Complementary and Integrative Medicine: What Are My Options?

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May 19, 2018

Introduction
(who I am)

★ Naturopathic physician and licensed practitioner of Chinese medicine
  ○ 6 years of naturopathic medical school
  ○ 2 years naturopathic residency
★ Trained as general practitioner
  ○ Laboratory diagnosis
  ○ Physical exam
  ○ Prescription drugs
  ○ Minor surgery
★ General practitioner of holistic medicine
  ○ Nutrition, Nature Cure, lifestyle, botanicals, homeopathy, supplements, flower essences, manipulation, exercise, acupuncture

Overview

● Introduction to complementary medicine
● Biologic adjunctive therapies:
  ○ Mushrooms
  ○ Melatonin
  ○ Green Tea
  ○ Vitamins C and K2 et al
● Diet: Realistic Evidence Based approach
● Underlying systemic functional issues:
  ○ Gluten Sensitivity
  ○ MTHFR mutations,
  ○ Phase I or II liver detox genetic abnormalities,
  ○ Poor Stress Resilency

Wellness approaches to minimize side effects of disease and chemotherapy:
  ○ Tai Chi
  ○ Mindfulness Practices
    ● Meditation
    ● Biofeedback
    ● Yoga
    ● Acupuncture
  ○ Other ideas
  ○ Tips on navigating CAM world
  ○ References:
    ○ Books
    ○ Online Resource

Complementary and Alternative Medicine (CAM)

★ Complementary medicine is used with conventional medicine.
  ○ Example: Acupuncture to reduce fatigue from radiation therapy
★ Alternative medicine is used in place of conventional medicine.
  ○ Example: Taking "anti-cancer" supplements instead of undergoing radiation therapy

No Financial Disclosures
AA&MDSIF March 28 2015

Dr. Deirdre Orceyre

Integrative Medicine

- Integrates complementary therapies with evidence of safety and effectiveness into conventional medical treatment with goals of:
  - optimizing health promotion
  - preventing disease
  - improving patient outcomes
  - managing symptoms
  - improving quality of life

Slide contributed by Sarah M. Rausch, PhD, LP

What percentage of cancer patients report using CAM?

- 62% long-term Lymphoma survivors use CAM
- 73% of hospitalized cancer patients use CAM
- 44% of German Leukemia patients use CAM, with > half not disclosing to healthcare team

Slide made by Sarah M. Rausch, PhD, LP

National Cancer Institute (NCI) has incorporated a focus on complementary care for cancer survivors into their strategic plan (2014)

“National Center for Complementary and Alternative Medicine has decided...to focus...resources on research on benefits and risk of complementary health practices for symptom management...”

2015 - NCCAM becomes NCCIH (from CAM to Integrated Health)

Integrative Medicine in Cancer Survivors

Review of clinical studies from 2016 only

A Wellness Program for Cancer Survivors and Caregivers: Developing an Integrative Pilot Program with Exercise, Nutrition, and Complementary Medicine

Mark Stoutenberg & Alyssa Sagar & Kelsi Achete & Stacy E. Cutrono & Julie Kornfeld

- 10-wk Integrative Wellness Program (IWP) - instruction in exercise, nutrition, and complementary and alternative medicine
- Questionnaires - physical activity levels, dietary habits, sleep hygiene, and quality of life
A Wellness Program for Cancer Survivors and Caregivers: Developing an Integrative Pilot Program with Exercise, Nutrition, and Complementary Medicine

Mark Stoutenberg & Alyssa Sogor & Kris Arkait & Stacy E. Cutrano & Julie Kornfeld

Levels of Evidence

- Level I - Well designed randomized controlled trials
- Level II – Prospective or retrospective non-randomized clinical trials and analyses
- Level III – Opinions of expert committees, best case series
- Level IV – Preclinical in vitro and in vivo studies, and traditional uses

Biological Adjunctive Therapies (Biologics)

- Green Tea
- Boswellia
- Omega 3 (Fish Oil)/ Omega 6 (Flax seeds/oil)
- Medicinal Mushrooms
- Curcumin
- Melatonin
- Vitamin K2
- Vitamin D
- High-Dose Vitamin C (V)

Green Tea

- Levels I, II, III, IV
- High in bioflavonoid antioxidants
- Also contains tannins, minerals, caffeine and L-Theanine
- Almost all studies are done on dietary intake with typical “high intake” considered to be 5 or more cups per day

Green Tea

- Try to get organic (not organic is likely to contain high amounts of pesticides)
- If want to take supplement
  - high quality is important
  - Typical dose is one 300-500mg capsule twice daily (each containing at least 50% EGCG) (usual cost - $15-20/month)
  - Capsules are actually cheaper than drinking high quality (organic) green tea at studied doses - 5-6 cups/day

Risk of hematologic malignancies was inversely associated with green tea consumption. The multivariate-adjusted hazard ratio of hematologic malignancies for 5 cups/day or more compared with less than 1 cup/day of green tea was 0.58 (95% confidence interval: 0.37, 0.89). The corresponding risk estimate was 0.52 (95% confidence interval: 0.31, 0.87) for lymphoid neoplasms and 0.76 (95% confidence interval: 0.52, 1.78) for myeloid neoplasms.

EGCG and CLL (Chronic Lymphocytic Leukemia)

- 2 recent Randomized Control Trials on CLL (Rai Stages 0-2)
- Polyphenon E – concentrated green tea with EGCG content 400-4000mg/day in twice daily dosing (200-2000mg)
- About 70% of patients had WBC reduction of 10% or more and about 40% 20% or more
- Dose-dependent side effects were common at higher doses: nausea, rashes. Some patients had to stop high dose
  - Cancer. 2003 Jan 15;89(2):363-70
- Currently available products contain about 200mg of EGCG/capsule – at 10 capsules/day cost is about $50/month

Boswellia

- Boswellic Acid acetate – grade III, IV
- Induces differentiation and apoptosis of human leukemia lines
- Very potent anti-inflammatory
- Very low side effect profile
- Quality is important
  - Leuk Res 1999; 23:43-50

Japanese Mushrooms

- Levels I, II, III, IV
- Examples: Reishi, Shiitake, Maitake, Coriolus
- Traditional chinese medicine use
- Coriolus Versicolor aka Asian "Turkey Tail" – best evidenced in general (PSK, PSP)
- Water extracts are best

Curcumin

- Curcumin is an active ingredient of Turmeric (curcuma longa)
- Levels II, III, IV
- Modulates inflammation by down-regulating COX2 – nature’s Motrin
- Inhibits TNF-Alpha, IL1, 2, 6, 8, and 12
- Natural part of many world diets, especially India and Thailand
- Induces cell death in human leukemia cells and stem cells.
- Small positive clinical trials for Pancreatic, Colon
  - Clin Cancer Research, 2008 Jul 1;14(13):4060-9
- Absorption is increased with fats and black pepper
- Careful during chemo - only with guidance
  - Cancer Res. 2008 Jul 15;68(1):2648-51
  - Mol Cancer Ther. 2006 Apr;5(4):952-61
- Typical dose - 1000mg twice daily of concentrated extract

Melatonin

- Levels I, II, III, IV
- Sleep hormone, synthesized by the pineal gland
- Also appears to be a strong anti-oxidant and regulates secretion of growth hormone and other hormones
- Older positive study with chemo induced MDS
- Recent Meta-analysis (total of 21 randomized trials) showed 37% reduction in all cause 1 year mortality in patients with solid tumors
  - Integr Cancer Ther. 2011 Oct 21
- Usual dose 20mg at bedtime, start at no more then 5mg and slowly increase over 3-4 weeks
Vitamin K2

- Levels I, II, III, IV – clear evidence for MDS, both clinical trials and laboratory research
- Does not affect clotting, important primarily in bone and muscle health
- Similarly to Vitamin D - more of a hormone as it affects cells via variety of receptor-mediated actions
- Helped MDS patients with differentiation of cells and strengthening of healthy cell lines

![Image](5/21/2018 5/21/2018

- Patients who used oral vitamin K2 without other medications had 44.4% (4/9) hematological improvement.


Vitamin K2 (study specifics)

- Pilot Study
- 72.7% (6/11) had refractory anemia with excess blasts in transformation and 50% (6/12) had post-MDS acute myelocytic leukemia.
- K2 reduced blast cell numbers in bone marrow and/or peripheral blood in 71.4% (10/14) of those receiving other medications for MDS.
- Patients who used oral vitamin K2 without other medications had 44.4% (4/9) hematological improvement.

Leukemia 2003;16(12):1156-7

Vitamin K2 (supplement specifics)

- Quality is critical
- 2 types:
  - Menatetrenone (MK4) – Studied - typical dose is 45mg/day (Thorne has good liquid product)
  - Menaquinone-7 (MK7): typical dose 50-150mcg/day. No clinical studies, thought to be as effective as MK-4 (BioTech makes good product)
- No known side effects, combine with at least some vit D
- No effect on clotting, safe to take even when on Coumadin, but if patient is on Coumadin, I check PT/INR 3-5 days after starting Vitamin K2

Vitamin D

- Level II, III and IV
- Similar to Vitamin K2 clear plausible mechanism of positive effects on Bone Marrow
- Many small studies

Vitamin D studies

- Practical approach due to lack of clear dosing guidelines
- Keep serum Vitamin D level between 50-80 nmol/liter
- Unlikely to get enough from sun, most patients should supplement
- Often doses are 10,000 units/day or even more
- Some patients do a lot better with liquid form of D3 due to better absorption

Vitamin C IV

- We have treated hundreds of patients over years - mixed results, we are currently analyzing data
- Mostly decreased side effects of chemo, improved energy
- Multiple cases of long term survival at our clinic and in other places
- Still needed - randomized controlled trials
- More studies are on the horizon

Other Supplements

- Fish Oil – anti-inflammatory, seems to improve chemo induced side effects and slows down weight loss.
- Mistletoe – used a lot in Europe, conflicting data, but some positive double blind randomized studies (not for MDS/AA)
- Glutamine, Acetyl-L-Carnitine, Alpha Lipoic Acid, probiotics – supportive role during chemo therapy to minimize fatigue and prevent diarrhea
- Ginger – high dose, decent alternative to anti-nausea medications during chemo.
- Dietary Soy - reduced risk of MDS (PMID: 2649898.)
Recent Studies with positive outcomes

- **Combining Chinese medical treatment with stem cell transplantation** (PubMed PMID: 25790675.)
- **Resveratrol** suppresses growth and migration of MDS cells (in vitro) (PubMed PMID: 29035583.)
- **Wogonin** (from skullcap) inhibits the proliferation of MDS (in vitro) (PMCID: PMC4626188)
- **Artesunate** (from artemesia) induces cell death (in vitro) (PubMed PMID: 24704559.)
- **Withaferin A** (from Ashwagandha) suppresses growth of myelodysplasia and leukemia cell lines (in vitro) (PMCID: PMC5021033.)

What to Avoid/Cautions

- Individual oral *anti-oxidant* vitamins: Vits A, E, Selenium – should not be taken for long periods of time – Level I, II, III, IV (Vitamin C IV discussed separately)
- Retail multivitamins – poor quality, possibly harmful, level II, III, IV
- Learn how to evaluate quality/claims
- Trusted online resources
- Consultations with integrative and naturopathic physicians
- Avoid advice by clerks/salespeople at vitamin shops/stores
  - inadequate training in this field
  - most use information provided by product makers only

Gluten Sensitivity

- Evolutionarily speaking, wheat is a recent addition to the human diet, about 10,000 years ago.
- Gluten is the storage protein of cereal grains: Wheat, rye, barley, spelt, triticale
- Gliadin: Is the alcohol-soluble fraction, glutamine and proline rich protein, and poorly digestible
- Gliadin is the primary immunogenic trigger of Celiac disease
- Evidence from the US and Finland has shown a marked increase in prevalence
- 4-fold increase in the last 50 years
- Data is based on stored serum samples and reflect a true increase in the prevalence of the disease, not related to under-diagnosis
- Reason unclear: overuse of gluten/wheat, increased gluten in wheat with agriculture, other dietary, metabolic and environmental factors

Diets

- **Plant Based Diet** – Levels II, III, IV – weak positive evidence at best
- **High Fiber Intake** - none
- **Specific Diets:** - levels III, IV – conflicting
  - Macrobiotic
  - Gerson
  - Gonzales
- Sensible approach - Moderate good quality animal protein, high in greens/some fruits, avoid “dirty dozen”, anti-inflammatory principles, food sensitivities?
Gluten Sensitivity

- Treatment - gluten free diet, often long term, combined with several supplements x 3-6 months: digestive enzymes, probiotics, fish oil, zinc, glutamine.
- Blood tests exist but best is gluten free diet for 4-6 weeks and see if there is any improvement in:
  - Intestinal symptoms
  - Muscle/Joint pains
  - Cognitive Function
  - Rash
  - Improved sleep/energy
  - Chronic Sinusitis, Bronchitis
- Absence of intestinal symptoms is common and should not preclude testing
- Gluten free diet is easier than ever, but still requires preparation and organization

Other Systemic Issues

- MTHFR mutation – inability to convert folic acid to active form of folate (5MTHF) – may lead to increased risk of DNA mutations
- Genetic Detoxification Problems – increased accumulation of toxins: heavy metals, pesticides, herbicides, other chemicals
- Poor stress resiliency and frank cortisol curve abnormalities – increased systemic inflammation

MethyleneTetraHydroFolate Reductase (MTHFR)

- Enzyme encoded by MTHFR gene
- Part of larger testing strategy called SNPs
- 2 main mutation types: 677 and 1298 (about 40% of US population has at least 1)
- Both alter enzyme function
- So what?
  - Aberrant DNA methylation is frequent in the myeloid malignancies, particularly myelodysplastic syndrome (MDS) and acute myelogenous leukemia (AML).

MTHFR Treatment

- Active form of folate called 5MTHF (MethylFolate, Quadrofolate and others 1-3mg)
- Often combined with methyl B12 (methylcobalamin)
- Often combined with B12 (needed as cofactor)
- Very high dose prescription strength medical food/medication: Deplin 7.5 or 15 mg doses available by prescription only
- More comprehensive treatment programs may include other nutrients such as trimethylglycine or active methyl donors (eg SAMe or Methionine)

MTHFR Treatment

- AVOIDANCE OF ALL FOLIC ACID
- MINIMIZING TOXIC EXPOSURES, avoid alcohol, organic food, no home chemical
- Learn more at MTHFR.net or EWG – Environmental Working Group websites
**Detox System Defects**

**Poor Stress Resiliency**

**Stress Effects on Health**

**Acute vs Chronic Stress**

**Wellness Strategies**

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- **Acute** – upregulates immune system, protective function
  - Increase in IL6
  - Increase in neutrophil count
  - Stimulation of NK cells, T-lymphocytes,
- **Chronic Stress** – global decrease in immune function
  

- **Wellness Strategies**
  - Acupuncture: energy, cancer treatment side effects
  - Energy based exercises: Tai Chi and Yoga
  - Energy treatments: Reiki, Healing Touch
  - Massage
  - Mind Body Practices: Meditation, MBRSR, Hypnosis, Biofeedback
  - Spiritual approaches: finding meaning in midst of crisis, better coping strategies

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**References**


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- Increased liver disease
- Decreased health QOL
- Increased asthma flares
- Increased illness in children
- Increased LV dysfunction
- Increased cardiac arrhythmias
- Increased cardiac ischemia
- Increased HR
- Increased BP
- Increased clotting
- Decreased insulin sensitivity
**Acupuncture**

Levels I, II, III, IV – no specific MDS/AA, data often conflicting
- Nausea Vomiting
- Fatigue
- Insomnia
- Anxiety
- Generally safe
- Adequate training must
- Cancer experienced acupuncturist


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**Tai Chi**

Excellent if not Ideal exercise
- Balance
- Strength
- Fatigue
- Easy to do and learn
- No need for special place
- Basics can be learned very quickly
- Find a teacher who specializes in working with patients with chronic illness

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**Yoga**

- Clinical Trial
  - N = 39 pts. w/ lymphoma
  - Tibetan yoga (TY) (7 wkly sessions)
  - Wait list control
  - Patients in TY group
    - Better subjective sleep quality ($P < 0.02$)
    - Faster sleep latency ($P < 0.01$)
    - Longer sleep duration ($P < 0.01$)
    - Less use of sleep medications ($P < 0.02$)
- FIND THE RIGHT TEACHER – THERAPEUTIC YOGA CERTIFIED

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**CranioSacral Therapy**

- Osteopathic manipulation
- Very Gentle
- Some evidence for balancing Autonomic Nervous System (ANS)
- Effects very similar to massage but safer and in some ways more potent

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**Reiki**

- Reiki is a healing practice that originated in Japan. Reiki practitioners place their hands lightly on or just above the person receiving treatment, with the goal of facilitating the person’s own healing response.
- Effective for anxiety and fatigue - Level II, III, no specific MDS/AA studies
- Easy to learn to self-administer
- At our center we offer group class to learn basics of self Reiki in evening/weekend, cost of one 2-3 hour class $75 (at our clinic)

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**Massage Therapy and Stress Management**

- Memorial Sloan-Kettering Cancer Center
  - 1,290 patients treated over 3 yr period
  - Pre- and Post-therapy sxs recorded
- **Symptom**
  - **Improvement**
    - Pain
      - 40%
    - Fatigue
      - 41%
    - Anxiety
      - 52%
    - Nausea
      - 21%
    - Depression
      - 31%

*Cassileth, 2004*
Meditation and Stress Management

- Systematic review – meditation & cancer patients
  - 3 RC trials, 7 uncontrolled trials
  - Positive results
    - Mood, sleep quality, reductions in stress
  - Dose-response effect observed
  - Freq. methodological limitations identified
- MBSR – Mindfulness Stress Reduction Program - structured 8 weeks program, often covered by insurance. We have ongoing classes at our center.

Smith, 2005

4-7-8 Breath – 3 min meditation

- Inhale for 4
- Hold breath for 7
- Exhale for 8
- If this is hard remove holding part and just do inhale 4 and exhale 8
- If you are out of breath with 4 and 8 try to count to 3 and 6.
- Abdominal breathing
- Now think about someone/thing that you love dearly

Spirituality

Spirituality [refers to the way] people understand meaning and purpose in their lives. It can be affected by illness or loss, and it can be experienced in many ways — not just religion, but nature, arts, humanities, and rational thinking. Some say it is religion, some say it is family, and some find it in nature. It’s a very personal thing for people.

- Dr. Christina Puchalski

This being human is a guest house.
Every morning a new arrival.
A joy, a depression, a meanness,
some momentary awareness comes
as an unexpected visitor.
Welcome and entertain them all!
Even if they’re a crowd of sorrows,
who violently sweep your house
empty of its furniture,
still, treat each guest honorably.
He may be clearing you out
for some new delight.
The dark thought, the same, the malice,
meet them at the door laughing,
and invite them in.
Be grateful for whoever comes,
because each has been sent
as a guide from beyond.

- Rumi

Online Resources

- NCCAM at NIH: basic CAM Information: www.NCCAM.nih.gov
- Memorial Sloan-Kettering Cancer Center Online Supplements database: www.mskcc.org/cancer-care/integrative-medicine/about-herbs-botanicals-other-products
- Consortium of Academic Health Centers for Integrative Medicine: www.imconsortium.org
- NCI subsection on CAM: cancer.gov/cancer-topics/pdq/cam
- Oncology Association of Naturopathic Physicians www.OncANP.org
**Final Points**

- Be guided by someone with experience and a good handle on “fast moving train” of CAM research – ideal team would have MD/DO and cancer trained naturopathic doctor or experienced cancer nutritionist.
- Do everything with your oncologist's approval, make sure your CAM provider communicates with the oncologist
- Whole body approach vs doing one CAM modality
- Life style change rather then “short term trial”
- Work with your insurance company, some CAM modalities are COVERED – call your carrier and ask: “What is my copay for ...”
- Flexible spending accounts will cover ANY CAM modality or supplement if prescribed by qualified provider

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**GW Center for Integrative Medicine (GWCIM)**

- Established in 1998
- Clinical staff: 22 practitioners; 3 MDs, 2 NDs, 1 NPs, 3 acupuncturists, nutritionist, chiropractor, massage therapist, Rolfing, Yoga instructor, Spiritual Director, Reiki Director, Hypnosis therapist, 2 Psychologists

- Comprehensive consultations and primary care: MD or licensed naturopathic physician (ND) or both

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**GWCIM CAM therapies**

- Functional Medicine
- Naturopathic Medicine
- Sexual Health
- Women’s Health
- Integrative Oncology
- Bioidentical hormones
- Acupuncture
- Reiki
- Biofeedback
- Mind Body Medicine
- Nutritional Consultations
- Craniosacral
- Hypnosis
- Massage (deep tissue, trager, Rolfing)
- Meditation
- Psychotherapy
- Psychiatry
- Spiritual Counseling
- Chiropractic
- Weight loss program
- Yoga
- AND MORE...

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**GW Center for Integrative Medicine (GWCIM)**

- Classes: MBSR – Mindfulness Based Stress Reduction, Yoga, Reiki, Group Psychotherapy
- Cancer Programs
- Intravenous Nutrient Infusions (including Vitamin C)
- Onsite Comprehensive Laboratory
- Clinical Site for George Washington Medical School Integrative Medicine Track Program, in-hospital Reiki volunteer training and Yoga Initiative
- Rotating site for GW Residents/Med Students/Fellows
- Naturopathic Residency Program
- GW Hospital Reiki program and Integrative Medicine Consultations