C4. PHARMACISTS
INTEGRATING NATURAL MEDICINE IN YOUR
PRACTICE...STARTING WITH ADRENALS, STRESS,
THYROID, AND SLEEP
3:15 - 4:15PM

ACPE UAN: 107-000-14-033-L01-P 0.1 CEU/1.0 hr
Activity Type: Knowledge-Based

Learning Objectives for Pharmacists: Upon completion of this CPE activity participants should be able to:
1. Discuss the benefits of integrating science-based nutritional therapies in your pharmacy practice
2. Describe how to select the best nutritional products for your pharmacy practice
3. Identify supplements and lifestyle changes that may help patients with adrenal and thyroid issues
4. Describe how to increase pharmacy revenues with therapeutic nutraceuticals
5. Discuss science-based educational resources that can be used to grow your nutraceutical pharmacy practice

Speaker: Baylor Rice, RPh, FIACP, is President of Compounding Specialist, and Natural Medicine Consultant for the South River Compounding Pharmacy Inc. and South River Compounding Pharmacy West End, Inc. – both in Virginia. He received his Bachelor of Science degree in Pharmacy from the Medical College of Virginia in 1994. Baylor is a member of several professional and University of Virginia organizations and is currently on the Board of Directors for the international Academy of Compounding Pharmacists.

Speaker Disclosure: Baylor Rice reports no actual or potential conflicts of interest in relation to this CPE activity. Off-label use of medications will not be discussed during this presentation.
Nutritionals---A Good Place to Start: Supporting the Adrenal and Thyroid Glands

Stressed & Wired

Baylor Rice, R.Ph. FIACP
Over-exposure to stress hormones accounts for 75%-90% of all primary care visits in the U.S.

Almost all illness is stress-related
- Caused by stress
- Aggravated by stress
- Causes stress

Linked to the 6 leading causes of death: heart disease, cancer, lung ailments, accidents, cirrhosis, and suicide

#1 reason why people...
- Eat poorly
- Quit healthy lifestyle programs
- Practice substance abuse

(National Institute for Occupational Safety and Health)
The stressful things in life (stressors) that trigger the release of alarm hormones don’t make us sick.

The body’s unique response to those stressors definitely can.

Center for Studies on Human Stress, Sonia Lupien PhD
A healthy stress response is short lived

1. Sympathetic ALARM Response (SNS*) (norepinephrine “noradrenalin”)
2. Adrenocorticotrophin hormone
3. Corticotrophin releasing hormone

Resolution
*Sympathetic Nervous System
†Adrenocorticotrophin hormone
‡Corticotrophin releasing hormone

Perceived Stressor
Hypothalamus
Pituitary Gland
Adrenal Glands
Cortisol
Resolution
turns off stress response
Facilitates Negative Feedback Loop
Continual exposure to stressors is a biochemical event that excites the sympathetic nervous system, putting the entire body on the alert.

An individual’s stressor-tolerance varies based on:
- genetics
- diet
- toxic burden
- health status
- occupation
- lifestyle
- social skills
- community network
- family and friends
- human experience
Pathological *symptoms* of binary brain imbalance

<table>
<thead>
<tr>
<th>HPA Over-responsive HPA</th>
<th>Under-responsive HPA</th>
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<tr>
<td>- Excess SNS</td>
<td>- Excess PSN</td>
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| - Hyper-aroused, hyper-vigilant  
  - anxious, worried       | - Lethargy and fatigue |
| - *Elevated cortisol*    | - Apathy, low motivation |
| - Belly fat or weight loss | - *Low cortisol*      |
| - Decreased appetite     | - Weight gain         |
| - Decreased libido       | - Increased appetite  |
| - Insomnia               | - Hypersomnia - excessive sleep |
| - Hypertension, tachycardia | - Depressed immune activity |
| - Pain and inflammation  | - Autoimmune disorders |
|                         | - Chronic pain       |
Conditions linked with over- & under-production of cortisol

**Over-production** (excitatory)
- Cushing's syndrome
- Depression & OCD
- Diabetes
- Anorexia nervosa
- Myocardial ischemia, arrhythmia
- Hypertension
- Lipid disorders
- Childhood abuse
- Hyperthyroidism
- Depression

**Under-production** (inhibitory)
- Addison’s disease
- Seasonal depression
- CFIDS and Fibromyalgia
- Myocardial infarction
- Allergies/Asthma
- Rheumatoid arthritis
- Post traumatic Stress Syndrome
- Hypothyroidism
- Atypical depression
- Chronic pain

B. McEwen. *The End of Stress as We Know It.* 2002, p.64
Cat Stress

Cat food shortage • Can opener not working
Big dogs • Hairball stuck in throat
Going to the vet • $pay/neuter • So many things
to claw, so little time • De-clawing
Litterbox not changed • More big dogs
Fur rubbed the wrong way • Tail under
rocking chair • Loud noises • Grabbed by little kids
Really big dogs • Getting stuck in a tree
Experimental labs...
Now, stress relief is as simple as:

1. Identify Stress
2. Nutraceuticals
3. Stress relief tips and Diet
Step 1: Stress relief begins with identifying your unique experience to stressors.

Stress patterns express a trend toward increasing exposure to excess stress hormones and decreasing stressor tolerance.
Step 2: Targeted nutrition to match nutraceuticals to stress patterns

Why use Adaptogens?
They are botanicals that reduce the damaging effects of chronic exposure to HPA over- or under-production of stress hormones.
Adaptogens have web-like properties reverberating throughout the body.

They share similar properties:
- Non-toxic
- Helps the body adapt to stress
- Normalizes body function

They differ according to:
- Organ system affinities
- HPA axis effects—calming, balancing, stimulating
Type 1: Occasionally Stressed

**Casein Tryptic Hydrolysate (CTH)**

**L-Theanine**

**Kava**

Relaxation When Needed

**Profile:** after long and challenging days

- Feeling edgy, jittery
- Overwhelmed
- Distracted
- Acute fear - pounding heart, breathless, sweaty palms, indigestion
Type 2: Stressed & Wired
Rehmannia, Schizandra, Jujube, Dong Quai

Traditional Heart Calming Formula

Profile: For those who live hectic, demanding lives and forget to care for themselves
- Feeling “burned-out"
- Anxious, apprehensive
- Difficulty sleeping
- Cardiovascular complaints
- Nervous energy, can’t calm down
Type 3: Stressed & Worried

Polygala, Jujube, Poria, Biota

Tension Release Support

Profile: Often sleep deprived secondary to an acute stressful event
- Worrying about things big and small
- Mental restlessness
- Easy to anger, unyielding or inflexible under prolonged stress
- Muscle spasms and headaches
Type 4: Stressed & Hot
Licorice, Ashwaganda, Rehmanna, Wild Yam, and/or Glandulars

Cortisol Balance

Profile: Stress-related adrenal gland fatigue
- Muscle and joint pains
- Crave salt and salty things
- Get dizzy when rising or standing from sitting position
- May use anti-inflammatory steroids
- Low 24-hour urinary/salivary cortisol and/or DHEA levels
Type 5: Stressed & Mentally Exhausted
Holy Basil, Ashwaganda, Amla, Bacopa

Mental Strain Support

Profile: When under prolonged stress, cognitive function declines:
- Forgetful
- Poor concentration and focus
- Difficulty organizing thoughts and making decisions
- Impaired memory
Type 6: Stressed & Tired
Ginseng, Cordyceps, Rhodiola

Stress-related Fatigue Formula

Profile: Low energy affects multiple organ and gland function
- Feels tired and weak for no apparent reason
- Looks pale and feels puffy
- Wakes un-refreshed
- Appears apathetic and depressed
- Unwanted weight gain
60 Million Americans suffer from disturbed sleep, characterized by functional impairments during the day.

Today, the practice of “burning the candle at both ends” has created so much sleep deprivation that what is really abnormal sleep is now almost the norm.

http://www.ninds.nih.gov
Some of the expressions of sleep disturbances are the following:

- Difficulty falling asleep
- Difficulty waking up
- Daytime drowsiness
- Waking up frequently during the night with difficulty returning to sleep
- “Zoning out” in the middle of a conversation or task
- Difficulty concentrating
- Clumsy and/or slower reaction times
- Feeling emotional
- Altered memory & judgment

http://www.cdc.gov/niosh/stresswk.html
Additional Adrenal Supplements

- B-Complex
- Vitamin C
- Phosphatidylserine
- Glandulars
- Melatonin
- GABA
- Inositol
- 5-HTP
- Magnesium
- Calcium
- Valerian
- Passion Flower
Relationship of the Endocrine Organs

Solid lines = Stimulates
Dotted lines = Inhibits
Labs—Sex Hormones

Women
- Clinical observation
- Saliva or Blood levels
  - Testosterone
  - Total Estrogen
  - Progesterone
  - Sex Hormone Binding Globulin
  - DHEA-S
  - Cortisol x4 (saliva)
  - Cholesterol
  - Thyroid Panel
  - Vitamin D-25-OH

Men
- Clinical Observation
- Saliva or Blood Levels
  - Total and Free Testosterone
  - Estradiol
  - DHEA-S
  - Cortisol x 4 (saliva)
  - PSA
  - Cholesterol
  - Prolactin
  - Thyroid Panel
  - Vitamin D-25-OH
Functions of the Thyroid Gland

- Metabolic hormone that regulates metabolism, temperature, immunity and cellular function
- Regulates growth and development
- Provides energy
- Prevents cancer
- Prevents cardiovascular disease
- Improves cerebral function
- Increases fat breakdown
- Regulates oxygen utilization

The thyroid gland consists of many follicles (seen here as many small round globules) where thyroid hormones are produced and stored. (thyroid gland 25X)
Thyroid Physiology

Thyroid system

Hypothalamus

Anterior pituitary gland

Thyrotropin-releasing hormone (TRH)

Negative feedback

Thyroid-stimulating hormone (TSH)

Thyroid gland

Thyroid hormones (T3 and T4)

Increased metabolism

Growth and development

Increased catecholamine effect
Thyroid Symptoms

- Decreased energy
- Chillier than others
- Wearing socks to bed
- Anxiety leading to panic
- Aches/pains unrelated to exercise
- Depression
- Decreased libido
- Hair dry/falling out
- Brittle nails
- Decreased focus/concentration
- Exhausted, but trouble sleeping
Factors that affect T4-T3 conversion

**Medications**
- Beta Blockers
- Birth control pills
- Estrogen
- Iodinated contrast agents
- Lithium
- Phenytoin
- Steroids
- theophylline

**Nutrient Deficiencies**
- Chromium
- Copper
- Iodine
- Iron
- Selenium
- Zinc
- Vitamin A
- Vitamin B2
- Vitamin B6
- Vitamin B12
Factors that affect T4-T3 conversion

Diet
- Cruciferous Vegetables
- Soy

Other
- Aging
- Alcohol
- Diabetes
- Fluoride
- Lead
- Mercury
- Obesity
- Pesticides
- Radiation
- Stress
- Surgery
Nutritionals for Hyperthyroidism

- PABA
- Thymus Extract
- Selenium (200-400mcg)
- Vitamin C (3,000-5,000 mg/day)
- B12-methylcobalamin or hydroxylcobalamin 1,000-5,000mcg/day
- Magnesium glycinate 200-600mg/day
- Vitamin B6 50mg/day
- Cats Claw
- L-Carnitine 1,000-2,000mg/day
- Kelp/Iodine
Supplements for Thyroid Support

- Therapeutic Multi-vitamin/mineral with B-Complex
- Omega 3 Essential Fatty Acids (fish oil)
- Bladderwrack
- Guggulsterones
- L-Tyrosine
- Kelp/Iodine
- Vitamin E (mixed tocopherols)
- Vitamin C (w/BioPerine for increased Absorption)
- Vitamin D3
- Glandular support
- Selenium
- Zinc
Monitoring

- Labs: ADRENALS: Cortisol x 4 saliva kit + DHEA

- Labs: THYROID
  - Free T3
  - Free T4
  - Reverse T3
  - TSH
  - TPO
  - Ferritin
  - Vitamin D-25-OH

- Basal Body Temperature
- Symptoms

Labs detect disease not optimal function.
Importance of Supplement Quality

- GMP Certified company
- Registered with the FDA
- 3rd Party Analysis
- Testing
  - Dissolution
  - Disintegration
  - Mass Spectroscopy
  - Liquid Chromatography
What are patients Reading?

- Suzanne Somers “The Sexy Years”
- David Brownstein, M.D. “The Miracle of Natural Hormones”
- Christiane Northrup, M.D. “The Wisdom of Menopause”
- Eugene Shippen, M.D. “The Testosterone Syndrome”
- Aubrey Hill, M.D. “The Testosterone Solution”
- Richard & Mari Lee Shames “Thyroid Power”
- James Wilson, “Adrenal Fatigue”
- Dr. John Mulhall, “Saving Your Sex Life”
- C. Norman Shealy, M.D., Ph.D., “DHEA, The Youth and Health Hormone”
- Barbara Wexler, MPH., “Vitamin D”
- Bob Cooley, “The Genius of Flexibility”
Balance

Promotes the Negative Expression Of Genetic Individuality (Genetic Polymorphisms)
Evidence Based Medicine Please

- Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomized controlled trials. (Smith et al 2003 BMJ journal)
Resources to help you.

• Herbal Gram
• Natural Standard
• Alternative Medicine Review
• Institute of Functional Medicine
• American Botanical Council
• Handbook of Drug Nutrient Interactions
How Do I Get Started?

• Read, research, and listen to your patients.
• Have your patients Complete a Patient Evaluation Form
• Have your patients call to schedule a personal consultation and/or Receive a Therapy recommendation
• Call/discuss with their physician.
• Prescription-supplements filled by Your Pharmacy.