Living Well with a MPN: An Integrative Approach

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Integrative Oncology And Hematology
University of Arizona, Tucson
Objectives

- What is Integrative Oncology?
- Why is integrative Care important in MPNs?
- Lifestyle Medicine
- Complementary Care Modalities
- Care of the Mind, Spirit
“Integrative oncology is a patient-centered, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions alongside conventional cancer treatments. Integrative oncology aims to optimize health, quality of life, and clinical outcomes across the cancer care continuum and to empower people to prevent cancer and become active participants before, during, and beyond cancer treatment.”

Claudia M. Witt, et al.
JNCI Monographs, Volume 2017, Issue 52, 1 November 2017
Why Is Integrative Care Important in MPN patients?
Moderators of Inflammation:
Genetics
Environment
Diet
Exercise
Sleep
Stress

- Cardiovascular health is of foundational importance in MPNs
Pharmacologic therapy results in ONLY partial symptom improvement in MPN patients.

Evidenced-based integrative care may address unmet needs for symptom management.
## The SIMM Study

<table>
<thead>
<tr>
<th></th>
<th>Overall N = 858</th>
<th>ET N = 338</th>
<th>PV N = 315</th>
<th>MF N = 188</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerobic Activity (Overall) N=442</td>
<td>MPN-SAFTSS</td>
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</tr>
<tr>
<td>Massage N=244</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>0.06</td>
</tr>
<tr>
<td>Yoga N=220</td>
<td>0.02</td>
<td>0.35</td>
<td>0.14</td>
<td>0.34</td>
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<tr>
<td>Nutrition N=216</td>
<td>0.10</td>
<td>0.36</td>
<td>0.07</td>
<td>0.68</td>
</tr>
<tr>
<td>Strength training N=204</td>
<td>&lt;0.001</td>
<td>0.03</td>
<td>0.02</td>
<td>0.14</td>
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<tr>
<td>Acupuncture N=166</td>
<td>0.18</td>
<td>0.20</td>
<td>0.90</td>
<td>0.14</td>
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<tr>
<td>Meditation N=163</td>
<td>0.16</td>
<td>0.16</td>
<td>0.99</td>
<td>0.25</td>
</tr>
<tr>
<td>Breathing exercise N=158</td>
<td>&lt;0.001</td>
<td>0.37</td>
<td>0.30</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Chiropractic N=139</td>
<td>0.87</td>
<td>0.39</td>
<td>0.55</td>
<td>0.94</td>
</tr>
<tr>
<td>Support groups N=124</td>
<td>0.001</td>
<td>0.03</td>
<td>0.08</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Gowin, Et al. ASH 2018
Hypothesis of why Integrative Care is Important in MPN patients

- May decrease inflammation and modulate disease
- May decrease comorbid risk (Vascular events)
- May increase quality of life
- May decrease disease associated symptoms
- May empower you as a patient
## Integrative Oncology

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LIFESTYLE MEDICINE: The Backbone of Integrative Health
“LET FOOD BE THY MEDICINE AND MEDICINE BE THY FOOD”

-HIPPOCRATES
Benefits of the Mediterranean Diet: Insights From the PREDIMED Study

Miguel A. Martínez-González\textsuperscript{a,b,c,}\*, Jordi Salas-Salvadó\textsuperscript{b,c,d}, Ramón Estruch\textsuperscript{b,c,e}, Dolores Corella\textsuperscript{c,f}, Montse Fitó\textsuperscript{c,g}, Emilio Ros\textsuperscript{c,e}, for the PREDIMED INVESTIGATORS\textsuperscript{d}

\textsuperscript{a}Department of Preventive Medicine and Public Health, University of Navarra, IDISNA (Navarra Health Research Institute), Pamplona, Spain
\textsuperscript{b}The PREDIMED Research Network (RD 06/0045), Instituto de Salud Carlos III, Madrid, Spain
\textsuperscript{c}Centro de Investigación Biomédica en Red Fisiopatología de la Obesidad y Nutrición (CIBERObn), Instituto de Salud Carlos III, Madrid, Spain
\textsuperscript{d}Human Nutrition Department, Hospital Universitari Sant Joan, Institut d’Investigació Sanitaria Pere Virgili, Universitat Rovira i Virgili, Reus, Spain
\textsuperscript{e}Institut d’Investigacions Biomèdiques August Pi i Sunyer, Hospital Clinic, University of Barcelona, Barcelona, Spain
\textsuperscript{f}Department of Preventive Medicine and Public Health, University of Valencia, Valencia, Spain
\textsuperscript{g}Cardiovascular and Nutrition Research Group, Institut de Recerca Hospital del Mar, Barcelona, Spain
Benefits of Mediterranean Diet


1. Use of olive oil as the main culinary fat
2. Consumption of ≥4 tablespoons/d of olive oil (including oil used for frying, salads, out-of-house meals, etc.)
3. Consumption of ≥2 servings/d of vegetables
4. Consumption of ≥3 servings/d of fruits
5. Consumption of <1 serving/d of red meat, hamburger or meat products (ham, sausage, etc.)
6. Consumption of <1 serving/d of butter, margarine, or cream
7. Consumption of <1 serving/d of sweetened and/or carbonated beverages
8. Consumption of ≥1 serving/d of wine
9. Consumption of ≥3 servings/week of legumes
10. Consumption of ≥3 servings/week of fish or shellfish
11. Consumption of <3 servings/week of commercial sweets or pastries (not homemade), such as cakes, cookies, biscuits or custard
12. Consumption of ≥3 servings/week of nuts (including peanuts)
13. Preferential consumption of chicken, turkey or rabbit meat instead of veal, pork, hamburger or sausage
14. Consumption of ≥2 servings/week of sofrito, a sauce made with tomato and onion, leek or garlic and simmered with olive oil.

Foods that fight inflammation

Chronic inflammation has been linked to cancer, heart disease, diabetes, arthritis, depression, and Alzheimer's. Fight inflammation with a healthy diet.

Anti-inflammation foods:
- Tomatoes
- Fruits (strawberries, blueberries, oranges and cherries)
- Nuts (almonds, walnuts, and other nuts)
- Olive oil
- Leafy greens (spinach, kale, collard, and more)
- Fatty fish (salmon, mackerel, tuna, and sardines)

Inflammation foods:
- Fried foods
- Sugars
- Refined carbs
- Lard
- Processed meats
NUTRIENT Study: Development of a Dietary intervention

Online MPN Nutritional Questionnaire (N=1,000)
- Nutritional Habits
- Supplement Intake
- Dietary Needs
- Symptom Assessment

MPN Focus/Advocate Groups (N=30)
- Baseline Demographics and MPN Assessment
- Metabolic/Nutritional Assessment
- MPN-SAF Symptom Assessment
- Cytokine Analysis
- Inflammatory Marker Analysis
- Body Fat Composition

Determination of MPN Dietary Needs and Preferences

Creation of a MPN Dietary Educational Curriculum

Trial Assessing Feasibility and Adherence

Online Video Vignettes

Tailoring to MPN Needs
- Iron Deficiency/Polycythemia
- Splenomegaly
- Early Satiety
- Constipation
- Weight loss
- Abdominal Discomfort

Online Apps
- Meal Plans
- Recipes

Nutritional References
- Caloric Diaries
- Vitamin Intake

Peer Support Forums

Trial of Efficacy to Reduce Symptom Burden and Inflammatory Cytokines

Scherber 2017.
Physical Activity
Physical Activity and Survival After Breast Cancer Diagnosis

Michelle D. Holmes, MD, DrPH
Wendy Y. Chen, MD
Diane Feskanich, ScD
Candyce H. Kroenke, ScD
Graham A. Colditz, MD, DrPH

2900 breast cancer patients
Stage I, II, III
Accessed for breast cancer specific mortality and overall mortality

Holmes, et al. JAMA 2005
Increased Overall Survival

Holmes, et al. JAMA 2005
YOGA In MPNs

MPN Patients Completing the Yoga Study (N=38)

12 Week Online Yoga Course

Significant improvements in total symptom burden (effect size =-0.36, p=0.004)
- Anxiety (ES=-0.67, p=0.002)
- Depression (ES=-0.41, p=0.049)
- Sleep (ES=-0.58, p<0.001)
- Fatigue (ES=-0.33, p=0.04)

Yoga participation averaged 50.8 min/week.

Patient Satisfaction:
- 68% of participants were either satisfied or very satisfied
- 75% felt that it was helpful for coping

**MPN Yoga II - Pilot**

**Key Eligibility**
- MPN Patient
- Not Depressed
- PS<3
- Not already doing yoga or Mindfullness
- <150 Min of weekly exercise

**At Home Yoga** (N=30)
- Active Yoga
  - 12 Weeks
  - >/= 60 Min/ Week
  - Fitbit tracking (Blinded)
  - Daily Logs-Yoga and activity
  - Blood (2 Timepoints)
    - TNFα
    - IL6
  - Saliva (2 Timepoints, 4x each timepoint)
    - Cortisol
    - MPN Sx, QOL, Sleep

**Wait List Control** (N=30)
- Wait List
  - 12 Weeks
  - Fitbit tracking/ Blinded
  - Usual Level of Activity
  - Daily Logs - Activity
  - MPN Sx, QOL, Sleep

**MPN Yoga Team:**
- Arizona State University: Jennifer Huberty PhD
- Linda Larkey, PhD
- Ryan Eckert, B.S.
- Mayo Clinic Arizona
  - R. Mesa, MD
  - Amylou Dueck, PhD
  - K. Gowin, MD

Online Registration & Randomization

Post 12 week Cross Over
62 patients enrolled, 48 completed intervention

Patients averaged 40 min per week yoga

Significant decrease in TNF-a from baseline to week 12 (p=0.005)

Significant decrease in depression NIH promis from baseline to week 12 (p=0.049)

Huberty et al. EHA 2017
### EXERCISE

Improvements in quality of life, cardio respiratory fitness, physical functioning, and fatigue in Meta-Analysis of 136 studies in breast cancer

- Paucity of data in literature for physical activity interventions in hematologic disease

<table>
<thead>
<tr>
<th></th>
<th>Cardiovascular</th>
<th>Strength</th>
<th>Flexibility</th>
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<tbody>
<tr>
<td>Frequency</td>
<td>3-5 days per week</td>
<td>2-3 days per week</td>
<td>2 days per week</td>
</tr>
<tr>
<td>Duration</td>
<td>20-30 min</td>
<td>8-12 repetitions of all major muscle groups</td>
<td>10-30 seconds per stretch</td>
</tr>
<tr>
<td>Intensity</td>
<td>Moderate (40-60% of heart rate reserve)</td>
<td>Gradually increasing to tolerance</td>
<td>Slow static stretching</td>
</tr>
</tbody>
</table>

Source: McNeely, et al. 2006
How broken sleep harms blood vessels

The link between sleep and cardiovascular disease is poorly understood. Findings in mice now show that disrupted sleep causes the brain to signal the bone marrow to boost white blood cell production, damaging blood vessels.
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Complementary Care Modalities

- Acupuncture
- Naturopathic care
- Chinese herbal medicine
- Meditation
- Ayurveda
- Hypnosis
- Native Healing, Prayer lodge, ceremony
- Biofeedback
- Essential Oils
- Homeopathy
- Meditation
- Prayer
- Pet Therapy
- Reiki
- Massage
- Cranial Sacral
- Laugh therapy
- Music Therapy
- ETC!

Data suggests 40-60% of cancer patients use complementary and alternative medicine
- NHS survey 2012
Acupuncture
Acupuncture Safety

Safety: Most common toxicities resulting from needling to be local pain (3.3%), bruising (3.2%), minor bleeding (1.4%), and orthostatic problems (0.5%)

Specific areas of concern in this setting from the process of needling include neutropenia and thrombocytopenia, resulting in higher risks of infection and bleeding.

Oncology acupuncturists should follow clinical practice guidelines that take into account lab values such as absolute neutrophil and platelet counts.
Acupuncture Efficacy

- **Pain:** combination therapy may be more effective than pharmacotherapy alone, resulting in quicker pain relief, longer pain remission, and improved quality of life (meta-analysis of 20 randomized clinical trials) (n= 892).

- **Fatigue:** Adding acupuncture to usual care significantly improved fatigue in breast cancer patients (n=246).

- **Nausea/Vomiting:** Although there is general consensus that acupuncture is helpful for chemotherapy-induced nausea and vomiting as well as postoperative nausea and vomiting, this is primarily based on a number of studies that predate current antiemetic guidelines. More research is needed.
Botanical Medicine
Cucumin
Curcumin and Cancer: An “old-age” disease with an “age-old” solution

Preetha Anand, Chitra Sundaram, Sonia Jhurani, Ajai Kumar B. Kunnurakkara, Bharat B. Aggarwal

Cytokine Research Laboratory, Department of Experimental Therapeutics, The University of Texas M.D. Anderson Cancer Center, Houston, TX, USA

Table 1: Effect of curcumin alone or in combination on molecular targets of cancer treatment.

<table>
<thead>
<tr>
<th>Type of cancer</th>
<th>Molecular targets of curcumin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate cancer</td>
<td>Map kinase, Elk1, p27</td>
</tr>
<tr>
<td>Pancreatic cancer</td>
<td>Nf-kB, PI3K, Akt, ERK, Myc, MMP</td>
</tr>
<tr>
<td>Colon cancer</td>
<td>MAPK, JNK, p38, ERK</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>MAPK, JNK, p38, ERK, Akt</td>
</tr>
<tr>
<td>Multiple myeloma</td>
<td>MAPK, JNK, p38, ERK, Akt</td>
</tr>
<tr>
<td>Leukemia</td>
<td>MAPK, JNK, p38, ERK, Akt</td>
</tr>
</tbody>
</table>

Nutrition Reviews® Vol. 73(3):155–165
Curcumin and Pain

Many clinical trials have showed an analgesic effect of curcuminoids in various states including:

- osteoarthritis
- chronic postsurgical pain
- active rheumatoid arthritis

Laboureyras et al., 2009; Sehgal et al., 2013; and (Chandran and Goel, 2012, Appelboom et al., 2014; Belcaro et al., 2010, 2014; Haroyan et al., 2018; Henrotin et al., 2014, Kuptniratsaikul et al., 2014, 2009; Madhu et al., 2013; Nakagawa et al., 2014; Panahi et al., 2014; Pinsornsak and Niempoog, 2012; Rahimnia et al., 2015; Sterzi et al., 2016)
Issues with Botanicals

- Source and contamination
- Pharmacologic Interaction
- Safety
- Bioavailability
- Difficultly with Study: Source, Funding
- LOSS of Synergy and “plant medicine”

Finding Quality Dietary Supplements

When it comes to supplements, the quality of products may be quite variable. Look for products that have been evaluated by quality assurance companies. They will bear the label print of USP, NSF, or Consumer Labs to ensure the product has been tested, contains what the label indicates, and is free of toxic chemicals.
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</table>
WELLNESS of the MIND

- STRESS TRIGGERS INFLAMMATION
### The Stress Inventory

<table>
<thead>
<tr>
<th>MIND</th>
<th>Relaxed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stressed (Pro-inflammatory)</td>
<td>Relaxed (Anti-inflammatory)</td>
</tr>
<tr>
<td>Worrying about the future</td>
<td>In the present</td>
</tr>
<tr>
<td>Ruminating about the past</td>
<td>Engaging the breath</td>
</tr>
<tr>
<td>Perpetual planning</td>
<td>Nurturing self-talk</td>
</tr>
<tr>
<td>Negative self-talk</td>
<td></td>
</tr>
<tr>
<td>BODY</td>
<td></td>
</tr>
<tr>
<td>Tense muscles</td>
<td>Relaxed muscles</td>
</tr>
<tr>
<td>Shallow breath</td>
<td>Deep, slow “belly” breaths</td>
</tr>
<tr>
<td>Cold, clammy hands</td>
<td>Warm hands</td>
</tr>
</tbody>
</table>
Integrative Oncology

Body
- Complementary therapies
  - Lifestyle Medicine
  - Conventional medicine

Mind
- Stress awareness and reduction

Spirit
- Finding meaning

Joy
- Promoting happiness and gratitude
Spiritual Care

- Spirituality is the relationship people have with a force or power beyond themselves that helps them feel connected and enrich their lives.
- Decreased feelings of anxiety, depression, and anger
- Decreased feelings of loneliness
- Decreased alcohol and drug abuse
- Lowered blood pressure
- Better control of pain, nausea, and discomfort
Integrative Oncology

Body
- Acupuncture
- Botanical medicine
- Lifestyle Medicine
- Conventional medicine

Mind
- Stress awareness and reduction

Spirit
- Finding meaning

Joy
- Promoting happiness and gratitude
“Joy is far less vulnerable than happiness. Joy seems to be a part of the unconditional wish to live, not holding back because our life may not meet our preferences and expectations. Joy seems to be a function of the willingness to accept the whole, and to show up to meet with whatever is there.”

-Rachel Naomi Remen, *Kitchen Table Wisdom*

“I have let go of my preferences and am living with an intense awareness of the miracle of the moment.”

-anonymous patient
Two Joyful Intentions

Daily Joy Intention
Sit down and think of instances in your life that you felt the most joyful. Evaluate the circumstances around them. Did they occur during family time? During a favorite activity? Now think about the last week – can you identify a moment of happiness? An important aspect of joy is recognizing that joy can come in small moments. For example, enjoying your morning cup of coffee: Imagine the aromatic steam emerging from the freshly poured pot, the feeling of warmth in your hands from a favorite cup, the flavor of roasted beans…. this can be a joyful experience!

Take at least 10 minute EVERY DAY to intentionally practice joy. First, name your joyful practice (whatever that means to you!) and then revel in each minute of your practice. When complete, take a moment to have gratitude for your joyful practice.

Greeting the Day with Gratitude
Before you get out of bed each morning, start your day by naming three things you are grateful for. Allow your mind to bring these things into clear focus and appreciate every aspect of them. How do they make you feel? See if you can turn up the volume on your gratitude and say a final “thanks” before your rise to greet your day.
DISCUSS YOUR TREATMENT PLAN WITH PROVIDERS

Data suggests 40-60% of cancer patients use complementary and alternative medicine but few discuss with health care providers.

- Eat Intentionally
- Move often
- Breathe
- Manage Stress
- Cultivate Joy
MPN Quality of Life Study Group
Thank you!

Email: gowink@email.arizona.edu