Osteopathic Dermatology

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Disclosures

I have no relevant disclosures.
Osteopathic Principles

- Human being is a dynamic unit of function (body, mind, spirit)
- Self-regulatory mechanisms that are self-healing in nature
- Structure and Function are interrelated at all levels
- Rational treatment is based on these principles

Actinic Keratosis

- The body is a unit; the person is a unit of body, mind, and spirit

Appearance affects spirit

Consider whole region/unit affected for treatment
Actinic keratosis

- Structure and function are reciprocally interrelated
- Sun-damaged skin
  - P53 mutation

http://www.skincancercare.com/actinic-keratosis-pictures.html
Normal skin

UV-induced DNA damage → Manifest mutation

Epidermal p53 clone

Resistance to UV-induced apoptosis → Clonal expansion

Squamous cell dysplasia

Second p53 mutation → Selection for growth advantage

Squamous cell cancer in situ

Additional genetic alterations → Acquisition of invasive capacity

Invasive squamous cell cancer

Tumor progression → Metastatic properties

Metastasis of squamous cell cancer

Additional genetic alterations

Lymph node

Lung
Actinic keratosis

- Atypical, crowded keratinocytes occupy the lower portions of the epidermis
- Parakeratosis (nucleated keratin layer)
- Orthokeratosis (non-nucleated keratin layer)
- Hair Follicules (atypical epidermal keratinocytes “spare” hair follicle epithelium)
- Elastosis in the dermis
Actinic keratosis

The body is capable of self-regulation, self-healing, and health maintenance

- Observe
- Field Therapy
- Cryotherapy
- Light Therapy
Actinic keratosis Treatment

- Cryotherapy
  - Low 1-year clearance rate - 28%
  - Isolated lesions vs. diffuse involvement

Actinic keratosis Treatment

- **Imiquimod**
  - 73% 1-year clearance rate
- **5-FU**
  - 54% 1-year clearance rate

Actinic Keratosis Treatment

- Imiquimod
  - Immunomodulator- best MOA for self-healing
    - Activator of Toll-like receptor 7
    - Induces TNF-alpha, INF-gamma,.....
  - Minimal systemic absorption

Actinic Keratosis Treatment

- 5-FU
  - Flourinated pyrimidine analog with cytotoxic effects
  - 6% systemic absorption

Actinic Keratosis Treatment

- Diclofenac
  - 64% 90 day clearance rate when combined with cryosurgery
  - ↓ Prostaglandin synthesis
  - Prostaglandins ↑ in sun damaged skin

Actinic Keratoses Holistic Approach

- Consider the whole patient
  - Isolated vs. broad area
  - Economics
  - Ability to self-heal
    - Immunomodulators
Psoriasis
Psoriasis

*Structure and function are reciprocally interrelated.*

- Immune dysregulation
  - T-helper 1 cells
  - T-helper 17 cells
Psoriasis

Psoriasis

The body is a unit; the person is a unit of body, mind, and spirit.
Psoriasis Comorbidities

- Obesity
  - Leptin
    - Increased in psoriasis patients
    - Stimulates TNF-α and IL-6
- Weight loss

Psoriasis Comorbidities

- Cardiovascular
  - Hypertension
    - Increased renin and ACE levels
  - Adiponectin
    - Decreased in psoriasis patients
    - Anti-inflammatory and anti-atherogenic
Psoriasis

The body is capable of self-regulation, self-healing, and health maintenance.

- Stress
  - Activates HPA axis
  - Alters immune function
  - Impairs ability to self-regulate, self-heal
- Coping strategies

Osteopathic Treatment

*The body is a unit; the person is a unit of body, mind, and spirit.*

- Individualized
  - Extent of disease
  - Comorbidities
  - Lifestyle
  - Availability (distance from treatment facility)
- Comprehensive
Psoriasis Treatment

- Topical
  - Emollients
  - Keratolytics
  - Corticosteroids
  - Calcineurin inhibitors
  - Vitamin D analogs
Psoriasis Treatment

- Topical corticosteroids
  - ↓ number of antigen presenting cells and cellular receptors
  - ↓ neutrophil adhesion to vascular endothelium

Psoriasis Treatment

- Calcineurin inhibitors
  - FK506 binding protein
    - Binds calcineurin
    - Blocks IL-2
    - Inhibits T cell activation
- More appropriate for thin skin
Psoriasis Treatment

- Vitamin D analogs
  - Inhibits keratinocyte proliferation/differentiation
  - Inhibits IL-2, IL-6, IFN-γ
  - Inhibits cytotoxic T-cells and NK cells

Psoriasis Treatment

- Systemic
  - Steroids
  - Retinoids
  - TNF-α inhibitors
  - Other immune modulators
Psoriasis Treatment

- Oral Retinoids
  - Bind nuclear factor receptors
  - Stabilize inflammation
  - Cellular differentiation
  - Apoptosis
- Acitretin
  - Etretinate
  - Half life 80-160 days
Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function.
Acne - Pathophysiology

- Structure and function are reciprocally interrelated
Follicular hyperkeratinization

Proliferation + desquamation

Microcomedone
Acne- Treatment

- Structure and function are reciprocally interrelated

- Treat the structural problem - microcomedone
  - Function will return to normal
Acne-Treatment

• Maintenance therapy with a topical agent
• Treats comedones (structural issue)
• Acne clears (normal function of skin returns)
Acne

*The body is capable of self-regulation, self-healing, and health maintenance*
Acne and Antibiotics

- The body is capable of self-regulation, self-healing, and health maintenance.

- Limit antibiotic use to 3-6 months

The body is a unit; the person is a unit of body, mind, and spirit.

- Low glycemic index
- Dairy has testosterone precursors that are converted to active forms when ingested and act on the pilosebaceous units
  - Stimulate insulin-like growth factors

Acne scarring

- Severe acne can result in deep pitting scars, which are cosmetically undesirable
- Significant psychological impact and decreased quality of life
Acne Scarring

The body is capable of self-regulation, self-healing, and health maintenance

Many treatment options take advantage of the body’s ability to self-heal to fill in the scars. Some examples are:

- Chemical peels
- Dermabrasion
- Ablative modalities
Acne Scarring

- A comprehensive, Osteopathic approach to managing acne should not only include treating the acute presentation, but also long term sequelae such as disfiguring scarring. There are many treatment options available that take advantage of the body's ability to self-heal in order to achieve results. In addition, treating a patient as a whole person requires taking their psychological well-being into consideration.