AHG Professional Herbalist Training Webinars
Presents:

Herbal Pharmacology: Case Based Studies
with Guido Masé, RH (AHG)

Hosted by Anna Claire Lotti
AHG Education Coordinator
Training and resources for today’s industries and tomorrow’s innovations

- Industry Training - Online and On-site
- Botanical Identification
- Good Manufacturing Practices
- Herbal Quality Control
- Laboratory Resources

For the Food, Beverage, and Natural Products Industries

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Clinical Pharmacognosy

A case-based approach
Part IV

Guido Masé RH(AHG)
*Areas of influence*

Tissue-level activity
- Central nervous system
- Peripheral nervous system
- Receptor / enzyme interaction
- Lymphatic channels / Immune cells

Cardiac effects
- Alkaloidal activity on S/A node

Hepatic effects
- Hormone metabolism / enzyme interaction
- Toxicity
Central effects (limbic, frontal, default action network)
Peripheral effects (vanilloid receptors, chemosensing receptors)
Peripheral nervous system:

Sensory receptors (TRPV-1)
aka vanilloid receptors

(examples of receptor modulation)
Tissue-level activity

Cardiac muscle depolarization (Activation of contraction)
Tissue-level activity

Cardiac activity - alkaloids (and cardio glycosides)
Tissue-level activity

Lymphatic channels and immune system: innate immune activation / conversation, helper T cell modulation
Steroid dehydrogenase binding pocket
Hepatic effects

Steroid hormone metabolism (cortisol/cortisone)
Also occurs in the kidney
Male, 38 years old
Received diagnosis of “prurigo nodularis”, body-wide itching characterized by widespread lesions that can be open
Of unknown etiology - usually tied to stress, itch-scratch cycle
Diet is good, GI habits regular, but anxiety level high!
Sleep, cardiovascular function normal - unless sleep is disrupted by itching (1-2 nights / week)

Constitutional notes:
Slender, very fidgety, scattered
Easily startled, constant motion
Somewhat dry
Case 1

Potentially applicable chemical classes:
- Volatile oils
- Piperidine alkaloids - capsaicin (really a pseudo-alkaloid)
- Steroidal saponins (adaptogenic effect)

Constitutional notes:
- Need central nervous system support
- Need “vata-pacifying” oil - sesame
Case 1

Potentially applicable chemical classes:

Volatile oils

Cadinene - Scutellaria lateriflora

Case 1

Potentially applicable chemical classes:
Piperidine (psuedo)alkaloids

Case 1

Potentially applicable chemical classes:
Steroidal saponins

Case 1

Male, 38 years old

Recommendations:

Topical capsaicin cream .025% TID if possible
Scutellaria 60ml, Panax 60ml 5ml TID
Sesame oil (raw) topically after shower

... 24 hours ...
“You are crazy and torturing me!!!”

... 72 hours ...
“The itching is gone!”

... 1 week ...
“I will need more of the tincture formula.”

Lesions fading slowly, much improved
Case 2

Female, 59 years old
Episodes of cardiac tamponade, uncertain etiology
Heart weakened: hypotension, fatigue, irregular rhythms

Otherwise extremely healthy, moderately active, good food including lots of hawthorn already

Constitutional notes:
Cool - unexpectedly so
Irregularity noticeable in a weak pulse
Very, very easy fatigability (new to her)
Case 2

Potentially applicable chemical classes:
Quinolizidine alkaloids - sparteine e.g.
Bioflavonoids

Constitutional notes:
Fatigue is secondary to heart weakness
Case 2

Potentially applicable chemical classes:
Quinolizidine alkaloid

Sparteine - Cytisus scoparius

M Raschack. Actions of sparteine and sparteine derivatives on the heart and circulation. Arzneimittel-Forschung, 1974
Case 2

Female, 59 years old

Recommendations:
- Fresh Scotch Broom flower extract, 10 gtt BID
- Continue with high flavonoid (catechin) intake:
  - Hawthorn, blueberries

... 3 weeks ...
- Mild improvement in energy.
- Noticeably more regular pulse

... 6 weeks...
- Energy better, but improvement has stalled

Consider: adaptogens?
- Ashwagandha / Rhodiola / Panax?
Case(s) 3

Trauma?
Post-traumatic stress disorder?
Anxiety associated with terminal disease?
Intractable depression?
Substance abuse/addiction?

- pattern-breaking ("default-mode network")

Openness, creativity, meaning, happiness
Persistent changes from one dose
Psilocybin: oceanic boundlessness, fear of ego dissolution, visuals
Fear in over 1/3 of participants, but significant benefits in depression, PTSD, anxiety, addiction

Roland Griffiths
Johns Hopkins

Psilocybin: increase in “openness” domain - clinically observed, reported by family/friends @ 6mo follow-up


Also:

Griffiths et al 2008: 14 month follow-up
Griffiths, Grob et al 2013: anxiety + cancer

Entheogens
Good review of overall effects of psilocybin on mental health:


Experiment on tobacco cessation. 80% stayed quit at 6mo follow-up ....after one session!
Robin L Carhart-Harris (Imperial College, London)  
Clinical trial in the Lancet

One of the first prospective trials for psilocybin in cases of depression that didn’t respond to treatment.


12 patients. Two sessions, with escalating dose of psilocybin.  
All patients reported anxiety during onset.  
All patients showed improvement at:  
1 week and 3 months in: depression, anxiety, anhedonia

Entheogens
Case(s) 3

Potential mechanisms for indole alkaloids:

- Increased DOPA re-uptake
- 5-HT2A receptor hyper-excitability?
  - prefrontal cortex, other cortical areas (<5% overall neurons)
  - Once excited, spread to other cortical areas

Openness, creativity, meaning, happiness
Persistent changes from one dose

Potential mechanisms for indole alkaloids:

- Decreased activity in the default mode network
  - Pre-frontal cortex, medial temporal cortex, hippocampus and limbic system
  - Sense of self, others, and emotion

Openness, creativity, meaning, happiness
Persistent changes from one dose

Indole alkaloids:

Psilocybin (Psilocybe cubensis)
Case(s) 3

Indole alkaloids:

Psilocybin (Psilocybe cubensis)

Ibogaine

Serotonin
From 1979, Japan, 2 cases of pseudoaldosteronism
Women aged 68 and 71
275mg to 550mg glycyrrhizin for 1.5 to 6 months (6-12g root)
Results: hypertension, elevated plasma sodium, disruption of renin-aldosterone system, edema
Effects continued for 1 month after discontinuation, then slowly renormalized

Case(s) 4

Case(s) 4

Case 5

Male, 20 years old

Post-mononucleosis: weak, fatigued, experiences recurrent upper respiratory infection. EBV infection Sx began 3 mo ago

Generally healthy, fit, eats well. Occasional tobacco.

Hypersensitivity developing: chemicals, cleaners, laundry - with runny nose, itchy eyes

Constitutional notes: some yellowing signs on tongue, occasional orbital headache
Case 5

Potentially applicable chemical classes:
Triterpenes (medicinal mushrooms)
Steroidal saponins (adaptogenic / immunologic effect)
Polysaccharides

[potentially, also, other cases: Echinacea/Hyssop/Baptisia 2wk]

Constitutional notes:
Need hepatic support?
Case 5

Potentially applicable chemical classes:
Triterpenoids (steroidal) - from medicinal mushrooms

Ganoderma lucidum

Case 5

Potentially applicable chemical classes:
Steroidal saponins


Panax quinquefolius
Case 5

Potentially applicable chemical classes:
Flavonolignans

Silymarin - Silybum marianum

Case 5

Male, 20 years old

Recommendations:
Astragalus root powder, 10g QD mixed with nut butter/honey
Tincture of 30ml Ganoderma, 90ml Panax. 5ml BID
Ground Silybum seed, 5g BID mixed with cooked grains

... 2 weeks ...
1 recurrence of fever, 36 hours
Energy improving (slowly)
Tongue clear

... 6 weeks ...
Much better. Back to work full-time, exercise regime restarted
Self-Evaluation

Consider your level of familiarity with the following concepts

Epithelial effects:
- What tissues?
- What actions?
- Botanical examples
- Relevant constituents

Endothelial effects:
- Endothelial surface
- Vascular / arteriolar / capillary smooth muscle
- Botanical examples
- Relevant constituents
Self-Evaluation

Consider your level of familiarity with the following concepts

Immunologic effects
  Primary area(s) of influence from botanicals
  Relevant constituents

Lymphatic effects
  Role of coumarins
  Fluid retention and the kidney
  Coumarins and blood clotting
Self-Evaluation

Consider your level of familiarity with the following concepts

“Acupharmacological” effects
  Useful model for understanding oral dosing
  Autonomic nervous system’s role

Protein/receptor-mediated effects
  Cell surface
  Nuclear
  Transcription regulation
  Metabolic enzymes (Liver phase 1, steroid) + consequences
Self-Evaluation

Consider your level of familiarity with the following concepts

Epigenetics
- Methylation of DNA backbone
- Acetylation / modification of histones
- Notable phytochemical constituents
- Consequences (note: phyto “antioxidants”? estrogens?)

Nervous system
- Acupharmacology
- Limbic system modulation
- Peripheral / Central receptor influences
- Neuromuscular polarization effects
Self-Evaluation

Consider your level of familiarity with the following concepts

Pharmacokinetics (how the body affects constituents)
  - Glycosylation / deglycosylation + relevant molecules
  - Absorption enhancement
  - Mechanical “trapping” in GI tract
  - Motility modification
  - Hepatic metabolic enzymes (Phase 1 and 2)
  - Route(s) of excretion
Self-Evaluation

Consider your level of familiarity with the following concepts

Toxicity

- Pyrrolizidine alkaloids
- Cardioactive alkaloids / glycosides
- Tropane alkaloids
- Emesis through irritation (alkaloids, saponins)

Potential interactions

- Additive synergy
- Hepatic metabolism
Thank you!!

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