ACCESSIBLE HERBALISM WITH ONLY THREE HERBS: APPROACHING DIABETES, CANCER, AND ARTHRITIS EPIDEMICS WITH AFFORDABLE MEDICINES

Bevin Clare
Associate Professor, Herbalist and Nutritionist
Maryland University of Integrative Health

For references and full text articles:
padlet.com/bevinclare/roots

Why Herbal Medicine?
The Roles Plants Play…

- Food
- Medicine
- Shelter
- Beauty
- Fuel
- Liberating oxygen
- Beauty
- Symbols
- Spiritual
- Perfume
- Spices

Plants as medicines

- Plants experience similar evolutionary pressures to humans
- Coevolution
- History of use
- Diversity of chemicals
- Diversity of actions
- Ingenuity of approach
- Sustainable, biologically supportive therapy

Herbalism and the Underserved

- Honors tradition
- Integrates into lifestyles
- Whole family approach
- Preventative
- Empowering
- Substantive
Herbs and the Underserved

- Materia medica considerations:
  - Local?
  - Ample evidence base? (Funding, PCP rationale)
  - Cost effective format?
  - Cost effective dosing?
  - Safe
  - Multi-factorial
  - Preventative

Adaptogens:
“A new class of metabolic regulators (of a natural origin) which increase the ability of an organism to adapt to environmental factors and to avoid damage from such factors.”
(Panossian, A.; Wikman, G.; Wagner, H., 1999)

Reishi
(Ganoderma lucidum)
Reishi (Ganoderma lucidum)

**In Tradition**
- Over 2000 years
- Longevity
- Calming
- Prosperity
- Heart protective
- Immune protective
- Anti-cancer

*([Wachtel-Galor, 2011])*

**In the Literature**
- Has been shown to:
  - Hepato-protective
  - Anti-inflammatory
  - Hypolipidemic
  - Hypotensive
  - Anti-diabetic
  - Induce apoptosis
  - Modulates:
    - Macrophages, neutrophils, dendritic cells, natural killer cells, T lymphocytes, and B lymphocytes, IL-1, IL-6, IL-2, IFN-γ, TNF-α
  - PG glycoprotein inhibitor

*([Lin, 2005; Paterson, 2006; Sliva, 2004; Yin et al., 2007; X. Zhou et al., 2007; Clare, 2007; Paterson, 2006; Wachtel-Galor, 2011])*

Reishi and Cancer: Cochrane Review (2012)

**Results**
- “The meta-analysis results showed that patients who had been given G. lucidum alongside with chemo/radiotherapy were more likely to respond positively compared to chemo/radiotherapy alone.”
- “…had relatively improved quality of life in comparison to controls.”

**Conclusion**
- “…G. lucidum could be administered as an alternative adjunct to conventional treatment in consideration of its potential of enhancing tumour response and stimulating host immunity.”
- “…G. lucidum was generally well tolerated by most participants with only a scattered number of minor adverse events.”

Reishi and Cancer

*Fungal beta glucan protects radiation induced DNA damage in human lymphocytes.*

“The results indicate that the BG of G. lucidum possessed significant radioprotective activity with DNA repairing ability and antioxidant activity as the suggestive mechanism.”

*Pillai et al., 2014*
Reishi and Cancer

Our study suggests that GAs are unique natural candidates which could be used to enhance the cellular expression of immune components as well as antigen processing and presentation.”

Radwan et al., 2011

Apoptotic and Immune Restoration Effects of Ganoderic Acids Define a New Perspective for Complementary Treatment of Cancer

(Radwan et al, 2011)

Reishi and Arthritis


- “ACR20...20% improvement in the 5 components including the number of tender and swollen joints and a 20% improvement in 3 of the 5 remaining core set measures: patient and physician global assessments; pain; disability... and an acute-phase reactant, ESR or CRP level.”

- Li et al., 2007
Reishi and Arthritis

On toxicity and safety...

- “The toxic dose of *G. lucidum* is also not clear but the median lethal dosage has been estimated to be between 10 and 21 gm/kg.”

Reishi and Diabetes

Study of potential cardioprotective effects of *Ganoderma lucidum* (Lingzhi): results of a controlled human intervention trial.

“Plasma insulin and homeostasis model assessment-insulin resistance were lower after treatment with (Reishi) than after placebo...”

“Results indicate that (Reishi) might have mild antidiabetic effects and potentially improve the dyslipidemia of diabetes, as shown previously in some animal studies.”

Chu et al., 2012

Anti-angiotensin converting enzyme (ACE) proteins from mycelia of *Ganoderma lucidum*

“This study suggests that the mycelia of *G. lucidum* has high potential in lowering blood pressure level...”

Ansor and Aminudin, 2012
Reishi: Practical Considerations

Indications
- Chronic disease
- Cancer adjunct
- Heart disease
- Chronic stress
- Reduced immune function
- Toxicity

Dosing
- CO2 extracts
- Water or alcohol extracts
- Raw powders
- 2-5g / day (1/2 – 1 tsp)
- Take in water, yogurt, thick juice, soup, etc.
- As low as $0.10 / day for 2g

Cost and types of product (Reishi)

- A Raw powder
- B CO2 supercritical extract
- C Capsules
- D Tincture

Cost calculation:

A. Raw powder
B. CO2 supercritical extract
C. Capsules
D. Tincture

Calculate the cost (monthly dose) of 2g/day for each type of product.
Turmeric (Curcuma longa)

**In Tradition**
- “Sunlight”
- Food preservative
- More than 4000 years
- GI tonic
- Blood purifier
- Skin diseases
- Infections
- Arthritis
- With milk and sugar

**Contemporarily**
- Potent antioxidant
- Anti-inflammatory
- Antimutagenic
- Antimicrobial
- Anticancer
- Epigenetic modifier

**Sanskrit Names of Turmeric**

- aneesa (not offered for sacrifice or homa), bhadra (auspicious or lucky), badha (plenty), dhigbooj (long in appearance), ganeepukkanka (which produces good smell), gauri (to make fair), ghurshani (to rub), haldi (that draws attention to its bright color), harina (dear to hari), Lord Krishna, barti (greenish), hemarangi (exhibits golden color), hemaragna (gives the golden color), hridayavilasini (gives delight to heart, charming), jayanti (one that wins over diseases), jowarangana (which aures ferver), kanchani (exhibits golden color), kaveri (harlot), krimighni or kashpa (killer of worms), kshamata (capability), lekha (prospertiy), mangalprada (who bestows auspiciousness), mangalya (auspicious), mehagni (killer of fat), meha (night), nisha (known as night), nishav (clears darkness and imparts color), padmatika (perfumed powder), pavitra (holy), pange (reddish-brown), pinja (yellow-red powder), pita (yellow), pitkot (which gives yellow color), nabhangavasa (which dissolves fat), rajani (which gives color), rasmanika (as beautiful as moonlight), shiva (Fibrous root), abhisheka (brilliant color), shiva (glares), shynma (dark colored), sukhadapati (lucky), survarna (golden color), survarangana (which exhibits golden color), tomasni (beautiful as night), ujasvinn.Parvatich, wife of Lord Shiva), vairagi (who remains free from desires), varavarni (which gives fair complexion), varna datri (enhancer of body complexion), varmni (which gives color), viha (killer of pain), yamini (night), yashotpriya (beloved of wife), and yuvati (young girl)
Turmeric and Cancer

Effect of turmeric on urinary mutagens in smokers

- Antimutagenic effects of turmeric were examined in 16 chronic smokers.
- Turmeric was given in doses of 1.5 g/day for 30 days, and this was found to significantly reduce the urinary excretion of mutagens in these smokers (not in controls).
  - Polasa et al. 1992

Farmer to pharmacist: curcumin as an anti-invasive and antimetastatic agent for the treatment of cancer

“Curcumin is a cheap, non-toxic, and easily available natural polyphenol with excellent medicinal and commercial demands.…”

“A huge number of preclinical and early-phase clinical studies undoubtedly confirmed this nutraceutical as safe with vast potential of becoming an effective anti-invasive and anti-metastatic chemotherapeutic…for the treatment of cancer.”
  - Bandyopadhyay, 2014

Turmeric and Arthritis

Therapeutic Roles of Curcumin: Lessons Learned from Clinical Trials

- “Curcumin was well-tolerated, had no adverse effects, and exerted an anti-rheumatic activity identical to that of phenylbutazone as shown by improvement in joint swelling, morning stiffness, and walking time.”
  - Gupta et al., 2013
Therapeutic Roles of Curcumin: Lessons Learned from Clinical Trials

Turmeric and Arthritis

A complex of three natural anti-inflammatory agents provides relief of osteoarthritis pain.

"The improvement of joint pain was clinically relevant in patients treated with AINAT for both acute and chronic OA pain."

Conrozier et al., 2013

Turmeric and Diabetes

The beneficial role of curcumin on inflammation, diabetes and neurodegenerative disease: A recent update.

"More than 7000 published articles, antioxidant, hypoglycemic, anti-inflammatory and anti-cancer activities. "...modulating different signalling molecules including transcription factors, chemokines, cytokines, tumour suppressor genes, adhesion molecules, microRNAs, etc."

Gsosh et al., 2015
Turmeric and Diabetes

**Efficacy of Turmeric as Adjuvant Therapy in Type 2 Diabetic Patients.**

“Turmeric supplementation as an adjuvant to T2DM on metformin treatment had a beneficial effect on blood glucose, oxidative stress and inflammation.”

Selvi et al., 2015

Turmeric: Practical Considerations

**Indications**

- Chronic infection
- Any inflammation
- Pain
- Depressed immunity
- Cancer
- Toxicity
Turmeric: Practical Considerations

- Food based
- Cooked
- With black pepper
- 1-3g / day
- Take in food, oil, hummus, soup, with milk, fudge, etc.
- $0.03 / day for 2g / day

Garlic (Allium sativum)

- Food
- “Vampires”
- Cold and flus
- Vaginal infections
- Hypertension

In Tradition

- Obesity
- Metabolic syndrome
- Cardiovascular disorders
- Gastric ulcer
- Cancer
- Infection
- Immune dysregulation

Garlic (Allium sativum)

- Cold and flus
- Vaginal infections
- Hypertension

Contemporarity
Garlic and Cancer

“…nutritional components can highlight rejuvenation of chronic atrophic gastritis as well as amelioration of H. pylori-associated procarcinogenic inflammation.”

Ham et al., 2015

Garlic and Cancer

“…only recently have Allium sativum and its derivatives been proposed as promising candidates for maintaining the homeostasis of the immune system.

“…contribute to the treatment and prevention of pathologies such as obesity, metabolic syndrome, cardiovascular disorders, gastric ulcer, and even cancer.”

Arreola et al., 2015

Garlic and Arthritis

“…protective against radiographic hip OA.

“…represses the expression of matrix-degrading proteases in chondrocyte-like cells, providing a potential mechanism of action.”

Williams et al., 2010
Garlic and Diabetes

Garlic (Allium sativum) supplementation with a standard antidiabetic agent provides better diabetic control in type 2 diabetes patients.

“...Combination of garlic with typical antidiabetic remedy has shown to improve glycemic control in addition to antihyperlipidemic activity.

“Garlic may be a good addition in the management of patients with diabetes and hyperlipidemia.”

Ashraf and Ashraf, 2011

Garlic: Practical Considerations

Indications

- Chronic infection
- Depressed immunity
- Elevated blood lipids
- Inflammation
- Cancer
Garlic: Practical Considerations

Dosing
- Food based
- Raw for immune
- Cooked for CV
- 1-3 cloves / day
- Take in food, oil, hummus, avocado, honey, etc.
- $0.10 / day (2 cloves)

How can we take our herbs?

<table>
<thead>
<tr>
<th>Medicinals</th>
<th>Food-Medicines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teas</td>
<td>Vinegars</td>
</tr>
<tr>
<td>Tinctures</td>
<td>Pestos</td>
</tr>
<tr>
<td>Powders</td>
<td>Oatmeals</td>
</tr>
<tr>
<td>Capsules</td>
<td>Balls</td>
</tr>
<tr>
<td>Oil-based topicals</td>
<td>Smoothies</td>
</tr>
<tr>
<td>Water-based topicals</td>
<td>Soups</td>
</tr>
</tbody>
</table>

Herbs and the Underserved

Criteria
- Materia medica considerations:
  - Local
  - Ample evidence base?
    (Funding, PCP rationale)
  - Cost effective format?
  - Cost effective dosing?
  - Safe
  - Multi-factorial
  - Preventative

More than 3 herbs?
- What are your ideas?
Case Study #1

- Miriam is a 19 year old black female who has been diagnosed with obesity, pre-diabetes, and metabolic syndrome.
- She has access to few health resources.
- She can’t cook at her place.
- She has a budget of less than $5 / month.
- What might you recommend her?

Case Study #2

- Ryan is an Indian-American father who lives in a multigenerational household.
- His family members have a variety of health concerns, but there are several diabetics, an individual with cancer, two with autoimmune disease, and several with hypertension and hyperlipidemia.
- Ryan reports it’s hard to keep up with who needs what and how to get it to each of them.
- What might be a simple and effective practice they could consider in their household?

Case Study #3

- Chelsea is a 62 yo Caucasian female on welfare and in Medicaid.
- She has been undergoing cancer treatments for breast cancer and is having significant QOL impact as well as insomnia, gastric complaints, edema, and fatigue.
- She has a very limited budget but would be able to spend up to $10 / month on herbs which may be helpful for her.
- What would you give her and how would you administer it?