Constitutional Hydrotherapy: Can it Improve Headache and Mood? A Case Report

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Introduction

Constitutional hydrotherapy, which applies thermal alteration and mild electrical stimulation, has been used in naturopathic medicine for a long time.

Case presentation

- 59-year-old female admitted to the Robert Schad Naturopathic Clinic with anxiety and nervousness.
- Informed consent was obtained.
- She had a history of sinusitis, constipation, insomnia, depression, anxiety and rheumatoid arthritis. Family history of Parkinson's disease.
- We performed two sessions of constitutional hydrotherapy with electrical stimulation in two weeks.
- Vital signs were checked before and after the treatment and were stable.
- Treatment included five phases of hydrotherapy as follows: hot (five min.), cold+sine (10 min.), dry+sine (10 min.), hot (five min.), and cold (five min.).
- The English version of multi-dimensional mood state questionnaire with 6-point Likert scales was used as an assessment in three dimensions of good/bad mood, awake/tired and calm/nervous.

Results

- During therapy, the patient was very relaxed, in a very emotional, joyful mood and was constantly tearing. She felt the therapy was "releasing her suppressed emotions," making her feel very light.
- The most significant side benefit of this therapy was that the patient had a headache before the first session and after the treatment, the pain was completely resolved.
- The patient also reported having more energy and less fatigue after the treatment.
- The patient expressed that "the therapy has been amazing for me and improved drastically my thinking paradigm and mental health."

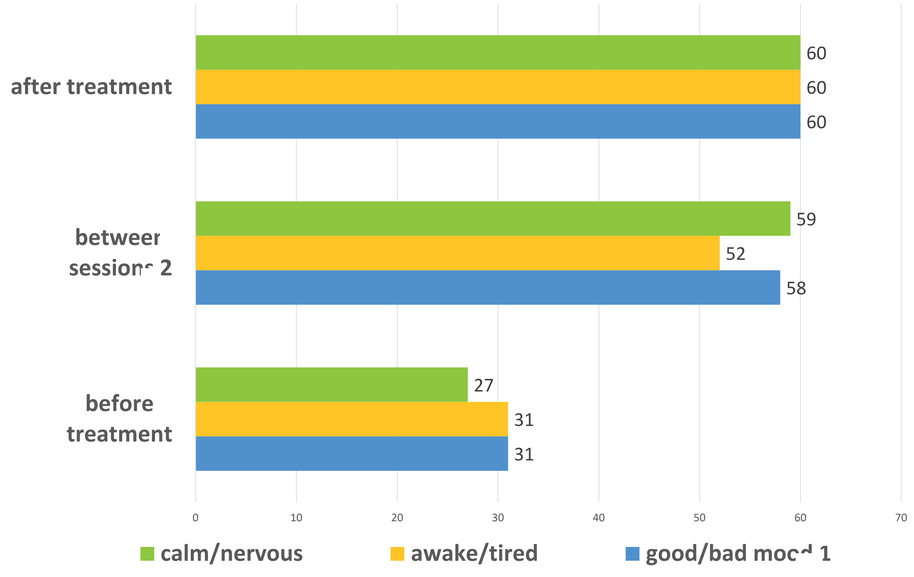
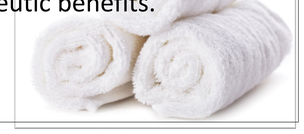


Figure 1. Scores of the multi-dimensional mood state questionnaire in dimension of good/bad, awake/tired, and calm/nervous section; at baseline, between the sessions, and after the treatment.

Discussions

- Despite the long history of constitutional hydrotherapy, mood/emotional disorders and headache are not listed as traditional indications for this method.
- A clinical trial on the use of constitutional hydrotherapy on HIV patients showed this method is safe and without important side effects and can increases in clinical measures, physical functioning and quality of life.
- There is no report on the effects of hydrotherapy on headache and mood.
- Our study showed a strong improvement in mood and headache.
- Constitutional hydrotherapy may have the following effects on the body: thermal hemostasis, hydrostatic shifting, integumentary system, blood circulation, neurotransmitters, and autonomic nervous system regulation; however, additional evidence is needed in order to support these therapeutic benefits.



Conclusions

- Our study supports the use of constitutional hydrotherapy in altering emotional states, reducing anxiety and improving mood and headache. More research is needed to confirm its effectiveness.
- Limitations: some variables are subjective, lack of long term analysis and comparative analysis (no control group), expectation bias.

For references or further questions, please email: Mariam.yavari@gmail.com

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Oral Supplementation of Myo-inositol in Individuals with Polycystic Ovarian Syndrome (PCOS) and Infertility: A Narrative Review

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Introduction

- PCOS affects 5-10% of women in their reproductive age and is the most common cause of infertility due to ovarian dysfunction. PCOS is frequently associated with insulin resistance and obesity. Insulin resistance affects approximately 40-50% of PCOS patients, both lean and obese.
- Inositol is a 6-carbon ring compound and belongs to the Vitamin B family. Myo-inositol (MI) is one of nine stereoisomers and comprises up to 99% of the inositol in mammalian cells.
- MI has been shown to increase insulin sensitivity and therefore improve symptoms for women with insulin-resistant PCOS. However, even individuals with PCOS who do not display insulin sensitivity can still benefit from myo-inositol treatment.
- This review includes a total of four studies that have focused on the effects of MI supplementation in individuals with PCOS. Three out of four studies focus on fertility related outcomes as the studies were conducted in women undergoing in vitro fertilization (IVF) or intrauterine insemination (IUI) procedures.

Search Methods

- This review used PubMed database with the search terms: inositol, PCOS, female and "clinical trial" was selected as an additional filter. This search result yielded a total of 44 unique studies. A total of four studies were included in this review based on the inclusion/exclusion criteria.

- PubMed search terms: inositol, PCOS, female
- Inclusion criteria: clinical trials assessing the effect of PCOS on fertility outcomes
- Exclusion criteria: studies comparing MI to D-chiro-inositol (DCI) or metformin in PCOS individuals

Results

Table 1. Baseline characteristics of participants in each study

Study	Population	# of participants (control/treatment)	Type of Study	PCOS Diagnosis	Average Age (years)	BMI (kg/m^2)
Gerli (2007)	Non-conception population	92 (47/45)	Double-blind placebo-controlled trial	Transvaginal ultrasound	29	34
Emekçi Özay (2017)	IUI population	196 (98/98)	Prospective, controlled, randomized trial	Rotterdam Criteria	N/A	24.16
Ciotta (2011)	IVF population	34 (17/17)	Double blind trial	Rotterdam Criteria	28.65	N/A
Artini (2013)	IVF population	50 (25/25)	Randomized, controlled, clinical trial	Rotterdam Criteria + no hormonal treatment for at least six months before the study.	34.9	28

Table 2. Dose and duration of each study

Study	Treatment group	Control group	Duration
Gerli (2007)	4g Myo-inositol + 400ug folic acid	400ug folic acid	14 weeks
Emekçi Özay (2017)	4g MYO + 400 µg folic acid before and during ovulation induction 2x/day	400 µg folic 2x/day	12 weeks
Ciotta (2011)	2g of myo-inositol + 200 µg of folic acid 2x/day	200 µg of folic acid 2x/day	12 weeks
Artini (2013)	2g Myo-inositol + 400ug folic acid	400ug folic acid	12 weeks

Table 3. Summary of findings

Study	Primary Outcome	Intervention group	Control group
Gerli (2007)	Failure to ovulate	8/45 (18%)*	17/47 (36%)*
	Days to first ovulation (mean)	24.5*	40.5*
	Luteal weeks (%) – normal is 0.5	25*	15*
	Luteal phase sufficiency defined by Pmax of 7ng/ml (%)	9	14
Emekçi Özay (2017)	Clinical pregnancy rate (%)	16*	11*
	Cancelled cycle number	3*	8*
	>17mm follicle number	2.1 ± 0.7	2.0 ± 0.7
	Spontaneous abortion rate (n)	2	2
	Duration of the administration of rFSH (days)	8.59 ± 2.3*	12.1 ± 1.8*
	Administered total rFSH dose (IU)	689.23 ± 73.54*	776.56 ± 87.12*
Ciotta (2011)	Retrieved oocytes at pick-up	12*	8.50*
	Metaphase II oocytes (%)	82.24	66.87
	Degenerated oocytes (%)	0.93*	14.37*
	Germinal vesicles (%)	1.4*	9.37*
	Score 1 embryos (%)	68.1*	29*
Artini (2013)	N of retrieved oocytes	6.5 ± 3.1*	10.8 ± 8.8*
	Top-quality oocytes (%)	82*	36*
	Fertilization rate (%)	66	60
	N of clinical pregnancies (%)	10*	4*
	Delivery rate (%)	32*	12*
	Duration of stimulation (days)	11.5 ± 0.8*	12.6 ± 1.1*
	N of cancelled cycles	1*	4*
	N follicles ≥ 16mm	7.4 ± 3.2*	5.3 ± 3.5*
	N follicles <12mm	1.2 ± 2*	4.6 ± 3.6*

*statistically significant

Discussions

Mechanism of action: The epimerase enzyme is an insulin-dependent enzyme that converts MI into DCI. Each tissue in the body has its own particular conversion rate. MI and DCI are then incorporated into inositol phosphoglycans (IPGs), which are secondary messengers of insulin, FSH and TSH. At the ovary level, MI-IPG is involved in both glucose uptake and FSH signaling. It is hypothesized that epimerase activity is increased in the ovaries of PCOS individuals, resulting in a local MI deficiency and this may be responsible for poor oocyte quality.

Myo-inositol safety profile: MI exhibits a very good safety profile, including during pregnancy. In literature it has been shown that even with doses as high as 12g/day, patients experience only mild gastrointestinal side effects. One study in this review (Gerli, 2007) reported a high dropout rate in the treatment group. The authors attributed this high dropout rate to significant side effects of the dosing regime however no side effects were listed.

Study limitations: Three of the four studies included in this review were all conducted in Italy and may include a very similar population of women. In addition, all of these studies have small sample sizes which can further bias the results observed.

Implication for future research: While MI has shown to improve oocyte quality and improve the number of mature oocytes retrieved, its effects on live birth rates is much more limited. RCTs should be conducted that specifically assess live birth rates as a primary outcome.

Conclusions

MI exhibits a promising therapeutic role in individuals with PCOS experiencing infertility due to its insulin-sensitizing activity and its role in oocyte maturation. This may lead to positive pregnancy outcomes in IUI and IVF procedures.

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Minimizing Isotretinoin Side Effects with Concurrent Oral Supplementation : A Narrative Review

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Introduction

- Acne is the most prevalent skin disease and is associated with scarring, dyspigmentation, and low self-esteem.
- Isotretinoin (Iso) is a common and effective treatment option.
- Commonly experienced adverse effects of Iso are mucocutaneous in nature.
- Other adverse effects include: cheilitis, xerosis, myalgia, elevated liver enzymes, changes to triglyceride levels, and nutrient levels.
- This review explores oral supplementation during Iso therapy to minimize side effects.

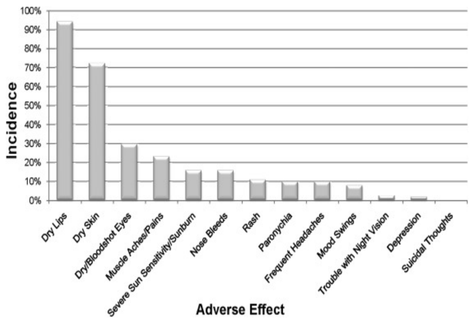

Figure 1. Common Adverse Effects of Isotretinoin

Search Methods

- The following search terms were used in PubMed:
  - (isotretinoin OR Accutane) AND (prevent OR reduce OR change) AND side effects
  - omega-3 AND isotretinoin
  - (supplement OR supplementation) AND (Accutane OR isotretinoin)
- Inclusion criteria: human subjects simultaneously on isotretinoin for acne. Exclusion criteria: pharmaceutical adjunctives to Iso, topical interventions, and injections.
- A total of 10 studies were included in this review.

Results

Supplement	Intervention	Comparison	Results
Evening Primrose Oil (EPO)	Six 450mg EPO capsules, TID for 8 weeks, alongside isotretinoin	Isotretinoin (0.25-0.4mg/kg/d)	Decreased cheilitis (P=0.035), decreased TEWL (P=0.043), increased patient satisfaction, relative to Iso alone.
Folic Acid and B12	Folic acid, and vitamin B12 alongside Iso for 2 months	Isotretinoin	Decreased homocysteine (P=0.0004) and increased folic acid and B12 (P=0.0026 and P=0.0002) in intervention group after two months.
L-Carnitine	100mg/kg L-carnitine alongside Iso for 45 days	Isotretinoin (0.5mg/kg/d) + placebo	Disappearance of stiffness and myalgia within 5-6 days, and normalization of liver enzymes and L-carnitine levels only in intervention group.
Omega-3	Retrospective study; mean use of Iso for 5.87 months, with some patients concurrently on omega-3	n/a	Significant increases in triglycerides (TG) after Iso use (P=0.04) in patients without concurrent omega-3 use.
	Iso with concurrent use of 15 ml/d MaxEPA fish oil for 4 weeks of concurrent use	Iso (1mg/kg/d), with concurrent placebo oil	Lower TG (P<0.05) and cholesterol levels (P<0.05) in intervention group.
	1g Nature Made omega-3 for 16 weeks	Iso (0.5mg/kg/d)	Reduction in dry lips (P=0.03), nose (P=0.01), skin (P=0.003), and eyes (P=0.046) relative to Iso alone after four weeks of use.
Vitamin E	800IU vitamin E alongside Iso for six months	Iso (0.5mg/kg/day) + 800IU cod liver oil	At six weeks, Iso+ Vitamin E significantly decreases cheilitis relative to Iso alone (P=0.037).
	Iso combined with 800IU of vitamin E for 16 weeks	Iso (1mg/kg/day)	There was no difference in the Iso side effects between the 2 groups.
	Iso + 800IU Vitamin E for 20 weeks	Iso (1mg/kg/day)	Vitamin E + Iso more severe irritated dry eyes (P=0.024), peeling of fingertips (P<0.01), muscle cramps/pains (P<0.01), but less increase in total cholesterol levels (P=0.019).
Combination Supplement	Iso + a dietary supplement (γ linolenic acid, vitamin E & C, B-carotene, coQ10, *Vitis vinifera*) twice daily for six months	Iso (20-30mg/day)	The intervention group had less drastic reductions in sebum production rate (P<0.0001), increases in hydration (P<0.0001), less erythema (P<0.0001), and greater adherence to Iso (P<0.0001)

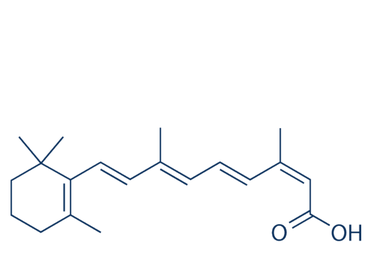

Figure 2. Isotretinoin (13-*cis*-retinoic acid)

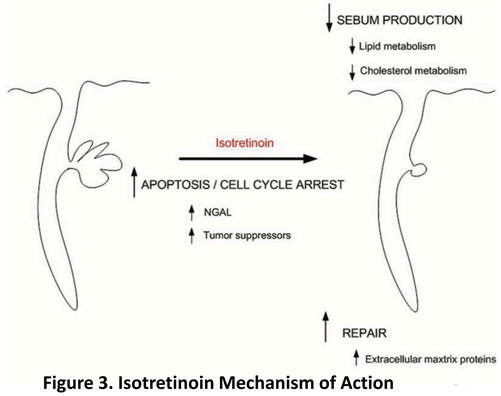

Figure 3. Isotretinoin Mechanism of Action

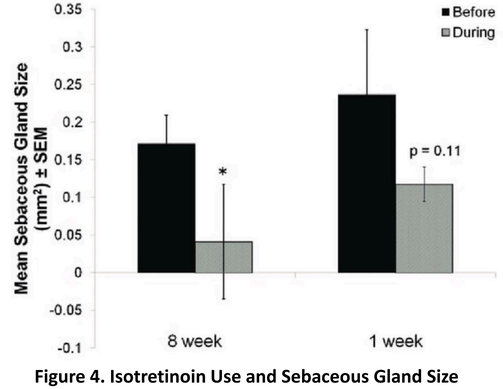

Figure 4. Isotretinoin Use and Sebaceous Gland Size

Discussion

- Isotretinoin side effects are commonly experienced during treatment.
- Out of the 10 studies included, eight found statistically significant reductions in Iso side effects.
- Concurrent supplement use did not take away from Iso's efficacy, and no safety concerns were reported.
- However, only two of the six supplements reviewed had more than one published study investigating its role alongside Iso. Reproducibility of results from further research is needed.
- Further, where there are multiple studies for one supplement, doses varied for omega-3, and duration differed for vitamin E.
- Studies included had small sample sizes- the smallest being N=19, and the largest, N=230.
- Only three of the studies utilized a placebo alongside the Iso for the comparison group. Better control in future research is required to truly assess the efficacy of the oral supplement under investigation.
- More research is also required to understand the potential synergistic effects of these supplements.

Conclusion

The use of Iso alongside oral omega-3s, EPO, folic acid and vitamin B12, L-carnitine, and a combination supplement can decrease Iso adverse effects. However, the effect of oral vitamin E is unclear. Further research is needed to understand the role, and safety, of these oral supplements taken alongside isotretinoin in minimizing associated side effects.

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Potential Therapeutic Use of Curcumin and Ginseng Following a Mild Traumatic Brain Injury: A Narrative Review

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Introduction

Mild traumatic brain injury (MTBI) resulting from a force applied to the brain or body can result in a wide range of cognitive, neurological and systemic symptoms in varying degrees. In cases of recurrent injury, untreated MTBI can progress to serious neurodegenerative disease and result in mortality.

The incidence of MTBI in Canada is 210,000 cases annually, and 1.2% of Ontario's population experiences MTBI each year. Youth and athletes are at highest risk, and repetitive MTBI is a major contributor to mortality world-wide.

In this narrative review we researched the phytochemical properties of the specific herbs, ginseng and curcumin, and their potential therapeutic use for treatment of MTBI. Ginseng and curcumin were chosen due to the number of studies performed, compared to other herbs, that investigated their use and mechanisms of action in improving symptoms following MTBI.

Objectives

To investigate the phytochemical properties of ginseng and curcumin, and potential therapeutic use for treating MTBI.

Search Methods

- PubMed and Cochrane were used to search for articles relating to TBI & botanical medicines.
- Specific botanical medicines searched for: curcumin & ginseng.
- Specific terms searched for: "traumatic brain injury," "natural treatment," "ginseng," "curcumin," and "cognition."
- Research articles were restricted to current studies within the decade and only those used in treatment of TBI.
- Treatments of stroke and other brain-health concerns were excluded.
- Other herbs were found to have similar effects to ginseng and curcumin for MTBI treatment, but were excluded due to less available research for potential clinical applications.

Results

Curcumin

Subjects: Rats under fluid percussion injury	**Treatment:** Fed curcumin derivative CNB-001 **Test:** Morris Water Maze

Results:
- Able to counteract spinal cord deficits (hippocampal learning & fine motor coordination)
- Normalized protein carbonyl levels
- Normalized SOD & Sir2 → Stress resistance & synaptic plasticity
- Inhibition of COX & LOX enzyme → decrease arachidonic acid → supressed NO → prevent inflammation

Ginseng

Subjects: Rats subjected to TBI through controlled cortical impact (CCI)	**Treatment:** Injected with 100mg/kg or 200mg/kg ginseng total saponins (GTS), saline, or no solution **Test:** Morris Water Maze

Results:
- GTS showed a positive effect on hippocampal cell death in a dose-dependent relation
- GTS protected against ischemic damage and fatal ischemic damage in hippocampal neurons through free radical scavenging
- GTS promoted cell proliferation & enhanced survival rate of newborn cells

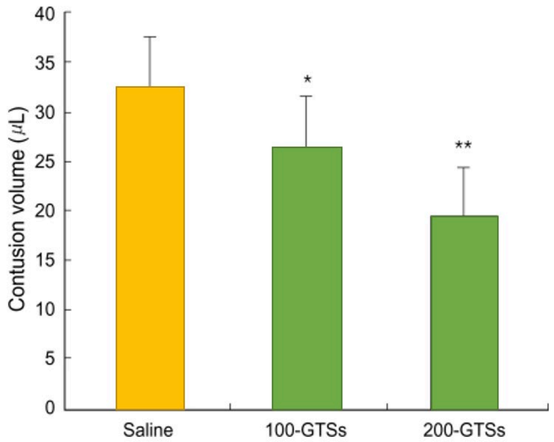

Figure 1. The effects of intraperitoneal injections of saline, 100-GTS, and 200-GTS to TBI-induced rats.

Discussions

Mechanism Hypothesis:

- A component prominent in both ginseng and curcumin, ursolic acid, is responsible for neuronal protection and proliferation leading to decreased secondary adverse effects associated with a MTBI.
- Specifically curcumin may use the TLR4 pathway to reduce activation macrophages and neuronal apoptosis.

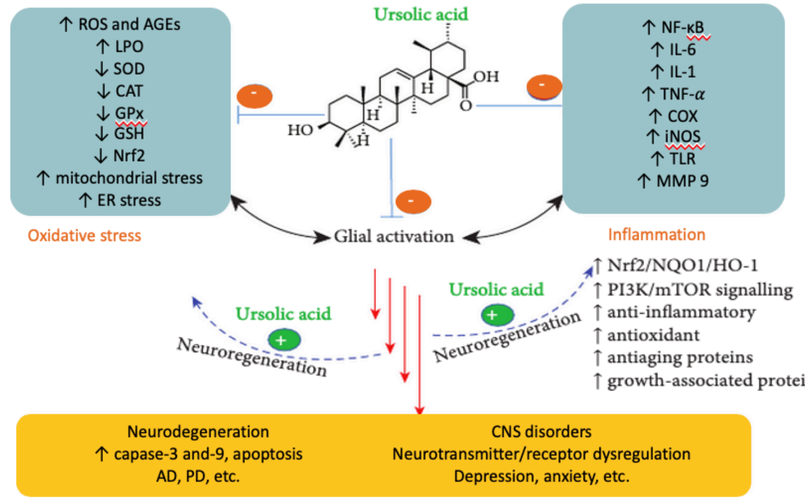

Figure 2. A proposed mechanism for inhibition of inflammation and oxidative stress of the phytochemical ursolic acid present in both Ginseng and Curcumin.

Limitations:

- Only animal models were studied.
- Combination and synergistic effects of herbs were not tested.

Clinical Application

- Both herbs should be cautiously used in practice as no human clinical trials have been conducted.

Conclusions

Although the specific pharmacodynamics are not well understood, the phytochemical constituents of both ginseng and curcumin have been shown to decrease inflammation and reduce oxidation in rat brains, ultimately improving MTBI symptoms and reducing risks of secondary complications.

For references or further questions, please email: mmalik@ndnet.ccnm.edu

No Improvement in Disclosure of Natural Health Product Use to Primary Care Medical Doctors in the Last 15 Years: A Survey of Naturopathic Patients

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Introduction

In 2003, a survey study conducted at the Robert Schad Naturopathic Clinic (RSNC) found that 42% of patients who used natural health products (NHPs) had not disclosed this information to their primary care medical doctors (MDs). The single factor most strongly associated with disclosure of NHP use was whether or not the patient's MD asked about NHP use. Patients' failure to disclosure NHP use to their MDs makes it difficult to recognize or report drug-herb interactions or adverse events.

Objectives

1. To explore if NHP disclosure rate by RSNC patients to their primary care MDs has improved over 15 years.
2. To explore patients' attitudes and factors associated with NHP non-disclosure.

Methods

- All patients aged 18 years and older that attended the RSNC between November 15-24, 2018 and January 24-February 2, 2019 were asked to participate in the study.
- Patients who provided informed consent were given a 21-item questionnaire to complete that inquired about demographics, health care (including use of NHPs and prescription medication), disclosure of NHP use to their primary care MD, and attitudes about NHP non-disclosure.
- Questionnaires were completed anonymously, and participants were allowed to skip or not answer any questions that they did not wish to or feel comfortable answering.
- Frequencies were generated for all collected data. Patient characteristics between the 2003 and 2019 surveys were compared using an unpaired t-test for age and a chi-squared test for dichotomous and categorical factors. Univariable and multivariable logistic regression models explored factors associated with: (1) patient disclosure of NHP use to their primary care MD and (2) MD inquiry about NHP use.

Results

- A total of 25% of patients approached completed the questionnaire (277 of 1112).
- Compared to the 2003 survey, respondents were similar in age, sex and employment status, but less likely to be white and more likely to report higher levels of formal education.
- Patients reported use of the following NHP categories: vitamins and minerals (87%), herbs (59%), probiotics (51%), homeopathic remedies (25%), traditional Chinese medicines (15%), and medicinal cannabis (9%).

Table 1. Characteristics of survey respondents

Characteristic	n=277
Age (mean years ± SD)	40.5 ± 17.2
Female Sex	77.0%
Ethnicity	
White	48.3%
Asian	10.7%
Mixed	9.6%
Jewish	6.3%
Southeast Asian	5.5%
Other	19.1%
Education	
Did not graduate high school	4.4%
Graduated high school	10.3%
Graduated college	17.6%
Graduated university	67.8%
Employed	54.3%
Time attending RSNC	
First visit	9.5%
<1 month	9.8%
1 month-1 year	26.8%
1-3 years	29.5%
>3 years	24.4%
No. of visits to RSNC per year	
1-3	26.6%
4-6	14.0%
7-10	19.9%
>10	39.5%
No. of visits to MD per year	
0-3	61.8%
4-6	17.6%
7-10	9.6%
>10	5.9%

Table 2. NHP use, disclosure, and attitudes

Survey Item	n=277
NHP use	99%
NHP use alone	54%
NHP and prescription medication use	46%
NHP Disclosure to MD	42%
MD did not ask about NHP use	75%
Discussed prescription medication with a Naturopathic doctor (ND)	78%
Concern about potential interactions between prescription medication and NHPs	27%

The most common reasons provided for not disclosing NHP use were: (1) MDs do not approve of complementary and alternative medicine use (21%); (2) MDs would not understand (21%); (3) patients were uncomfortable talking about NHP use (5%); and (4) it was not relevant (5%).

Table 3. Predictors of medical doctor-patient discussion of natural product use

Variable	Multivariable Analysis OR (95% CI)	p-value
Older age	1.02 (1.00-1.04)	0.08
Female sex	1.26 (0.64-2.45)	0.51
Level of education	0.91 (0.65-1.29)	0.60
Duration of time attending RSNC	1.11 (0.97-1.27)	0.13
No. of visits to RSNC per year	1.09 (0.92-1.29)	0.32
No. of visits to MD per year	0.96 (0.73-1.27)	0.77
Patient concern over interactions between prescription medication and NHPs	1.81 (0.96-3.42)	0.07
MD asks about NHP use	5.27 (2.57-10.78)	**<0.001**

Discussions

Implications

- The low and unchanged NHP disclosure rate that is strongly associated with MD inquiry highlights the need to educate MDs on the importance of inquiring about NHP use from their patients.
- In order to encourage a more integrative model of care, NDs should encourage NHP users to disclose NHP use to their MDs.
- Patients also need to be educated on the potential interactions between NHPs and prescription medication.

Strengths

- Use of a previously validated survey.
- Use of a consecutive sampling technique to reduce sampling bias.

Limitations

- A modest response rate of 25%.
- Reliance on self-report for NHP use.
- Restriction of our sample to a single naturopathic teaching clinic.

Unanswered Questions

- Were NHPs used by patients recommended by an ND or self-prescribed?
- Are patients more or less likely to disclose NHP use if the NHP was ND-prescribed compared to self-prescribed?
- Do NDs encourage patients to disclose NHP use to their MDs?

Future Research

- Exploring MDs' reasons for not inquiring about patients' NHP use, identifying strategies to encourage inquiry, and facilitating decision-making with patients.

Conclusions

Disclosure of NHP use to MDs by naturopathic patients is limited and remained unchanged over the past 15 years. Patient disclosure is strongly associated with MD inquiry; however, most do not ask.

For references or further questions, please email: anna.garber@ucalgary.ca

Investigating Natural Therapies for Dysmenorrhea: A Narrative Review

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Introduction

- Primary dysmenorrhea affects more than half of menstruating Canadian women and 15% are incapacitated for one – three days every cycle.
- The first-line drug used to relieve symptoms of dysmenorrhea is ibuprofen. Common side effects of this drug are dyspepsia, nausea/vomiting, rash, pruritus, dizziness, and headache. NSAIDs in general are nephrotoxic and may increase risk of GI bleeding when used in conjunction with SSRIs.
- Although NSAIDs have provided relief for many women since its introduction, about 18% of women are still unresponsive post-administration.
- For these individuals, the next step in treatment protocol would be the added use of hormonal therapy, which introduces its own set of undesirable short- and long-term side effects, such as increasing risk of breast cancer and infertility.

Objectives

To assess the efficacy and safety of dietary supplements that have been under the spotlight for improving negative symptoms associated with primary dysmenorrhea, and identify areas in which research on this topic can improve.

Search Methods

- To start, a search limited to the *Dietary Supplement* subset of the PubMed database was used.
- To further narrow down data, an additional filter was added so that only research pertaining to *Humans* would be generated.
- Lastly, only therapies that had a placebo comparison, used VAS as an outcome measure, and had at least two RCTs pertaining to its use were included in this review.

Table 1. PICO Framework

Population	Intervention	Outcomes
• Menstruating individuals with primary dysmenorrhea	• Any therapy that falls under the naturopathic scope	• Visual Analog Scale (VAS) to objectively measure pain

Results

Table 2. Vitamin D

Authors	Intervention	Comparison	Results
Lasco et al. 2012	Single dosage of 300,000 IU 5 days before the predicted onset of menstruation	Placebo	A significant reduction of pain was seen compared to placebo. No NSAID use was recorded in the vitamin D group, while 40% of women in the placebo group took NSAIDs at least once.
Moini et al. 2016	Weekly dosage of 50,000 IU	Placebo	There was a significant difference in pain intensity at four and eight weeks of treatment.

Table 3. Fish Oil/Omega-3 Fatty Acids

Authors	Intervention	Comparison	Results
Sadeghi et al. 2018	300 mg/day (180 mg EPA, 120 mg DHA)	Placebo	The omega-3 supplement effectively relieved menstrual pain more than placebo.
Hosseinlou et al. 2014	500 mg/day	Placebo	Pain intensity and duration was significantly less compared to placebo at 1 & 2 months.
Moghadamnia et al. 2010	755 mg/day (550 mg EPA, 205 mg DHA)	Placebo	There was a significant difference in VAS pain scores following 3 months of supplementation, as well as a marked reduction in low back pain, abdominal pain, and ibuprofen use.

Table 4. Ginger

Authors	Intervention	Comparison	Results
Kashefi et al. 2014	Daily unknown dose for 4 days	Placebo	Patients reported more alleviation of pain q24 hours for all 4 days.
Jenabi et al. 2013	1500 mg/day for 3 days; starting at onset	Placebo	The decrease in VAS scores was significantly greater than the placebo group. In addition, 29 ginger subjects reported improvement in nausea symptoms, compared with 16 for placebo.
Rahnama et al. 2012	1500 mg/day for 5 days; starting 2 days before onset	Placebo	There was a significant difference in pain severity and duration, with the ginger group reporting 11 hrs less in pain duration.

Discussions

Strengths: most of the RCTs are double-blinded, consistently positive results seen for all interventions.

Limitations: small sample sizes, inconsistent dosing and duration among studies.

Mechanisms of Action

- The symptoms associated with dysmenorrhea are by-products of an inflammatory response triggered by the onset of progesterone withdrawal before menstruation, leading to production of prostaglandins and leukotrienes.
- **Vitamin D** → may work by decreasing the level of proinflammatory cytokines such as IL-6 and tumour necrosis factor, and regulating the expression of several key genes involved in the prostaglandin pathway.
- **Fish oil** → leads to more prostaglandins of the 3rd series being produced. These less potent prostaglandins likely lead to decreased uterine contractions and vasoconstriction, correlating with less pain.
- **Ginger** → inhibits cyclooxygenase and lipoxygenase pathways in prostaglandin and leukotriene synthesis.

Further Research

- Larger trials are needed to determine standardized dosing and duration of each intervention.

Conclusions

Based on available evidence, correcting a vitamin D deficiency, and encouraging the safe consumption of fish oil daily and ginger acutely may be worth considering as a frontline treatment plan for patients with primary dysmenorrhea. Supplementations of each have shown to mitigate menstrual pain, as well as reduce the need for NSAID use in some studies. By preventing the use of NSAIDs and hormonal therapy, the short- and long-term risks these pharmaceuticals carry can also be avoided.

For references or further questions, please email: nkexel@ndnet.ccnm.edu

Acupuncture as a Treatment for Depression in Cancer Patients: A Literature Review

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Introduction

- One in two Canadians are diagnosed with cancer in their lifetime; one in five will experience depression while they have cancer.
- Acupuncture can treat cancer patients for a wide range of cancer-related physical symptoms such as nausea and vomiting, as well as psychological symptoms such as depression, anxiety and insomnia.

Objectives

This presentation will focus on current evidence on using acupuncture to treat depression in cancer patients, which includes methodology and how it compares to conventional treatments.

Search Methods

- A literature search was conducted on PubMed using the search the terms “acupuncture,” “cancer” and “depression.”
- Articles over 10 years old were excluded.

Table 1: PICO framework

Population	Intervention	Outcomes
• Adults • Cancer patients with depression	• Acupuncture	Primary: • Reduced scores of depression from depression measurement scales Secondary: • Quality of life (including decreased scores for anxiety and insomnia)

Results

One randomized controlled trial (RCT), one observational data collection study and one literature review were used to analyze the efficacy of treating cancer patients with depression.

Figure 1: Types of primary cancer treated with acupuncture in the RCT and observational study

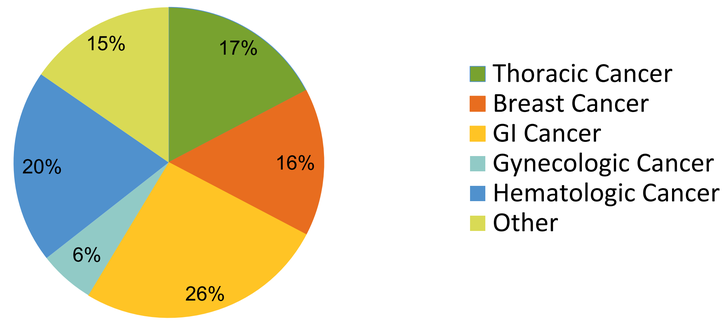

Table 2. Details and results of reviewed studies

Study Design	Acupuncture Points	Methodology	Time, Length & Frequency	Results
RCT (Feng et al,. 2011)	ST 40, SP 6, SP 9, SP 10, Yin Tang, GV 20, Sishencong, PC 6 and Shenmen	Neutral supplementation and drainage TCM Diagnosis for the inclusion criteria was Phlegm-Stasis Binding	Once per day for 20-30 mins. for 30 days	Significant improvement for depression and insomnia scores to an even greater degree than the control group taking Fluoxetine.
Observational Study (Miller et al., 2018)	SP 6, Yin Tang, LR 3, LI 4, KI 3, ST 36 and UB 60 as well as local pain points	No manipulation	15-40 mins. Number of sessions and frequency determined by Provider and Patient (Median # of visits: two)	Significantly decreased scores of pain and depression. Also improvement with anxiety, drowsiness, nausea and well-being.
Literature Review (Haddad & Palesh, 2014)	No specific points stated	Electro-acupuncture was used in 1/5 studies that measured depression levels but did not show significant improvements compared to the control (Sham Acupuncture)	The studies that had significant improvements in depression levels ranged from 12 sessions in eight weeks, six sessions in six weeks and two sessions in two consecutive days postop	Overall, acupuncture decreased levels of depression of cancer patients. Other quality of life parameters measured in these studies that improved were sleep quality and anxiety.

Discussions

Potential Mechanisms of Action

- Acupuncture can increase levels of neurotransmitters such as norepinephrine, dopamine and serotonin through the nervous and immune systems.
- It can improve depression and sleep quality by increasing cerebral blood flow.
- It reduces inflammation by decreasing levels of pro-inflammatory cytokines, including interleukin-6.

Limitations

- Many of the studies analyzed in the literature review lacked methodological details.
- Small number of studies done on this topic with small sample sizes.

Clinical Application

- In the RCT that compared acupuncture and 20 mg of Fluoxetine, depression levels were analyzed using the Hamilton Depression Rating Scale (HAMD). The treatment and control group both started with HAMD scores of approximately 21 and after treatment the scores were around 10 and 14, respectively, which is significantly improved from the initial scores.
- Fluoxetine has many more adverse effects (e.g., GI symptoms, anxiety and sexual dysfunction), but may be a heavier burden on resources.

Further Research is Needed That:

- Clearly states and compares acupuncture methodologies, frequencies and length of treatments.
- Have larger sample sizes.
- Specifically notes and compares its effectiveness for treating depression in patients with different stages and types of cancer.

Conclusions

Acupuncture can relieve symptoms of depression in cancer patients to an even greater degree than conventional treatment (e.g., Fluoxetine) and alleviates other cancer-related symptoms as well, including insomnia, anxiety and pain.

For references or further questions, please email: EEckstrand@ndnet.ccnm.edu

Are We Supporting the Well-being of Medical Students?: A Scoping Review

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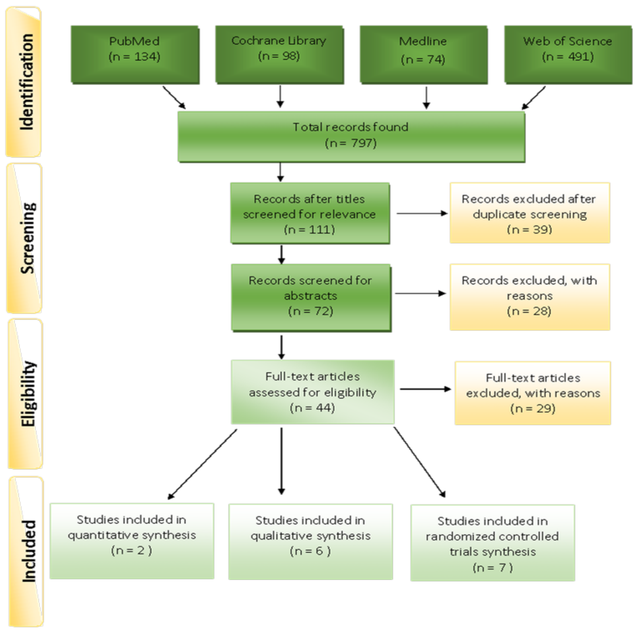
Introduction

- Medical students experience significant stress and mood impacts due to heavy academic workload, deadlines, financial loans, work relationships, and uncertain career choices.[1,2]
- Unresolved stress leads to high physiological arousal impacting mood, burnout, physical impairments and increased risk of unethical behaviour.[3]
- Medical students experiencing stress tend to isolate themselves rather than seek out assistance.[4-5] Barriers to seeking help may include; stigma associated with use of mental health services, costs, shortage of time, and fear of academic documentation.[6]
- Few studies have established distinct coping strategies which improve well-being of medical students and there is a lack of evidence on the role and impact of stress specifically on naturopathic medical students.

Objectives

To review the available literature on strategies shown to improve well-being of medical students. Will serve as a background/review for an observational study of a program to promote wellness among naturopathic medical students.

Methods



- Search terms: *"medical students", "wellbeing", "strategies", "tools", "coping", "support", "stress management"*

Results

- **Information collection methods included:** interviews, small group meetings, essays, questionnaires and surveys.

- **Common interventions included:**
  - Stress management workshops
  - Resilience training
  - Mindfulness meditation
  - Reflective practice

- **Common rating scales and questionnaires evaluating effectiveness of interventions:**
  - General health questionnaire
  - CAGE questionnaire (screening for substance abuse)
  - Five Facet Mindfulness Questionnaire
  - Maslach Burnout Inventory

- **Common themes:**
  - The negative impact of course load and poor team dynamics on medical student well-being.
  - When questioned, students recommended well being focused programs and saw benefit in having supportive resources.
  - Positive results of wellness interventions were sustained when studies included delayed follow up.

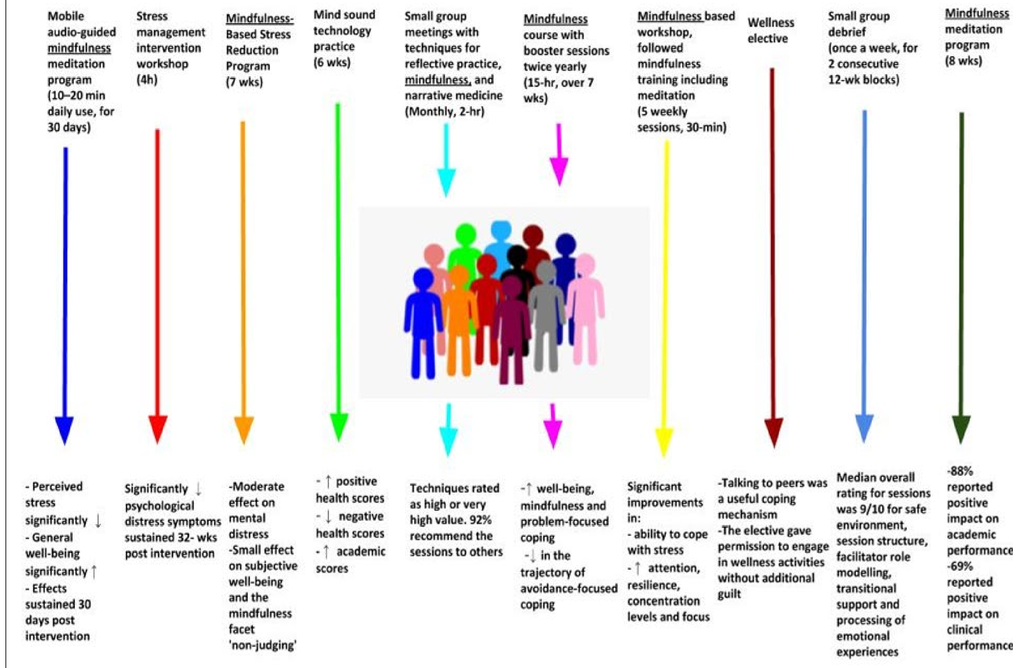


Figure 1. Interventions and results

Discussions

Significance

- Research indicates the negative impact of burnout on medical students and their future patients, therefore, promotion of the mental health and well-being of medical students benefits not only the health of the student, but also impacts the health care of their future patients.[7]
- Research shows the importance of also incorporating student wellness initiatives in naturopathic medical school since these students face similar pressures and experiences.

Clinical Application

- A variety of potential positive interventions have been elucidated in the research.
- This review of strategies shown to improve well-being of medical students serves a basis for a future observational study with the intention to build and evaluate a program to promote wellness among naturopathic medical students.
- This information justifies the need for more of these types of studies. It also provides a guide for the types of evaluation criteria best suited for this topic, along with the types of results to look out for.
- Results of this review are in support of the implementation of wellness focused strategies in the medical school curriculum to be accessible to all students during a demanding educational program.
- Studies showed that a barrier to accessing well-being resources was the lack of time due to vigorous medical course loads. Therefore, including interventions in the curriculum foundation may overcome this barrier.

Limitations

- Heterogeneous populations were examined (some studies also included populations other than medical students).
- Different interventions and outcome measures were utilized in the studies which limits the ability to compare the impact and results.
- Much of the research in this area is focused on identifying and stating the problems medical students face, rather than how these issues are and should be further addressed.

Conclusions

Studies showed variation in the interventions and outcome measures used to evaluate the issues surrounding medical student mental health; however, the common theme of students benefiting from wellness strategies was prevalent. Further studies are warranted to develop curriculum changes allowing similar programs to be accessible to all medical students.

For references or further questions, please email:
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Effects of Short Term Fasting on Cancer Treatment: A Narrative Review

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Introduction

- The lifetime prevalence of breast cancer in Canada is 12% .
- One third of women with breast cancer will need chemotherapy.
- Traditional chemotherapeutic used to treat breast cancer have many adverse effects. Adverse effects include: hyematologic toxicity and DNA damage.
- In the intervention group, patients began fasting 24h before being administered chemotherapy and continued to fast 24h after.
- Currently, there is limited research supporting the efficacy of fasting in patients with breast cancer.

Objective

To assess the effects of short term fasting as an adjunct to chemotherapy in patients with HER-2 negative breast cancer. Specifically, adverse effects of chemotherapy.

PICO

- **Population:** Patient with breast cancer
- **Intervention:** Short-term fasting and chemotherapy
- **Control:** Eat according to guidelines for healthy nutrition
- **Outcome:** Hematological toxicity, DNA damage, quality of life and fatigue

Results

- In the first study, six patients were randomized in a 1:1 ratio to fast beginning 24h before and lasting until 24h after start of chemotherapy (short-term fasting group) or to eat according to the guidelines for healthy nutrition with a minimum of two pieces of fruit per day (non short-term fasting group).
- Short-term fasting may induce a faster recovery of DNA damage in peripheral blood mononuclear cells after chemotherapy.
- Hematologic parameters measured on day 0 (Immediately before chemotherapy infusion, when the STF group had fasted for 24 h), were similar in the two groups.
- Erythrocyte counts were significantly higher in the STF group during chemotherapy treatment at day 7 and at day 21 compared to the control group.
- Thrombocyte counts were only significantly higher at day 7 in the STF arm compared to the non-STF arm.

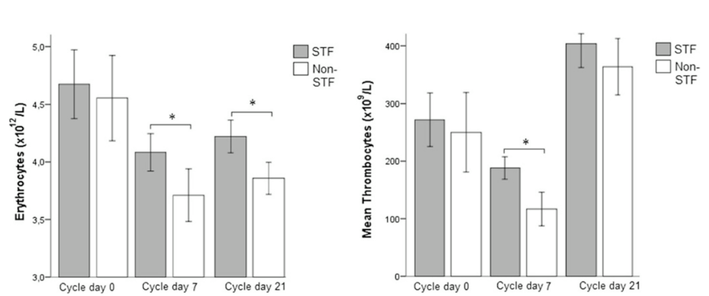

Fig. 2 Hematologic parameters compared between both groups. Values are measured on day 0 of cycle 1 immediately before the chemotherapy infusion, on day 7 of cycle 1–5 combined and day 21 of cycle 1–5 combined. * *P* value <0.05. STF; short-term fasting, Reference values: erythrocytes 4-5*10^{12}/L; thrombocytes 150-400*10^{9}/L

- The second study was a randomized controlled cross over trail of 34 (30 with breast cancer) patients aged ≥18 years and BMI ≥19 kg/m^2.
- The treatment groups started chemotherapy cycle with short term fasting (36 hrs. before and 24 hrs. after chemotherapy) followed by a normocaloric diet vs the control group which were only prescribed a normocaloric diet.
- Short term fasting during chemotherapy is well tolerated and appears to improve quality of life and fatigue during and after chemotherapy.
- Fasting was safe and all reported side effects were of low grade and at a level that did not interfere with daily activities.
- There were no evidences of malnutrition in participants.

Discussion

Mechanism Hypotheses

- Fasting promotes pronounced changes in metabolic pathways and cellular processes such as stress response (hormesis), autophagy and decrease IGF-1 that affects other factors as Akt, Ras and mammalian target rapamycin (mTOR) to downregulate cell growth and proliferation.
- The effects of short-term fasting on susceptibility to chemotherapy differ between healthy somatic and cancer cells, a phenomena called differential stress resistance.
- In healthy cells, nutrient deprivation shuts down pathway promoting growth to invest energy in maintenance and repair pathways that contribute to resistance to chemotherapy.
- In contrast, tumor cells are unable to activate this protective response due to uncontrolled activation of growth pathways.

Strengths

- The present study included women with breast cancer and ovarian cancer and used as intra-individual randomized cross-over study design to balance for the heterogeneity in disease states and chemotherapy protocols.
- The intervention is easy to implement and few adverse effects.

Limitations

- The study results are limited to only breast cancer
- Small sample size for both studies which limited the power of the study and precludes firm statistical conclusion
- Due to the positive reputation of fasting cures in Germany, participants in the study could be predisposed to wards fasting, which may have created placebo or nocebo effects
- Its difficult to create a placebo against short-term fasting

Conclusion

- Short-term fasting is a feasible and non-invasive intervention that may increase the efficacy of chemotherapy and reduce chemotherapy induced side effect in patients with breast cancer; however more research is needed with larger sample sizes.

Different Health Professionals' Use of Strontium: A Narrative Review

Brittany Harris DCHM, CCNM Student (1), Dr. Paul Saunders, PhD, ND (1,2,3)

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Introduction

The medical paradigms of the western medical system, naturopathy and homoeopathy seem contradictory; however, the professions overlap. One such overlap is strontium, used by all three for bone pathologies. Each discipline uses a different salt: strontium ranelate is a synthetic, prescription salt, strontium citrate is a supplement, and strontium carbonate is a homoeopathic remedy. In this paper, strontium's use is compared to illuminate where professions are similar, and where they differ.

Search Methods

Database/Journal Searched	Search Terms	Results
Pubmed	Strontium ranelate	806
	Strontium citrate	132
	Strontium carbonate	80
	Strontium homeopathy	1
Cochrane	Strontium ranelate	198
	Strontium citrate	7
	Strontium carbonate	27
	Strontium homeopathy	0
Simillimum	stront	2
Cullen's Materia Medica	stront	0
Hering's Materia Medica	stront	0
Hering's Guiding Symptoms	stront	1
New England Medical Gazette (1866-1918)	stront	8
The British Journal of Homoeopathy (1843-1881)	stront	20
The Hahnemannian Monthly (1865-1922)	stront	21
The Homoeopathic Recorder (1886-1922)	stront	19
Reine Arzneimittellehre by Hartlaub and Trinks	stront	1
Google	cardalgia, hartmann	62
	Ruck, KI, Erf. Vol 1.	702,000
	Ruck Stront	139,000,000
	cramps in legs, Veith stront	7,530,000
Hartmann's theory chronic diseases	stront	2
British homoeopathic journal	stront	10
American Journal of Homeopathy 2013-2019	stront	0
Homeopathycenter.org	strontium	19
	Stront	6
Referenceworks software	stront-c	55

Highlighted boxes are sources that require a paid subscription.

Results

Figure 1. Number of publications on strontium by salt/discipline

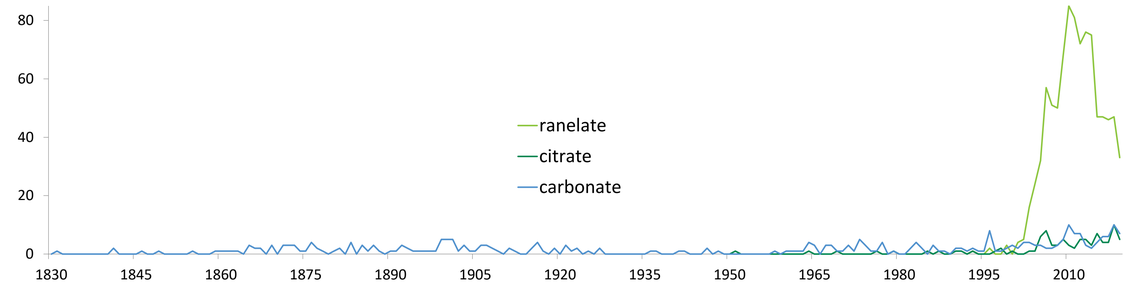
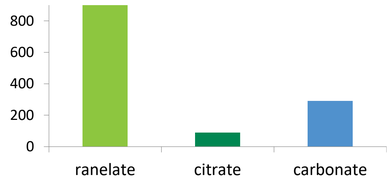


Figure 2. Total number of studies



- A sample of 20 studies per discipline were selected and analyzed for testing subjects used, type of study and indications.

Figure 3. Test subject by strontium salt

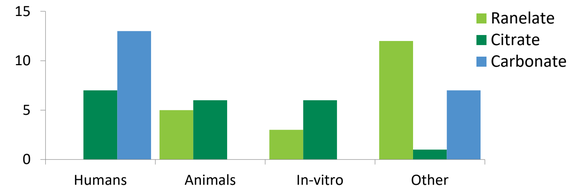


Figure 4. Type of study by strontium salt

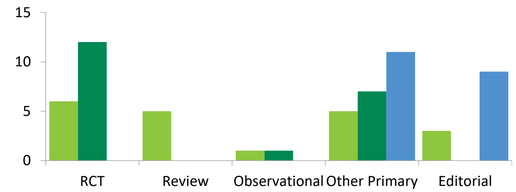


Table 2. Indications/Actions

Ranelate	Citrate	Carbonate
Sarcopenia	Hypersensitive teeth	Osteoporosis
Osteoporosis	Osteopenia	Hay fever
Osteoarthritis	Bone turnover/formation	Paralysis of the lower limbs
Anti-inflammtory	Toxicity	Urine smelling of ammonia
Analgesic	Gingival fibroblast stimulation	Toothache with screwing together sensation
Bone formation	Enamel remineralization	Burning in anus after stool
Adverse Events related to HLA type	Increasing bone strontium levels	Tearing in teeth preceded by increased saliva
Cardiovascular risks		Pressure in stomach, amel eating
Bone turnover/formation		Chest tightness when walking
Fracture healing		Nocturnal dry cough from irritation in trachea
Bone resorption		Palpitations
Hemostasis		Pressing pain in the chest
Adipocyte differentiation		Nocturnal tearing pain in the joints
		Pains in the cylindrical bones and marrow
		Frequent awaking at night from coughing
		Arteriosclerosis. High blood pressure with flushed face pulsating arteries, apoplexy.
		Affections of bones, especially femur
		Sciatica with ankle edema

Highlighted fields are relevant to bone pathologies

Discussion

Drawbacks of ranelate data

- Large number of non-human study subjects
- It's new/synthetic
- Studies' focus is myopic

Drawbacks of citrate data

- Large number of animal studies
- Relatively few data
- Studies' focus is myopic
- Unclear clinical efficacy

Drawbacks of homoeopathic carbonate data

- Hard to find data and expensive to get access
- Many sources are editorials with no or few citations
- No way to infer efficacy
- Relatively little primary research

Strengths of ranelate data

- Accessible to researchers/students/the public
- Diagnosis – specific data
- Mechanism of action understood
- Comprehensive research

Strengths of citrate data

- Accessible to researchers/students/the public
- Diagnosis-specific data
- Mechanism of action understood
- Large percentage of RCTs

Strengths of homoeopathic carbonate data

- All primary research is on humans
- Symptom-specific data
- Thorough list of indications
- Predicted the toxic cardiovascular effects before any of the other data sources
- Data begins to appear 100 years prior to the other salts

Conclusion

Even though medical doctors, homoeopaths and naturopaths differ in their philosophies of practice, they have independently agreed on the osteogenic effects of strontium. Strontium reminds us that these professions are not diametrically opposed as is believed.

For references or further questions, please email: brett.15.harris@gmail.com

The Potential Therapeutic Effect of Topical Cannabinoids in Psoriasis: A Review of the Literature

Adrienne Elgie, BHK [1], Adam Gratton, MSc, ND [1]

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Introduction

- Psoriasis is a common chronic, inflammatory dermatological disease characterized by skin lesions characterized by disrupted keratinocyte physiology.
- Despite a number of pharmacological interventions available, achieving total clearance is difficult and the side effect profiles of many of the available interventions is extensive.
- The role of the endocannabinoid system (ECS) in the skin has been studied extensively, suggesting a very complicated homeostatic signaling network. Several receptors have been identified that play a role in dermal proliferation and differentiation and immune activation.
- Phytocannabinoids (PCs), such as Δ9-tetrahydrocannabinol (THC) and cannabidiol (CBD) from *Cannabis sativa* and *C. indica* have been shown to interact with the ECS suggesting potential therapeutic use.

Objectives

The objective of this review is to evaluate the potential therapeutic effects of topical cannabinoids in patients with psoriasis and suggest a possible mechanism of action by reviewing available evidence.

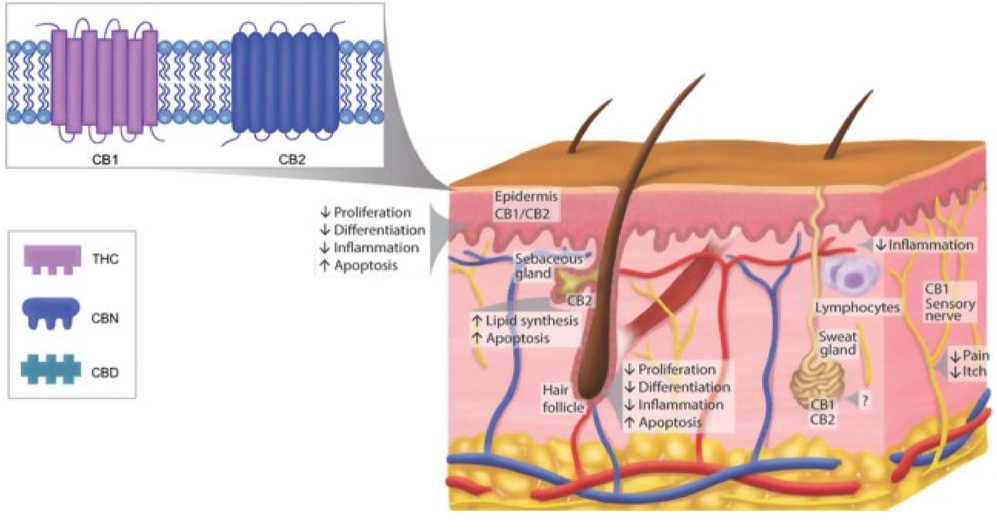
Search Methods

- A general search was conducted using the terms “cannabinoids” and “psoriasis” without limits. Only 23 studies were available, many of which are narrative reviews. Reference lists were analyzed for additional studies.
- Only one small human study has been published to date.

Results

A variety of potential therapeutic mechanisms for cannabinoids with psoriasis have been described in the literature:

- Inhibition of angiogenesis by reducing VEGF stimulation through inhibiting genetic expression of HIF-α.
- Reduced expression of VEGF receptor-2 and inhibition of VEGF stimulated angiogenesis.
- Inhibited expression of inflammatory cytokines IL-8, IL-1, TNF-α, IFN-γ.
- Downregulation of IL-17 expression in T helper cells via CB2 receptor activity.
- Modulation of a number of pro-inflammatory cytokines through CB1 receptor activation such as TNF-α, IL-17 and IL-23.
- Inhibition of keratinocyte proliferation through agonist interaction with PPAR-γ receptors.
- Inhibition of epithelial cell migration through suppression of MMP-2.
- Decreased leukocyte infiltration by reducing VCAM-1 and ICAM-1 on the surface of epithelial cells, potentially via the reduction of Ang-2 expression.
- Alteration in granulocyte metabolism resulting in reduced oxidative stress and inflammation.
- Inhibition of antigen-processing and T-cell/macrophage interactions.
- A small trial using a CBD enriched ointment in humans suggests a statistically significant improvement in PASI scores with 90 days of treatment.



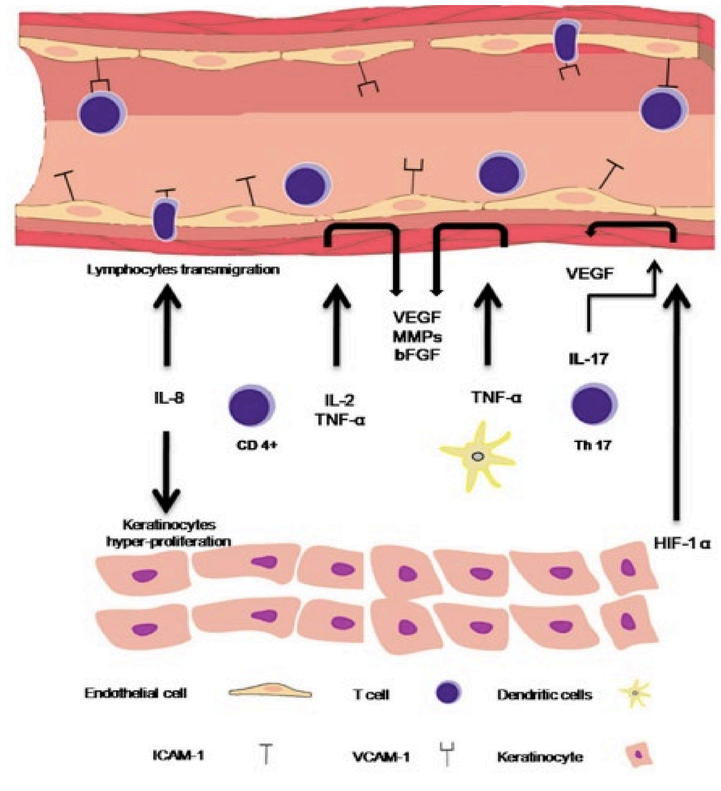
For references or further questions, please email: celgie@ndnet.ccnm.edu

Discussion

- The evidence suggests that cannabinoids have the potential to reduce several key pathophysiologic features of psoriasis: inflammation, angiogenesis, immune activation and recruitment, and keratinocyte proliferation.
- PCs have been shown to interact with CB1, CB2, PPAR-γ, and other receptors necessary to cause physiologic change.
- The high lipid solubility of PCs make them a good agent for topical delivery which reduced systemic effects.

Conclusion

Much is still unknown about the exact role of the ECS in dermal health and human data is scarce. Animal data and a small human trial suggests that topical PCs may be beneficial in reducing the dermatological manifestations of psoriasis. More research is needed to fully capture the potential side effects of this therapy and if these effects are sustained beyond 90 days.



The Potential Therapeutic Effect of Topical Cannabinoids in Atopic Dermatitis: A Review of the Literature

LaToya S. Lewis, BBA, CCNM student [1] and Adam Gratton, MSc, ND [1]

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CCNM Canadian College of Naturopathic Medicine

Introduction

- Atopic dermatitis (AD) is a chronic relapsing-remitting inflammatory dermatological disorder characterized by itching and dermal barrier dysfunction.
- Chronic pruritis is the most debilitating sign leading to self-trauma, sleep disturbances and decreased quality of life.
- Topical corticosteroids remain the current intervention of choice, despite safety concerns as severe as cancer and immunosuppression.
- As of 2017, the annual economic burden of AD including medical costs, loss of productivity and quality of life implications, is estimated at $5.3 billion.
- Due to major burdens associated with economic and quality of life factors, there remains a need for effective and safe topical therapies for AD.
- Clinical trials have shown a decrease in pruritis in many dermatologic and systemic conditions (psoriasis, atopic dermatitis, uremic pruritus, asteatotic eczema and cholestatic pruritus) with the use of topical cannabinoids.
- Preliminary human studies warrant controlled trials to confirm whether topical phytocannabinoid use can effectively treat the symptoms related to atopic dermatitis (i.e., pruritis).

Objectives

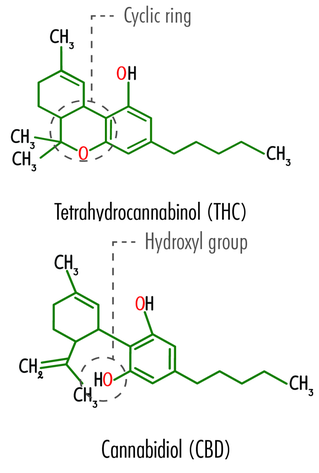
The objective of this literature review is to evaluate the potential effects of topical cannabinoids in patients with atopic dermatitis specifically related to a reported reduction in pruritus.

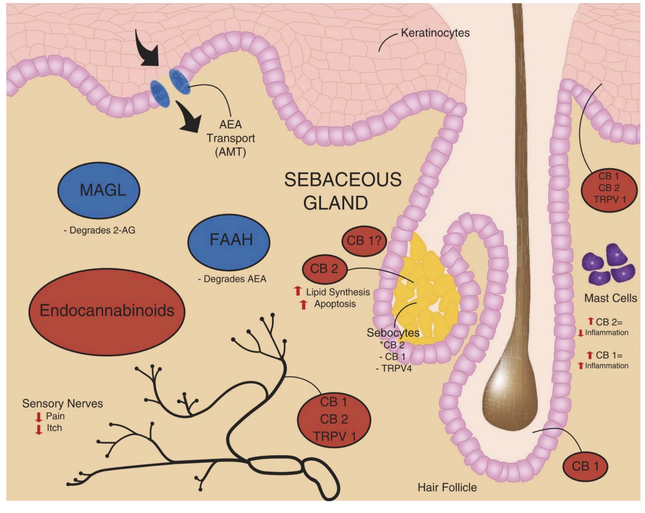
Search Methods

- A literature search was conducted on the PubMed and Cochrane databases using the search terms “cannabinoid receptor,” “atopic dermatitis,” “eczema,” “pruritus,” “histamine,” “mast cells” and “endocannabinoid system.”
- All types of study designs were included.
- A totally of eightstudies were included in this literature review.

Results

Authors	Intervention	Study Type	Results
Marsella et al., 2019	Topical endocannabinoid membrane transporter inhibitor (1% gel; 2mg/cm2) was applied to the inguinal region of atopic canine (beagles) twice daily for 21 days, after an eight-day challenge period.	Randomized, vehicle controlled, double-blinded study	Significantly lower mean difference in CADESI scores (Canine Atopic Dermatitis and Extent Severity Score Index) in the treatment group versus the vehicle group (2.42 points, 16.34 points, respectively). Decreased pruritic acts on inguinal area and overall in the intervention group compared to the vehicle group (p=.048 and p=.032, respectively)
Nam et al., 2016	CB1 receptor agonist: AEA Hu-308	In vivo study	Dose-dependent decrease in mast cell proliferation, with 43% reduction within 24hrs, decreased MC recruitment to the skin and decreased histamine levels in the blood
Eberlein et al., 2008	0.3% Palmitoylethanolamine (PEA) cream was applied twice daily to affected area for 6 weeks	Investigator-blinded, split body, randomized trail	Significant decrease in pruritus (60%, $P < 0.001$) after six weeks. Sleep quality improved significantly during the study period. The mean score for loss of sleep declined 47%, ($P < 0.001$) Significant reduction in symptoms (excoriation, scaling and erythema) with an average reduction of 58.6% for the entire population
Yuan et al., 2015	Emollient cream with PEA/AEA (.3% PEA, .21% AEA) was applied to the affected area twice daily for 28 days	Monocentric, randomized, double-blinded, comparative trail	Patients reported a reduction of pruritus based on VAS (visual analogue scale) from 4.9 to 2.7 after six days of treatment and a further reduction to 2.0 at study end ($P < 0.001$).
Szepietowski et al., 2005	DMS cream containing endocannabinoid AEA and physiological AI cream containing PEA applied twice daily for 3 weeks to patients with Uremic pruritus	Non-randomized, non-blinded, open observational study	Pruritis was completely eliminated in eight patients after three weeks. Significant reduction in pruritus scores based on VAS and questionnaire ($P<0.0001$).





Discussion

- The endocannabinoid system (ECS) has an integral role in maintaining skin health by acting on receptors present on various cells and sensory nerves to modulate keratinocyte differentiation, skin barrier function and local immune responses that if not adequately maintained, can result in inflammatory skin diseases.
- The literature suggests that the ECS may elicit an anti-pruritic effect due to its role in the regulation of neuronal transmission in the itch sensory pathway, through direct binding of receptors on the nerve; along with local modulation of keratinocytes and mast cells.
- Inflammation heavily contributes to the pathogenesis of pruritis by way of local inflammatory factors such as histamine, cytokines and neuropeptides that serve as pruritogens.
- Increased endocannabinoids in neural tissue decreases histaminergic itch by inhibiting mast cell activation, proliferation and degranulation.
- Although the reported benefits on inhaled cannabinoids in the management of neuropathic pain appear promising for treating pruritus, there have been no reports on the effects of inhaled cannabinoids on pruritis.
- Topical cannabinoids have a high safety profile, with much of the anti-pruritic effects contributing to non-THC cannabinoids and are readily absorbed through the skin.

<u>Limitations</u>

- Cannabinoids may have different effects depending on the origin of the pruritus and the variability of the cannabinoid structure, delivery method and formulation.
- Lack of double-blinded controlled clinical trials in humans.

Conclusion

The integration of cannabinoids with conventional anti-pruritics is suggested to be a safe and effective intervention to alleviate itch, where it is legal. Additional research is required to further demonstrate the underlying mechanism and determine a standard therapeutic value.

For references or further questions, please email: llewis@ndnet.ccnm.edu

Dietary Counseling in Schizophrenia Spectrum Disorders: Creation & Evaluation of an Evidence-Informed Psychoeducational Tool

Monique Aucoin [1], Laura LaChance [2], Kieran Cooley [1,3]

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Introduction

- Diet has been identified as a modifiable risk factor for schizophrenia spectrum disorders; however, clinical use of dietary modification remains limited.
- A recent scoping review identified all of the scientific literature related to diet and psychosis.

Objectives

Using the results of the review, this project's objective is to create and evaluate an evidence-based psychoeducational tool for front-line clinicians and patients to use in implementing dietary recommendations as part of clinical treatment of psychotic disorders along with a brief clinician guidance document.

Methods

The tool creation and evaluation will be guided by a number of strategies, theoretical frameworks (Pender's, Theory of Planned Behaviour) and established recommendations for nutrition handouts.

In order to ensure that this diet tool will meet the needs of clinicians and patients, we will undertake a process to evaluate the tool through two focus groups with clinicians (four) and individuals with lived experience (six to eight), either clinically stable patients or family members. Feedback will be gathered to gage if the tool is helpful, clear, relevant and culturally sensitive. We will inquire about obstacles to implementing the advice, and recommendations for revision. The sessions will be audio recorded with participant permission for review and thematic, inductive analysis. Recordings will be transcribed and analysed by two investigators. The tool will be revised according to feedback and a brief second interview will allow for feedback on the revised version.

Additional feedback will be gathered from experts in the field including ISNPR participants like yourself! Please review the draft and give us your feedback.

Results

- This project is ongoing with participant recruitment for the focus group underway.
- The following draft has been created for focus group and expert feedback.

Eating well for mental health

A tool to support people affected by severe mental illness

The food we eat affects our body and mind. You can make healthier choices that will improve your health. Circle ideas that appeal to you.

Choose complex carbohydrates
- Whole grain bread or pasta instead of white
- Instead of white rice, try brown rice, wild rice, quinoa, oats
- Vegetables like potatoes, sweet potatoes, corn, squash

Choose healthy fats and sources of omega-3
- Eat fish and seafood (oysters, mussels, shrimp) at least 3 times per week
- Add nuts and seeds to meals or enjoy as a snack
- Decrease deep fried foods (French fries, fried chicken)

Reduce highly processed foods and sugar
- Drink water as your main beverage instead of pop, juice and iced-tea
- Have pleasure foods like cookies, cakes, muffins, ice cream, candy as a special treat, not every day

Include vegetables & fruits with meals and snacks
- Increase amount and variety - try to eat the rainbow
- Try salad, veggies and dip, frozen vegetables added to meals
- Try fruit that is fresh, frozen or canned as a snack or dessert

Eat protein-rich foods throughout the day
- Try fish, seafood, chicken, turkey, beans, lentils, nuts, seeds, soy, eggs, and meat

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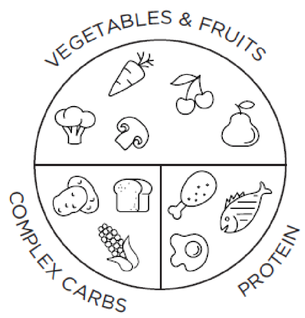

Example meals:

Breakfast
- Oatmeal with nuts/seeds and berries or banana
- Eggs with fruit and whole grain toast or potatoes

Lunch or Dinner
- Salad with protein-rich food (ex: chickpeas, hard-boiled egg, canned salmon) and healthy fat (ex: nuts, avocado, olive oil)
- Whole grain pasta with chicken, vegetables, and your favourite sauce

Snack or Dessert
- Vegetables with hummus
- Apple with peanut butter, Greek yogurt with fruit

I'm going to try / Personal example / I might like:

Healthy foods that are not expensive:

Tip: Choose foods in season, shop at budget grocery chains, avoid convenience stores, look for sales and stock up on non-perishable foods

Frozen vegetables and fruit	$3-4 per bag (4 or more servings)
Canned fish and seafood (tuna, oysters, salmon)	$1-3 per can (1 serving)
Canned beans and lentils	$1 per can (2 servings)
Eggs	$2-3 per dozen (6 servings)
Grains in large packages (brown rice, oats, whole grain pasta)	$3-5 per bag (5 or more servings)

Individualized goals

Habit I would like to continue:

Changes I would like to make:

Who can help me achieve these goals?

Why healthy eating is important to me?

Preparing food for yourself and making healthy dietary choices is self-care. Small changes add up. Share this activity with others as a way to support each other and improve well-being.

Discussions

We want to know what YOU think! Use the post-its provided to share your thoughts. You may consider the following questions:

1. What are some of your thought about using this tool?
2. What part of the tool do you find most helpful?
3. What challenges or obstacles do you see that might prevent you from using the tool?
4. Is there anything that you don't like about the tool?
5. Do you have recommendations that would help make the tool more useful?

Scoping Review: Aucoin M, LaChance L, Cooley K, Kidd S. Diet and Psychosis: A Scoping Review. Neuropsychobiology. 2018 Oct 25:1-23.

We want to hear from you! Write your feedback on a post-it or email us:

Monique maucoin@ccnm.edu or
Laura laura.lachance@mail.mcgill.ca

Funding provided by the Canadian CAM Research Fund

CCNM Canadian College of Naturopathic Medicine

McGill

camh Centre for Addiction and Mental Health / Centre de toxicomanie et de santé mentale

Patterns of Integrative Medicine (IM) Use and Its Effects on Quality of Life of Patients Undergoing Radiotherapy

Evrim Tezcanli Tjon A Meeuw, CCNM student [1], Monique Aucoin, ND [1]

1. Canadian College of Naturopathic Medicine, ON, Canada

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Introduction

- Integrative oncology is the use of complementary treatments together with conventional protocols.
- Research on integrative oncology has been growing.
- Cancer patients are more frequent users of herbal products and supplements, especially concurrently with their conventional treatments.
- The potential benefits and side effects of these treatments are underestimated.
- Many patients remain hesitant to disclose IM treatments to their oncologists.

Objectives

- This study aims to evaluate the use of integrative treatments of cancer patients undergoing radiotherapy, and its effects on quality of life during the treatment course.

Material and Methods

- Questionnaire based prospective study
- Unicentric- Radiation Oncology Department of Health Sciences University in Istanbul
- Started enrolling patients in February 2020 with the aim to include 90 patients

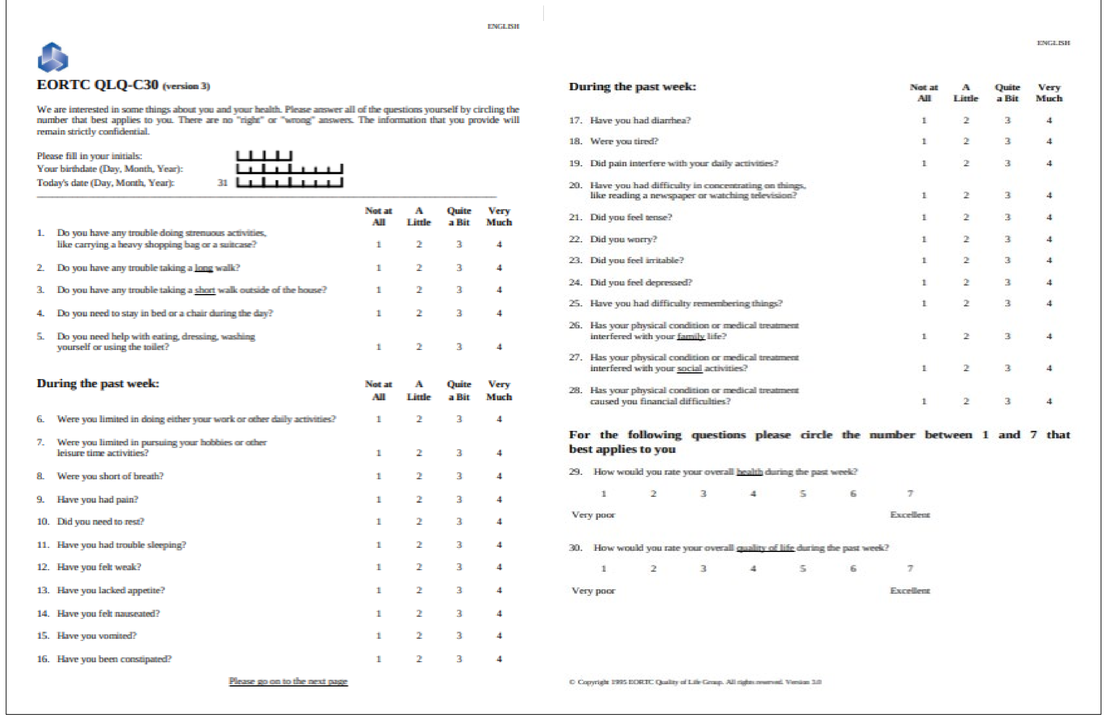
Table 1: PICO framework

Population	Intervention	Outcomes
· 18-85 years old · Biopsy verified diagnosis of cancer · Turkish speaking · Undergoing Radiation Treatment	· Integrative therapies · a) Herbs · b) Supplements · c) Multi-vitamins · d) Probiotic · e) Acupuncture · f) Bioenergy · g) Meditation-prayer · h) Massage · i) Special diet (ketogenic, vegetarian) · j) Hypnosis	Primary: Quality of life

Questionnaires:

- A 25-question, multiple-choice questionnaire is designed to assess the use of IM which also involves patients' expectations from the IM use and whether they informed their oncologists.
- The Turkish version of the European Organization for Research and Treatment of Cancer-Quality of Life Questionnaire (EORTC QLQ-C30 v.3.0) is given before and after the completion of radiotherapy in order to evaluate global quality of life changes during treatment.

Image 1: EORTC QLQ-C30, Quality of Life Questionnaire



ENGLISH

EORTC QLQ-C30 (version 3)

We are interested in some things about you and your health. Please answer all of the questions yourself by circling the number that best applies to you. There are no "right" or "wrong" answers. The information that you provide will remain strictly confidential.

Please fill in your initials:
Your birthdate (Day, Month, Year):
Today's date (Day, Month, Year): 31

	Not at All	A Little	Quite a Bit	Very Much
1. Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?	1	2	3	4
2. Do you have any trouble taking a long walk?	1	2	3	4
3. Do you have any trouble taking a short walk outside of the house?	1	2	3	4
4. Do you need to stay in bed or a chair during the day?	1	2	3	4
5. Do you need help with eating, dressing, washing yourself or using the toilet?	1	2	3	4

During the past week:	Not at All	A Little	Quite a Bit	Very Much
6. Were you limited in doing either your work or other daily activities?	1	2	3	4
7. Were you limited in pursuing your hobbies or other leisure time activities?	1	2	3	4
8. Were you short of breath?	1	2	3	4
9. Have you had pain?	1	2	3	4
10. Did you need to rest?	1	2	3	4
11. Have you had trouble sleeping?	1	2	3	4
12. Have you felt weak?	1	2	3	4
13. Have you lacked appetite?	1	2	3	4
14. Have you felt nauseated?	1	2	3	4
15. Have you vomited?	1	2	3	4
16. Have you been constipated?	1	2	3	4

Please go on to the next page

ENGLISH

During the past week:	Not at All	A Little	Quite a Bit	Very Much
17. Have you had diarrhea?	1	2	3	4
18. Were you tired?	1	2	3	4
19. Did pain interfere with your daily activities?	1	2	3	4
20. Have you had difficulty in concentrating on things, like reading a newspaper or watching television?	1	2	3	4
21. Did you feel tense?	1	2	3	4
22. Did you worry?	1	2	3	4
23. Did you feel irritable?	1	2	3	4
24. Did you feel depressed?	1	2	3	4
25. Have you had difficulty remembering things?	1	2	3	4
26. Has your physical condition or medical treatment interfered with your family life?	1	2	3	4
27. Has your physical condition or medical treatment interfered with your social activities?	1	2	3	4
28. Has your physical condition or medical treatment caused you financial difficulties?	1	2	3	4

For the following questions please circle the number between 1 and 7 that best applies to you

29. How would you rate your overall health during the past week?

1 2 3 4 5 6 7
Very poor Excellent

30. How would you rate your overall quality of life during the past week?

1 2 3 4 5 6 7
Very poor Excellent

Results

- Integrative medicine use during radiotherapy will be evaluated in regards to participants':
  - ➢ Use of IM modalities
  - ➢ Socio-demographic profile,
  - ➢ Cancer related characteristics including the site of disease with their disease status,
- Quality of life changes during the course of treatment.
- The questionnaire results will be analyzed using SPSS and a p-value < 0.05 will be considered as statistically significant.

Discussions

Clinical Application

This monocentric study will help us understand:

- ➢ The prevalence and patterns of IM use during radiotherapy.
- ➢ Patients' willingness to disclose these treatments to their oncologists.
- ➢ The potential effects of integrative treatments on quality of life of patients undergoing radiotherapy. Based on the findings of this study we can work towards an integrated model of health-care provision and design further research on integrative approaches.

Strengths:

- The studies that evaluate the use of integrative therapies during radiotherapy are limited, this study will give us a better understanding on this specific patient group.
- Standardized quality of life questionnaire

Limitations

- EORTC QLQ-C30 questionnaire gives us a general understanding of the quality of life patients; however, it could have been more beneficial if we could apply a site specific questionnaire for each site, in order to see how side effect profile is effected.
- Response bias.

Conclusions

- Integrative Oncology is a growing field and cancer patients are frequent users of these methods.
- Based on the findings of this study we can work towards an integrated model of health-care provision and design further research on integrative approaches.

For references or further questions, please email: etezcanlitjonameeuw@ndnet.ccnm.edu

The Relationship Between Serum Vitamin D Status and Breast Cancer Risk and Occurrence: A Narrative Review

Tehsina Jaffer, BA, CNP, CCNM student [1], Hanieh Vedadi, ND [1]

1. Canadian College of Naturopathic Medicine, ON, Canada

CCNM Canadian College of Naturopathic Medicine

Introduction

- Breast cancer is the most commonly diagnosed cancer in women worldwide, comprising 2,088,849 new cases in 2018, an estimated 25.4% of newly diagnosed cancers in women.
- Globally, it is the fifth most common cause of cancer-related death in women.
- Vitamin D is an essential fat-soluble vitamin and steroid hormone necessary for optimal function in many organs including the mammary glands.
- Low serum vitamin D levels are becoming more common and are associated with several health conditions, including breast cancer.
- One of the purposes of naturopathic medicine is the incorporation of prophylactic evidence-based methods to prevent disease.

Objectives

To investigate current evidence surrounding vitamin D, its relationship with breast cancer, and whether serum levels are associated with risk and diagnosis in pre- and post-menopausal women.

Search Methods

- We utilized PubMed, Medline and ClinicalKey databases to conduct a search using the terms “breast cancer” and “serum vitamin D.”
- We limited our search to meta-analyses and systematic reviews published within the last five years.
- We included literature that studied the relationship between serum levels of 25-hydroxy vitamin D and breast cancer risk and occurrence.
- Since only two systematic reviews were published on this topic within the last five years, we broadened our search to publications within the last 10 years. This allowed for the investigation of two systematic reviews and two meta-analyses.

PICO Framework

- **Population:** Adult female patients (pre- and post- menopausal) with current breast cancer diagnosis.
- **Intervention:** Total serum 25-hydroxy vitamin D levels.
- **Control:** Healthy adult female population matched to the study population by comparable parameters such as age, menopausal state, parity and season.
- **Outcome:** Breast cancer risk and occurrence.

Results

- Fifty-nine articles were reported by the two systematic reviews and two meta-analyses that we examined.
- These articles consist of observational studies, which encompass cross-sectional, cohort and case-control studies.
- The studies focused on the association of serum 25-hydroxy vitamin D levels and the risk of developing breast cancer.
- Vitamin D deficiency is prevalent in patients diagnosed with breast cancer, compared to control groups.

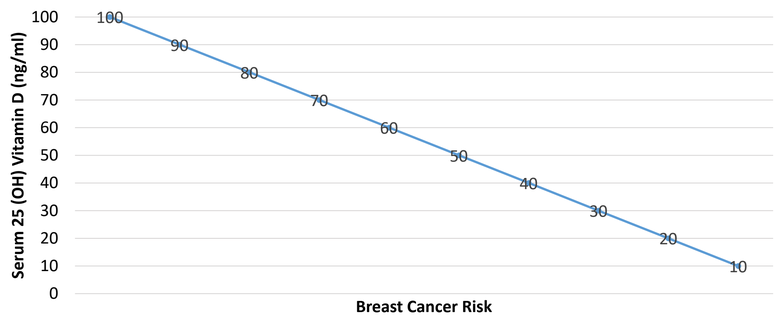


Figure 1. Inverse association between serum 25-Hydroxy vitamin D levels and breast cancer risk (Wang et al., 2013)

- Serum 25-hydroxy vitamin D deficiency conveys a direct relation to both breast cancer risk and occurrence in pre- and post-menopausal women.

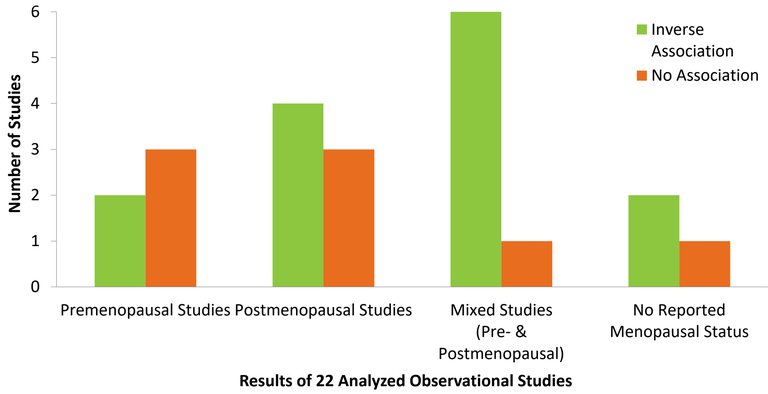


Figure 2. Association between serum 25(OH)D levels & breast cancer risk and occurrence pertaining to pre- and post-menopausal state (Hossein et al., 2019)

Discussion

Limitations

- Inconsistency of vitamin D deficiency thresholds from <10 ng/mL to <32 ng/mL.
- Sample size inconsistency.
- Limitations to including only systematic reviews and meta-analyses may have narrowed relevant evidence found in other types of studies.
- Wang et al. concluded that the inverse association between serum vitamin D levels and breast cancer incidence was statistically significant in North American studies but not in European studies.

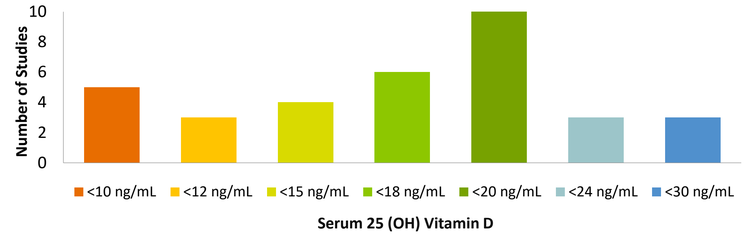


Figure 3. Vitamin D deficiency thresholds among individual studies within selected systematic reviews and meta-analyses

Clinical Application

- This current literature review focuses on the association between serum 25-hydroxy vitamin D levels and breast cancer risk and occurrence, irrespective of the source of vitamin D (i.e., sun exposure, diet and supplementation).
- Screening women for serum vitamin D levels and treating deficient levels could reduce the risk of developing breast cancer in pre- and post-menopausal women.
- Risk ratios were reported in three of the four selected systematic reviews and meta-analyses. No RRs were reported within the systematic review by Shekarriz-Foumani & Khodaie (2016).

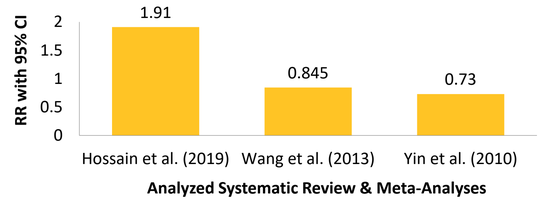


Figure 4. RRs of Breast Cancer Associated with 25(OH)D Deficiency

Conclusion

- Serum 25-hydroxy vitamin D deficiency conveys a direct association to both breast cancer risk and occurrence in pre- and post-menopausal women.
- Further research is necessary to clarify the association between vitamin D deficiency and breast cancer risk and occurrence.

For references or further questions, please contact: tjaffer@ndnet.ccnm.edu