Objective Evaluation of Stress

Presented By

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Stress

Mental, Physical or Emotional

Tension, Strain or Distress

(Webster)

• Underlies, directly or indirectly, significant employee absence (est. 1 million/day)

• “Diagnosis of exclusion” – based on clinical impression and (costly) testing.

• Cries out for simple, objective evaluation to establish its presence and extent.
Coping with Stress

- Acute (life threatening) – Fight or Flight
  - Autonomic Nervous System (adrenaline)

- Lesser/Subacute (daily problems)
  - Endocrine System
    - Thyroid axis
    - Insulin/Glucose Metabolism
    - Testosterone Balance
    - Hypothalamic / Pituitary / Adrenal (HPA) Axis
      - Cortisol

- “HPA axis plays major role in transducing subjective social- environmental experience into physiologic changes relevant to health”
  - North West University/University College London
HPA axis
Adrenal Circadian Rhythm

![Graph showing cortisol production throughout the day with peaks at noon and troughs at midnight.](image-url)
Chronobiology

The study of the biology of the body over time through analysis of its changes and vagaries.
Adrenal Stress Index

Profile of:

- 4 Cortisol measurements (awakening, noon, early evening, bedtime)
- DHEA/DHEA-S
- 17-OH Progesterone
- Insulin (fasting/2hr. after eating)
- Total SIgA
- SIgA Gliadin antibody
Salivary Cortisol

- 1116 Proteins simultaneously present in saliva and blood.
  - NIH Sponsored report (2008)

- “Salivary free Cortisol measurements offers an excellent reflection of the plasma Cortisol concentration in normality and disease.”
  - Endocrinology (DeGroot and Jameson)

- “Free Cortisol in the blood is in equilibrium with Cortisol in the saliva.”
  “Mass spectroscopy [costly] and ELISA [economical] techniques both yield 92%-100% sensitivity and 93%-100% specificity.”
Saliva Testing Advantages

- Accurate / Time Tested
- Facilitates Chronobiologic Testing
- Private
- Convenient
- Applicable
- Economic
ASI Sample Evaluation

EXHAUSTED HPA AXIS (CHRONIC STRESS-NO REST)

Figure 1. Circadian Cortisol Profile

- Reference Ranges
- Patient Results
Sample ASI Evaluation

HPA AXIS COPING (REPETITIVE STRESS-SOME REST)

Figure 1. Circadian Cortisol Profile

- Free Cortisol (nM)
- Reference Ranges
- Patient Results
Sample ASI Evaluation

HPA AXIS COPING-WITH SLEEP DISTURBANCE (REPETIVE STRESS-SOME REST)
Stress Evaluation ASI

- Proven/Accurate
  Clinically (26 years)
  Public Health/Pyschoneurology

- Applicable for Industry

- Patient Acceptability

- Easy/ Economic Basic Stress Evaluation