvant application against cancer, is emerging as an important medical resource for developing innovative cancer treatments, including immunotherapy. In this study, we developed a quantitative and systems pharmacology-based framework to identify TCM-derived natural products for cancer immunotherapy. Specifically, we integrated 381 cancer immune response-related genes and a compound-target interaction network connecting 3273 proteins and 766 natural products from 66 cancer-related herbs based on literature-mining. Via systems pharmacology-based prediction, we uncovered 182 TCM-derived natural products having potential anti-tumor immune responses effect. Importantly, 32 of the 49 most promising natural products (success rate = 65.31%) are validated by multiple evidence, including published experimental data from clinical studies, in vitro and in vivo assays. We further identified the mechanism-of-action of TCM in cancer immunotherapy using network-based functional enrichment analysis. We showcased that three typical natural products (baicalin, wogonin, and oroxylin A) in Huangqin (Scutellaria baicalensis Georgi) potentially overcome resistance of known oncology agents by regulating tumor immunosuppressive microenvironments. In summary, this study offers a novel and effective systems pharmacology infrastructure for potential cancer immunotherapeutic development by exploiting the medical wealth of natural products in TCM.

70. **Melanoma treatment via non-specific adhesion of cancer cells using charged nano-clays in pre-clinical studies**
Sci Rep. 2021 Feb 2;11(1):2737. doi: 10.1038/s41598-021-82441-8.

Authors

Sahel N Abduljauwad [1], Habib-Ur-Rehman Ahmed [2], Vincent T Moy [3]

Abstract

The incidence of malignant melanoma has rapidly increased in the last two decades. There are many challenges associated with the current conventional therapies, including tumour size and location, the specificity of treatments, tumour resistance, non-mutually exclusive mutations, drug resistance, and many adverse side effects. Due to conventional therapies having several

limitations, we have explored an alternative therapy such as nano-clays; nano-sized natural materials originating from clay fraction of the soil. Recently, clay nanoparticles have increasingly been used as a drug carrier for cancer treatment due to their high absorption, ability to engulf microbes, and low toxicity. In this study, we evaluated the effects of a nano-clays mix on melanoma cell proliferation and cell viability in vitro and melanoma growth in vivo xenograft animal model. The in vitro study revealed that nano-clay treatments significantly reduced melanoma cell proliferation and cell viability in a dosage-dependent manner. The in vivo tumour xenograft model demonstrated that nano-clay mix treatment led to significantly reduced tumour size and weight, decreased tumour cell mitosis, and induced tumour necrosis. These processes owe to the most probable changes in the membrane potential of the cancer cells once nano-clays bind with the former through the high non-specific adhesion characteristic of the cancer cells. As the data suggest an important role of nano-clays as an inhibitor of melanoma cell proliferation and survival, these prove to be a natural and effective medicine for the treatment of melanoma. The proven compatibility of nano-clays with the human cells with little side-effects makes them a highly preferred choice for the treatment of melanoma and probably other types of cancers.

71. **Zinc as a complementary treatment for cancer patients: a systematic review**

Authors

C Hoppe [1], S Kutschan [1], J Dörfler [1], J Büntzel [2], J Büntzel [3], Jutta Huebner [4]
Abstract
Zinc is a trace element that plays an important role in the immune system and cell growth. The role of zinc in cancer treatment has been discussed for some time, however without reaching an evidenced-based consensus. Therefore, we aim to critically examine and review existing evidence on the role of zinc during cancer treatment. In January 2019, a systematic search was conducted searching five electronic databases (Embase, Cochrane, PsychINFO, CINAHL and PubMed) to find studies concerning the use, effectiveness and potential harm of zinc therapy on cancer patients. Out of initial 5244 search results, 19 publications concerning 23 studies with 1230 patients were included in this systematic review. The patients treated with zinc were mainly diagnosed with head and neck cancer and underwent chemo-, radio- or concurrent radio-chemotherapy. Interventions included the intake of different amounts of zinc supplements and oral zinc rinses. Outcomes (primary endpoints) investigated were mucositis, xerostomia, dysgeusia, pain, weight, dermatitis and oral intake of nutrients. Secondary endpoints were survival data, quality of life assessments and aspects of fatigue, immune responses and toxicities of zinc. The studies were of moderate quality reporting heterogeneous results. Studies have shown a positive impact on the mucositis after radiotherapy. No protection was seen against mucositis after chemotherapy. There was a trend to reduced loss of taste, less dry mouth and oral pain after zinc substitution. No impact was seen on weight, QoL measurements, fatigue, and survival. The risk of side effects from zinc appears to be relatively small. Zinc could be useful in the prevention of oral toxicities during irradiation. It does not help in chemotherapy-induced side effects.

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72. **Homeostasis Research Model Based on Yin-Yang Theory: Five Examples**

Authors

Di Wang [1], Miao Qu [2]

Abstract

In recent years, the ancient Yin-Yang theory has been gradually adopted by modern researchers, especially European and American scholars, and it has also been applied to modern scientific research on sleep, viruses, metabolism, cancer, genes, autoimmune diseases, and so on. It is very promising and fruitful results have been reported. However, the understanding of the connotations of Yin-Yang theory is not sufficient and thorough enough in these studies. If we understand and apply Yin-Yang theory more comprehensively, it may provide us with additional potential mechanisms and research directions worthy of study. On the basis of promoting a comprehensive understanding of all three connotations of Yin-Yang theory, this review attempts to illustrate this theory, summarize its applications in modern scientific research, and reveal the potential research direction of modern medicine.

73. **Effect of electroacupuncture on the kisspeptin system in a pubertal rat model of polycystic ovary syndrome**

Authors

Zhi Wang [1], Li Yang [2], Hui Dong [2], Haoxu Dong [1], Ling Cheng [3], Ping Yi [1], Dongmei Huang [2]

Abstract

Objective: To explore the effects and mechanism of action of electroacupuncture (EA) in a rat model of pubertal polycystic ovary syndrome (PCOS).
Methods: Female offspring of Sprague-Dawley rats receiving dihydrotestosterone (DHT) during pregnancy (days 16-19), as a model of prenatal androgenization, were divided randomly into three groups: model group (M), EA group, and sham acupuncture (SA) group (n = 8 each). A normal (N) group comprising female offspring of healthy pregnant rats not receiving DHT (n = 8) was added. EA was administered at CV6 and bilateral SP6/ST36 with 2 Hz frequency and 2 mA intensity. SA consisted of superficial needling at different locations without electrical stimulation.
Results: EA improved the disturbed estrous cycles, while it could not be concluded that SA was effective in this respect. EA improved ovarian morphology including the number of corpora lutea and area of the ovary, whereas SA did not. However, both EA and SA attenuated the increased luteinizing hormone and decreased estradiol and gonadotropin-releasing hormone levels in the serum of PCOS model rats. Levels of testosterone, follicle-stimulating hormone, and progesterone did not significantly differ between groups. EA and SA alleviated the upregulation of kisspeptin protein and mRNA levels in the hypothalamus and kisspeptin protein level in the arcuate nucleus (ARC). No differences were found between groups in protein or mRNA expression of dynorphin (DYN) or neurokinin B (NKB) in the hypothalamus. Co-expression of kisspeptin, NKB, and DYN were observed in ARC. The GnRH level in the median eminence decreased and could be rescued by EA and SA. Intriguingly, kisspeptin levels in the granulosa cells of the ovary decreased in the model

group and could be rescued by EA but not SA. Levels of kisspeptin, NKB, and DYN protein and mRNA in the ovary did not differ between any groups.

Conclusion: Both EA and SA appeared to improve symptoms of PCOS at puberty by modulating the kisspeptin system in the hypothalamus. EA also had an effect on ovarian kisspeptin expression and a more comprehensive effect with respect to improving PCOS at puberty than SA.

74. **Assessment of integrative non-pharmacological interventions and quality of life in breast cancer patients using real-world data**
Breast Cancer. 2021 May;28(3):608-617. doi: 10.1007/s12282-020-01193-x. Epub 2021 Jan 3.

Authors

Shiao Li Oei [1], Anja Thronicke [2] [3], Harald Matthes [2] [4] [5], Friedemann Schad [2] [5]

Abstract

Background: Treatments with non-pharmacological interventions (NPIs), comprising art and exercise therapies, nursing interventions, and educational components, are considered to improve quality of life of cancer patients. The aim of this study was to assess the longitudinal changes in self-reported quality of life of breast cancer patients receiving an integrative medicine program consisting of hospital-based NPIs and standard oncological treatments.

Methods: This real-world data study was conducted using data from the Network Oncology clinical registry of the Gemeinschaftskrankenhaus Havelhöhe. Primary breast cancer patients of all tumor stages, who answered the European Organization of Research and Treatment Health-Related Quality of Life Core Questionnaire scale (EORTC QLQ-C30) at first diagnosis and 12 months later, were included. Association factors between received NPIs and longitudinal EORTC QLQ-C30-changes were analyzed with additive non-parametric regression tests, considering treatment regimens and demographic variables, using the software R.

Results: A total of 231 primary breast cancer patients were enrolled and separate regression analyses were carried out. Significant associations between the received NPIs elaborate consultations and life review, nursing compresses, music and eurythmy therapy and improvements of 8-13 points for global health, all five functional EORTC-scales, and symptoms fatigue, dyspnea, insomnia, and financial difficulties were observed.

Conclusion: Our findings support the beneficial impact of NPIs for breast cancer patients. Further research could be directed towards synergistic effects of multimodal applied NPIs.

75. **Natural Products as Anticancer Agents**
Curr Drug Targets. 2021;22(11):1272-1287. doi: 10.2174/1389450121999201230204526.

Authors

Ruby Varghese [1], Yogesh B Dalvi [1]

Abstract

Medicinal plants and mushrooms have always fascinated the world as an attractive source of natural compounds for cancer therapy. From ancient times, they have been valued as gourmet food and folk medicine in Oriental practice. For over 40 years, the world has witnessed the overwhelming interest of the western scientific fraternity in the pharmaceutical potential of

natural products in combating cancer. The plants and mushrooms credited with success against angiogenesis and cancer metastasis belong to certain Plants, including Catharanthus roseus, Aloe Vera,Annona muricata,Curcuma longa, Withania somnifera, and Berberis and mushrooms such as Agaricus, Antrodia, Ganoderma, Grifolafrondosa, Hericiumerinaceus, Phellinuslinteus, and Trametesversicolor Coriolusversicolor. The anti-cancer compounds play a pivotal role as a free radical scavenger and reactive oxygen species inducer, mitotic spindle kinase inhibitor, anti-mitotic, angiogenesis inhibitor, topoisomerase inhibitor, apoptosis inducers, and eventually checking cancer invasion, migration and proliferation. The present review updates and focuses on the recent findings of the pharmacologically potential bioactive compounds, their anti-tumor potential, and underlying mechanism of preventing cancer metastasis and angiogenesis in order to raise knowledge for further investigations to develop cancer therapeutics with no adverse side effects The mounting experimental evidence at pre-clinical and clinical levels from various research groups across the globe, regarding prevention of cancer metastasis by natural products unarguably make it a fast-track research area worth mass attention.

76. [Cangfudaotan Decoction Alleviates Insulin Resistance and Improves Follicular Development in Rats with Polycystic Ovary Syndrome via IGF-1-PI3K/Akt-Bax/Bcl-2 Pathway](#)
Mediators Inflamm. 2020 Nov 24;2020:8865647. doi: 10.1155/2020/8865647. eCollection 2020.

Authors

[Chenye Wang](#) [1], [Caifei Ding](#) [1], [Zhoujia Hua](#) [1], [Chunyue Chen](#) [1], [Jia Yu](#) [1]

Abstract

Polycystic ovary syndrome (PCOS) is the most common endocrine and metabolic disorder prevalent in females of reproductive age; insulin resistance (IR) is the major pathogenic driver. Pharmacology is a basic option for PCOS therapy; traditional Chinese medicine (TCM), as a significant part of complementary and alternative medicine, has a long history in the clinical management of PCOS. Cangfudaotan decoction (CFD) has been used clinically for gynaecological diseases especially PCOS. In this study, first, chemical components in CFD were clarified using UPLC-Q/TOF-MS analysis. Then, an animal model of PCOS was established, granular cells were also isolated from the rats with PCOS, and CFD was administrated at different dosages in PCOS rats and granular cells, to investigate the therapeutic effect and mechanisms of CFD for PCOS treatment. The result showed that CFD treatment is effective in PCOS rats and granulosa cells. CFD was able to improve IR, restore the serum hormone levels, inhibit the inflammatory cytokines in PCOS rat, and alleviate ovary morphological injury and apoptosis in PCOS rats. In granulosa cells of PCOS, the result showed that the cell viability was improved, and cell apoptosis was inhibited after CFD administration. Further experiments suggested that CDF improves IR, follicular development, cell apoptosis, and inflammatory microenvironment, and this was associated to the regulation of IGF-1-PI3K/Akt-Bax/Bcl-2 pathway-mediated gene expression. Given that CFD sufficiently suppresses insulin resistance and improves follicular development in this study, exploring these mechanisms might help to optimize the therapeutic treatment of CFD in PCOS patients.

77. [A review on the relationship of mast cells and macrophages in breast cancer - Can herbs or natural products facilitate their anti-tumor effects?](#)
Pharmacol Res. 2021 Feb;164:105321. doi: 10.1016/j.phrs.2020.105321. Epub 2020 Dec 5.

Authors

Leilei Gou [1] , Grace Gar-Lee Yue [2] , Pema Tenzin Puno [3] , Clara Bik-San Lau [4]
Abstract
Breast cancer is an inflammation-related cancer whose tumor microenvironment is largely infiltrated by inflammatory cells. These inflammatory cells including mast cells and macrophages have been elucidated to be vital participants in breast tumor proliferation, survival, invasion and migration. However, the functions of mast cells and macrophages in breast cancer are quite distinct based on recent data. Mast cells exhibit both anti-tumoral and pro-tumoral functions on breast cancer, while high number of tumor-associated macrophages (TAMs) are strongly correlated with poor prognosis and higher risk of distant metastasis in breast cancer patients. Besides, many natural products/extracts have been reported to regulate mast cells and macrophages. In this review, the roles of mast cells and macrophages play in breast cancer are discussed and a summary of those natural products/herbs regulating the functions of mast cells or macrophages is also presented.

78. **Randomized control trial evidence for the benefits of massage and relaxation therapy on sleep in cancer survivors-a systematic review**

Authors

Stephen Rajan Samuel [1] , Rachita Gururaj [1] , K Vijaya Kumar [2] , Prina Vira [1] , P U Prakash Saxena [3] , Justin William Leslie Keogh [1] [4] [5] [6]
Abstract
Purpose: Cancer survivors may experience sleep disturbances during and after their cancer treatments. While pharmacological approaches are commonly used to address sleep disturbances, they may have a number of adverse effects. This review studied the effect of two non-pharmacological interventions (massage and relaxation therapy) on sleep disturbances in cancer survivors.
Methods: A search for randomised controlled trials (RCTs) was conducted on PubMed, Scopus, Web of Science, PEDro, and CINAHL using relevant keywords.
Results: The search yielded 371 articles, with 4 RCTs studying massage therapy and 3 RCTs studying relaxation therapy included for qualitative analysis. Massage therapy studies showed statistically significant improvement in self-reported sleep questionnaires and objectively recorded long sleep episodes, as assessed via an accelerometer. No significant improvements in sleep outcomes were observed in the relaxation therapy studies, although there were trends for improved self-reported sleep quality.
Conclusion: While massage therapy provided by massage therapists may have some potential for improving sleep outcomes for cancer survivors, there is no such current evidence regarding relaxation therapy.
Implications for cancer survivors: Cancer survivors who experience sleep disturbances may benefit from regular sessions with a massage therapist. However, future studies should examine the long-term feasibility of massage therapist-delivered services, particularly for cancer survivors

with limited finances, and determine if benefits can be obtained if massage is provided by non-certified individuals. Relaxation therapy appears to be safe for cancer survivors, but future RCTs involving larger sample sizes need to be conducted to better determine its feasibility and efficacy.

79. **Impact of Massage Therapy on the Quality of Life of Hospice Patients and Their Caregivers: A Pilot Study**
J Palliat Care. 2022 Jan;37(1):41-47. doi: 10.1177/0825859720975991. Epub 2020 Nov 19.

Authors

Rachel D Havyer [1] [2], Maria I Lapid [1] [3] [4], Travis J Dockter [5], Shaylene A McCue [5], Amy J Stelpflug [3], Maureen L Bigelow [3], Mary Meg Robsahm [3], Theresa Elwood [3], Jacob J Strand [1] [3], Brent A Bauer [6], Susanne M Cutshall [6], Jeff A Sloan [5], Monica P Walton [4], Kevin J Whitford [1] [3] [7]

Abstract
Evidence for massage therapy (MT) in hospice patients remains limited. We conducted a prospective pilot study on MTs impact on quality of life of hospice patients and caregivers. Patient-caregiver dyads were enrolled if patients scored ≥5 on pain, depression, anxiety, or well-being using the revised Edmonton Symptom Assessment System Revised (ESAS-r). The patient received MT weekly for up to 3 massages with assessments completed at baseline, after each massage, and 1 week after the final massage for patients and at baseline and 1 week after final massage for caregivers. A satisfaction survey was completed at study completion. A pro-rated area under the curve (AUC) was utilized to assess the primary endpoints of change in ESAS-r for patient ratings of pain, depression and anxiety as well as the Linear Analogue Self-Assessment (LASA). Median difference scores (end of study value)-(baseline value) for each participant and caregiver were calculated. Of 27 patients and caregivers enrolled, 25 patients received MT. Fifteen patients completed all 3 MT sessions and were given the final symptom assessment and satisfaction survey and their caregivers completed final assessments. The proportion of patients considered success (AUC > baseline) in the primary endpoints were the following: pain 40.9%, depression 40.9%, anxiety 54.5%, LASA 54.5%. Median difference scores were largely zero indicating no significant temporal change in symptoms. Patients were highly satisfied with MT. This pilot study indicated that MT was a feasible and well-received intervention in our population of patients with inadequately controlled symptoms.

80. **Distinct patterns of repetition suppression in Fragile X syndrome, down syndrome, tuberous sclerosis complex and mutations in SYNGAP1**
Brain Res. 2021 Jan 15;1751:147205. doi: 10.1016/j.brainres.2020.147205. Epub 2020 Nov 12.

Authors

Valérie Côté [1], Ève Lalancette [2], Inga S Knoth [3], Lucie Côté [4], Kristian Agbogba [5], Phetsamone Vannasing [6], Philippe Major [7], Fanny Barlaam [3], Jacques Michaud [8], Sarah Lippé [9]

Abstract
Sensory processing is the gateway to information processing and more complex processes such as learning. Alterations in sensory processing is a common phenotype of many genetic syndromes

associated with intellectual disability (ID). It is currently unknown whether sensory processing alterations converge or diverge on brain responses between syndromes. Here, we compare for the first time four genetic conditions with ID using the same basic sensory learning paradigm. One hundred and five participants, aged between 3 and 30 years old, composing four clinical ID groups and one control group, were recruited: Fragile X syndrome (FXS; n = 14), tuberous sclerosis complex (TSC; n = 9), Down syndrome (DS; n = 19), SYNGAP1 mutations (n = 8) and Neurotypical controls (NT; n = 55)). All groups included female and male participants. Brain responses were recorded using electroencephalography (EEG) during an audio-visual task that involved three repetitions of the pronunciation of the phoneme /a/. Event Related Potentials (ERP) were used to: 1) compare peak-to-peak amplitudes between groups, 2) evaluate the presence of repetition suppression within each group and 3) compare the relative repetition suppression between groups. Our results revealed larger overall amplitudes in FXS. A repetition suppression (RS) pattern was found in the NT group, FXS and DS, suggesting spared repetition suppression in a multimodal task in these two ID syndromes. Interestingly, FXS presented a stronger RS on one peak-to-peak value in comparison with the NT. The results of our study reveal the distinctiveness of ERP and RS brain responses in ID syndromes. Further studies should be conducted to understand the molecular mechanisms involved in these patterns of responses.

81. **Electroacupuncture for ileus following laparoscopic radical cystectomy and Bricker urinary diversion: a case report**
Acupunct Med. 2021 Oct;39(5):545-546. doi: 10.1177/0964528420959333. Epub 2020 Oct 7.

Authors

Yuan-Zheng Wang [1], Jin-Xia Yang [1], Jun-Xiang Wang [2]

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No abstract available
Full text links

82. **Medicinal Plants Towards Modeling Skin Cancer**
Curr Drug Targets. 2021;22(2):148-161. doi: 10.2174/1389450121666201005103521.

Authors

Mohammad El-Harakeh [1], Sara Al-Ghadban [2], Rémi Safi [1]
Abstract
Skin cancer remains a major cause of mortality worldwide. It can be divided into melanoma and non-melanoma cancer, which comprise mainly squamous cell carcinoma and basal cell carcinoma. Although conventional therapies have ameliorated the management of skin cancer, the search for chemopreventive compounds is still the most effective and safer strategy to treat cancer. Nowadays, chemoprevention is recognized as a novel approach to prevent or inhibit carcinogenesis steps with the use of natural products. Crude extracts of plants and isolated phytocompounds are considered chemopreventive agents since they harbor anti-inflammatory,

antioxidant and anti-oncogenic properties against many types of diseases and cancers. In this review, we will discuss the therapeutic effect and preventive potential of selected medicinal plants used as crude extracts or as phytocompounds against melanoma and non-melanoma cutaneous cancers.

83. [**Cervical and ocular vestibular evoked myogenic potentials in determining nerve division involvement in patients with a tumor located in the internal auditory canal**](#)
Auris Nasus Larynx. 2021 Jun;48(3):383-393. doi: 10.1016/j.anl.2020.09.006. Epub 2020 Sep 22.

Authors

[Klaudyna Zwierzyńska](#) [1] , [Magdalena Lachowska](#) [2] , [Jacek Sokołowski](#) [1] , [Kazimierz Niemczyk](#) [1]
Abstract
Objectives: The study aimed at the analysis of the parameters of acoustic cervical and ocular vestibular evoked myogenic potentials (AC-cVEMP and AC-oVEMP) response in patients with a confirmed tumor located in the internal auditory canal. It also aimed to assess to what degree a combination of these tests may be of benefit in the preoperative indication of the affected nerve division via preoperative determination whether the tumor originated from the superior or inferior division of the vestibular nerve, both divisions, or if it originated from a different nerve in the internal auditory canal.
Methods: The study group included 50 patients. Preoperative MRI scans were used to measure tumor diameter. AC-cVEMP and AC-oVEMP testing were performed before tumor resection. The surgeon was asked for a detailed description of the tumor origin.
Results: The corrected amplitude of cVEMP was significantly lower on the tumor side than on the non-affected side and in the control group. The corrected Asymmetry Ratio (AR) of cVEMPs in patients with the tumor was significantly elevated above the reference values with the mean being 58.29% and the mean AR of oVEMPs in patients the tumor was 71.78% which made both results significantly higher than in the control group. Neither cVEMP nor oVEMP latency was significantly correlated with tumor size. Data obtained from cVEMP and oVEMP tests was an effective indicator of tumor origin in 74% of patients showing which division (or both divisions) of the VIIIth nerve was affected in comparison with information obtained from the surgeon.
Conclusions: The combined use of AC-cVEMP and AC-oVEMP tests may be useful in surgical planning in patients the tumor located in the internal auditory canal, providing a highly probable determination of the division of the affected nerve. Such information is valuable for the surgeon as it offers additional knowledge about the tumor before the procedure. cVEMP and oVEMP results may not be used as the basis for the calculation of tumor size in patients.

84. [**Multidisciplinary and Comprehensive Chinese Medicine for Advanced Non-Small Cell Lung Cancer Patients: A Retrospective Study of 855 Cases**](#)
Chin J Integr Med. 2021 Jul;27(7):490-495. doi: 10.1007/s11655-020-3428-5. Epub 2020 Sep 2.

Authors

[Xian-Ge Huang](#) [1] , [Li-Hua Zhu](#) [1] , [Lei Zhou](#) [1] , [Wei-Jie Xu](#) [1] , [Yi-Lin Yao](#) [1] , [Zhi-Yi Zhou](#) [1] , [He-Gen Li](#) [2]
Abstract

Objective: To investigate the effects of multidisciplinary and comprehensive Chinese medicine (CM) treatments on progression-free survival (PFS) and median survival time (MST) in patients with advanced non-small cell lung cancer (NSCLC) and identify factors that influence progression and prognosis.

Methods: Clinical data of 855 patients with advanced NSCLC who received multidisciplinary and comprehensive CM treatments at Longhua Hospital from January 2009 to December 2018 were retrospectively analyzed. Univariate analysis was performed by the Kaplan-Meier method and log-rank sequential inspection. Multivariate analysis of significant variables from the univariate analysis was performed with Cox regression modeling. Key factors correlated to progression and prognosis were screened out, and a Cox proportional hazard model was established to calculate the prognostic index.

Results: The PFS and MST of 855 advanced NSCLC patients were 9.0 and 26.0 months, respectively. The 1-, 2-, 3-, and 5-year survival rates were 79.2%, 54%, 36.2%, and 17.1%, respectively. Gender, pathologic type, and clinical stage were independent prognostic risk factors; surgical history, radiotherapy, treatment course of Chinese patent medicine, intravenous drip of Chinese herbal preparation, duration of oral administration of Chinese herbal decoction (CHD), and intervention measures were independent prognostic protective factors. Gender was an independent risk factor for progression, while operation history and oral CHD administration duration were independent protective factors (all $P<0.05$). Women with stage IIIb-IIIc lung adenocarcinoma had the best outcomes.

Conclusions: Female patients have lower progression risk and better prognoses than male patients, younger patients have higher progression risk but better long-term prognoses than the elderlys, and patients with lower performance status scores are at lower risk for progression and have better prognoses. Comprehensive CM treatments could significantly reduce progression risk, improve prognosis, and prolong survival time for patients with advanced NSCLC. This treatment mode offers additional advantages over supportive care alone.

85. **Effect of Oral Chinese Medicine Combined with Western Medicine on Cancer Pain: A Meta-Analysis**

Authors

Yao-Han Wang [1] [2] [3], Jin-Yuan Chang [1], Li Feng [4]
Abstract
Objective: To assess the effect of oral Chinese medicine (OCM) combined with Western medicine (WM) on cancer pain.
Methods: PubMed, Embase, Cochrane Library, Clinical Trials Registry Platform, Chinese National Knowledge Infrastructure (CNKI), Wanfang and VIP databases were searched from their inception to September {dy2019}. Randomized controlled trials (RCTs) treating cancer pain by Chinese medicine (CM) combined with WM were included. The primary outcome were total pain relief rate and the quality of life (QOL), and the other outcomes were the average daily dosage of analgesics, the primary time of pain, the analgesic duration time, and adverse events. The methodological quality of RCTs was assessed in accordance with Cochrane 5.1.0 handbook of

systematic reviews of interventions. Evidence level was assessed by the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) approach.

Results: There were 1,087 patients in the 14 studies, with 544 in the experiment group and 543 in the control group. These studies were all conducted in China, and published between 2006 and {dy2019}. Compared with the WM, OCM combined with WM could significantly relieve the cancer pain [risk ratio (RR)=1.43, 95% confidence interval (CI): 1.32, 1.56), improve QOL (RR=8.57, 95% CI: 4.25, 12.89), decrease the primary time of pain (RR=-0.20, 95% CI: -0.24, -0.16], prolong the analgesic duration time (RR=3.47, 95% CI: 2.09, 4.85), reduce the dosage of analgesics (RR=-19.52, 95% CI: -36.32, -2.72), and reduce side events (RR=0.49, 95% CI: 0.37, 0.65). Evidence levels for total pain relief rate, primary time of pain and side events were low, evidence level for QOL, analgesic duration time and average daily dosage of analgesics were very low.

Conclusions: Compared with the WM, OCM combined with WM could significantly relieve the cancer pain, improve the QOL, decrease the primary time of pain, prolong the analgesic duration time, reduce the dosage of analgesics and side events. The evidence levels were low or very low.

86. **[Effectiveness and Safety Evaluation of Chinese Medicine in Treatment of Metastatic Colorectal Cancer after Chemotherapy Failure: Protocol of a Prospective Multicenter Cohort Study](#)**
Chin J Integr Med. 2021 Sep;27(9):674-679. doi: 10.1007/s11655-020-3420-0. Epub 2020 Aug 19.

Authors

[Teng-Teng Hao](#) [1], [Yun Xu](#) [1], [Ning Cui](#) [1], [Qian Qu](#) [1], [Bi-Yan Liang](#) [2], [Ju-Hua Yuan](#) [3], [Yang Zhao](#) [4], [Qing-Na Li](#) [4], [Fang Lu](#) [4], [Yu Wu](#) [5]

Abstract

Background: Colorectal cancer (CRC) is the second most common cause of cancer-related deaths and has the third highest incidence in the world. Almost half of the patients with CRC have metastases at the time of diagnosis. However, the treatment for patients with metastatic CRC that progresses after approved conventional chemotherapy is still controversial. Chinese medicine (CM) has unique characteristics and advantages in treating metastatic CRC.

Objective: To assess the effectiveness and safety of CM in patients with metastatic CRC after failure of conventional chemotherapy.

Methods: The study is a multicenter prospective cohort study. A total of 384 patients with documented metastatic CRC after failure of conventional chemotherapy will be included from 9 hospitals among Beijing, Shanghai, Nanjing, and Guizhou, and assigned to three groups according to paitents' wishes: (1) integrated Chinese and Western medicine (ICM) group receiving CM herbal treatment combined with Western medicine (WM) anti-tumor therapy, (2) Chinese medicine (CM) group receiving only CM herbal treatment, and (3) WM group receiving only WM anti-tumor therapy. The primary endpoint is the overall survival (OS). Secondary endpoints include the progression free survival (PFS), quality of life (QOL) assessed by the Functional Assessment of Cancer Therapy-Colorectal (FACT-C) questionnaire, tumor control, and CM symptom score.

Discussion: This prospective study will assess the effectiveness and safety of CM in treating metastatic CRC after conventional chemotherapy failure. Patients in the ICM group will be compared with those in the WM group and CM group. If certified to be effective, national provision of CM treatment in metastatic CRC will probably be advised. (Registration No. [NCT02923622](#) on ClinicalTrials.gov).

87. **[Manual lymphatic drainage treatment for lymphedema: a systematic review of the literature](#)**
J Cancer Surviv. 2021 Apr;15(2):244-258. doi: 10.1007/s11764-020-00928-1. Epub 2020 Aug 15.

Authors

[Belinda Thompson](#) [1], [Katrina Gaitatzis](#) [2], [Xanne Janse de Jonge](#) [3], [Robbie Blackwell](#) [2], [Louise A Koelmeyer](#) [2]

Abstract

Purpose: Manual lymphatic drainage (MLD) massage is widely accepted as a conservative treatment for lymphedema. This systematic review aims to examine the methodologies used in recent research and evaluate the effectiveness of MLD for those at-risk of or living with lymphedema.

Methods: The electronic databases Embase, PubMed, CINAHL Complete and Cochrane Central Register of Controlled Trials were searched using relevant terms. Studies comparing MLD with another intervention or control in patients at-risk of or with lymphedema were included. Studies were critically appraised with the PEDro scale.

Results: Seventeen studies with a total of 867 female and two male participants were included. Only studies examining breast cancer-related lymphedema were identified. Some studies reported positive effects of MLD on volume reduction, quality of life and symptom-related outcomes compared with other treatments, while other studies reported no additional benefit of MLD as a component of complex decongestive therapy. In patients at-risk, MLD was reported to reduce incidence of lymphedema in some studies, while others reported no such benefits.

Conclusions: The reviewed articles reported conflicting findings and were often limited by methodological issues. This review highlights the need for further experimental studies on the effectiveness of MLD in lymphedema.

Implications for cancer survivors: There is some evidence that MLD in early stages following breast cancer surgery may help prevent progression to clinical lymphedema. MLD may also provide additional benefits in volume reduction for mild lymphedema. However, in moderate to severe lymphedema, MLD may not provide additional benefit when combined with complex decongestive therapy.

88. **[Combating Drug Resistance in Colorectal Cancer Using Herbal Medicines](#)**
Chin J Integr Med. 2021 Jul;27(7):551-560. doi: 10.1007/s11655-020-3425-8. Epub 2020 Aug 1.

Authors

[Ga-Young Lee](#) [1] [2] [3], [Jin-Seok Lee](#) [2] [3], [Chang-Gue Son](#) [2] [3], [Nam-Hun Lee](#) [4] [5] [6]

Abstract

Colorectal cancer (CRC) is one of the most prevalent and lethal cancer types around the world. Most of the CRC patients are treated with chemotherapeutic drugs alone or combined. However, up to 90% of metastatic cancer patients experience the failure of treatment mostly because of the acquired drug resistance, which can be led to multidrug resistance (MDR). In this study, we reviewed the recent literature which studied potential CRC MDR reversal agents among herbal medicines (HMs). Among abundant HMs, 6 single herbs, Andrographis paniculata, Salvia

miltiorrhiza, Hedyotis diffusa, Sophora flavescens, Curcuma longa, Bufo gargarizans, and 2 formulae, Pien Tze Huang and Zhi Zhen Fang, were found to overcome CRC MDR by two or more different mechanisms, which could be a promising candidate in the development of new drugs for adjuvant CRC chemotherapy.

89. **A Comprehensive Review and Perspective on Anticancer Mechanisms of Withaferin A in Breast Cancer**
Cancer Prev Res (Phila). 2020 Sep;13(9):721-734. doi: 10.1158/1940-6207.CAPR-20-0259. Epub 2020 Jul 29.

Authors

Eun-Ryeong Hahm [1] , Su-Hyeong Kim [1] , Krishna B Singh [1] , Kamayani Singh [2] , Shivendra V Singh [3] [2]
Abstract
Withaferin A (hereafter abbreviated as WA) is a promising anticancer steroidal lactone abundant in a medicinal plant (*Withania somnifera*) native to Asia. The root/leaf extract of *Withania somnifera*, which belongs to the *Solanaceae* family, continues to be included in the Ayurvedic medicine formulations of alternative medicine practice. Numerous chemicals are detectable in the root/leaf extract of *Withania somnifera* [e.g., withanolides (WA, withanone, withanolide A, etc.), alkaloids, sitoindosides, etc.], but the anticancer effect of this medicinal plant is largely attributed to WA. Anticancer effect of WA was initially reported in the early 70s in the Ehrlich ascites tumor cell model *in vitro* Since then, numerous preclinical studies have been performed using cellular and animal models of different cancers including breast cancer to determine cancer therapeutic and chemopreventive effects of WA. Chemoprevention, a word first introduced by Dr. Michael B. Sporn, was intended to impede, arrest, or reverse carcinogenesis at its earliest stages with pharmacologic agents. This review succinctly summarizes the published findings on anticancer pharmacology of WA in breast cancer focusing on pharmacokinetic behavior, *in vivo* efficacy data in preclinical models in a therapeutic and chemoprevention settings, and its known effects on cancer-relevant cellular processes (e.g., growth arrest, apoptosis induction, autophagy, metabolic adaptation, immune function, etc.) and molecular targets (e.g., suppression of oncogenes such as estrogen receptor-α, STAT3, etc.). Potential gaps in knowledge as well as future research directions essential for clinical development of WA for chemoprevention and/or treatment of breast cancer are also discussed.

90. **Concomitant Benefits of an Auricular Acupressure Intervention for Women With Cancer on Family Caregiver Sleep Quality**
Cancer Nurs. 2021 Sep-Oct 01;44(5):E323-E330. doi: 10.1097/NCC.0000000000000842.

Authors

Ting-Ting Wu [1] , Hung-Wei Pan, Hui-Chen Kuo, San-Nung Chen, Debra K Creedy, Ying Tsao
Abstract
Background: Sleep disturbance is a frequent and significant problem challenge for family caregivers of patients with cancer. A previously tested 6-week auricular acupressure intervention

was found to reduce symptom burden in women with cancer. It is possible that such an intervention has a concomitant benefit for family caregivers.

Objectives: The aim of this study was to explore if the effects of an auricular acupressure intervention on major symptoms experienced by women with ovarian cancer improves the sleep quality of family caregivers.

Methods: A quasi-randomized controlled trial with a repeated-measures design was used. Family caregivers (n = 68) of cancer patients were recruited and completed the Pittsburgh Sleep Quality Index on 4 occasions. Demographic information included age, sex, duration of caring role, and relationship to the patient.

Results: Family members with a longer duration of caregiving reported more sleep disturbance at baseline. As the symptom burden of treated women decreased, their family caregivers reported improved Pittsburgh Sleep Quality Index scores at 4 weeks (time 2; Cohen d = 1.075) and 6 weeks (time 3; Cohen d = 1.022).

Conclusions: Reducing the symptom burden of patients with cancer can improve the sleep quality of family caregivers.

Implications for practice: Auricular acupressure is a noninvasive and easy-to-apply intervention that can be applied by caregivers to assist their family member. Nursing staff can implement and test the acupressure intervention into their clinical practice and better support family-based strategies and interventions. Further studies with larger samples are needed to confirm our findings.

91. [**Effect of Electro-acupuncture on Expression of IRS-1/PI3K/GLUT4 Pathway in Ovarian Granulosa Cells of Infertile Patients with Polycystic Ovary Syndrome-Insulin Resistance of Phlegm-Dampness Syndrome**](#)
Chin J Integr Med. 2021 May;27(5):330-335. doi: 10.1007/s11655-020-3219-z. Epub 2020 Jun 22.

Authors

[Shan Xiang](#) [1] [2], [Ming-Feng Xia](#) [3], [Jing-Yan Song](#) [1] [2], [Dan-Qi Liu](#) [1], [Fang Lian](#) [4]
Abstract

Objective: To evaluate the effect of electro-acupuncture (EA) in infertile patients with phlegm-dampness polycystic ovary syndrome-insulin resistance (PCOS-IR).

Methods: Seventy-six PCOS-IR patients who underwnet in vitro fertilization and embryo transfer (IVF-ET) were equally assigned to two groups according to a random digital table: the EA group and the control group, with 38 cases in each group. Before undergoing IVF, the two groups were treated with EA or pseudo-acupuncture, respectively, for 3 menstrual cycles. The intervention was 25 min twice a week until the day of oocyte collection. The selected acupoints were Zhongwan (RN 12), Tianshu (ST 25), Daheng (SP 15), Daimai (GB 26), Qihai (CV 6), Guanyuan (CV 4), and bilateral points including Xuehai (SP 10), Fenglong (ST 40), Zusanli (ST 36), and Yinlingquan (SP 9). Evaluation of phlegm-dampness syndrome score and IR score were carried out before and after treatment. Additionally, the number of oocytes retrieved, transplantable embryo rate, high-quality embryo rate, clinical pregnancy rate and live birth rate were compared between the two groups. Real-time polymerase chain reaction analysis was used to monitor the mRNA expression of the insulin receptor substrate (IRS-1), phosphatidylinositiol 3-kinase (PI3K) and glucose transport factor 4 (GLUT4) in ovarian granulosa cells.

Results: EA treatment reduced the phlegm-dampness syndrome score as well as the IR scores compared with the control group (P<0.05). No significant differences in the number of oocytes retrieved and clinical pregnancy rate between the two groups (P>0.05). Moreover, the transplantable embryo rate [49.0% (284/580) vs. 41.9% (273/652)], high-quality embryo rate [36.6% (104/284) vs. 27.8% (76/273)], and live birth rate [50% (19/38) vs. 26.3% (10/38)] in the EA group were significantly higher than in the control group (P<0.05). Gene expression analyses revealed significantly elevated IRS-1, PI3K and GLUT4 mRNA in ovarian granulosa cells of the EA group compared with the control group (P<0.05).
Conclusions: EA may ameliorate the effects of phlegm-dampness syndrome and ovarian IR in PCOS-IR patients. Mechanistically, this effect might be through an upregulation of the IRS-1/PI3K/GLUT4 signaling pathway, which may result in improved oocyte quality and embryonic development potential. (Registration No. ChiCTR1800015453).

92. **Chinese Medicine Treatment Prolonged Survival in Small Cell Lung Cancer Patients: A Clinical Observation**
Chin J Integr Med. 2021 Jul;27(7):496-501. doi: 10.1007/s11655-020-3197-1. Epub 2020 Jun 4.

Authors

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Abstract
Objective: To evaluate the effect of Chinese medicine (CM) treatment on survival time and quality of life (QOL) in patients with small cell lung cancer (SCLC).
Methods: This was an exploratory and prospective clinical observation. Patients diagnosed with SCLC receiving CM treatment were included and followed up every 3 months. The primary outcome was overall survival (OS), and the secondary outcomes were progression-free survival (PFS) and QOL.
Results: A total of 136 patients including 65 limited-stage SCLC (LS-SCLC) patients and 71 extensive-stage SCLC (ES-SCLC) patients were analyzed. The median OS of ES-SCLC patients was 17.27 months, and the median OS of LS-SCLC was 40.07 months. The survival time was 16.27 months for SCLC patients with brain metastasis, 9.83 months for liver metastasis, 13.43 months for bone metastasis, and 18.13 months for lung metastasis. Advanced age, pleural fluid, liver and brain metastasis were risk factors, while longer CM treatment duration was a protective factor. QOL assessment indicated that after 6 months of CM treatment, scores increased in function domains and decreased in symptom domains.
Conclusion: CM treatment might help prolong OS of SCLC patients. Moreover, CM treatment brought the trend of symptom amelioration and QOL improvement. These results provide preliminary evidence for applying CM in SCLC multi-disciplinary treatment.

93. **Usage of Chinese Herbs in Cancer Patients in Southern China: A Survey**
Chin J Integr Med. 2021 Jul;27(7):502-508. doi: 10.1007/s11655-019-3184-6. Epub 2020 May 9.

Authors

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Abstract

Objective: To study the use of Chinese medicine (CM) in cancer patients in southern China.

Methods: A total of 1,950 cancer patients finished questionnaires in four provinces in southern China. The survey included socio-demographic and clinical characteristics of participants, dosage forms, efficacy, and side effects.

Results: The study results showed that cancer patients with higher education (>12 years) were more likely to accept the treatment of Chinese herbs. There were 54.61% (1,065 cases) of patients chose Chinese herbs for the initial treatment and 14.46% (282 cases) chose Chinese herbs as monotherapy. Most patients (54.51%, 1,063 cases) continuously used CM for more than 6 months, and a few of them (212 cases) used CM for up to 3 years. All kinds of dosage forms of CM had been used, including CM decoction, CM patent prescription and CM injection. Concerning the efficacy in the view of patients, 40.31% (786 cases) believed that it would be effective to take Chinese herbs before they starting the anti-cancer treatment, and the percentage increased to 81.08% after 1-month CM treatment. The effect of Chinese herbs was mainly demonstrated by symptom relief and improvement of quality of life, and 8.31% (162 cases) of patients experienced control of tumor growth and decreased tumor markers. Furthermore, only 14.31% (279 cases) participants reported that they experienced side effects during CM treatment.

Conclusion: This large scale investigation reflects the current situation of domestic CM usage objectively and comprehensively, which might provide new ways for cancer treatment.