Osteopathic Principles in Infectious Disease

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Some Principles

- Osteopathic medicine pays attention to the host response to disease
- Treatment for infectious diseases will often focus on the respiratory-circulatory model
- Influencing the immune system is an important goal in treating infectious diseases with the osteopathic approach
The body is a unit

- Respiration delivers oxygen to the whole body through diffusion to the blood
- The heart and blood vessels are responsible for the delivery
- The lungs affect blood pressure (angiotensin)
- The process of breathing is controlled by the CNS
- The air passages begin in the head and neck and extend to the chest
- Respiration is an action of the whole body
Structure and function are interrelated

- The nasal passages and oropharynx moisturize the air.
- The rings of the trachea provide support and protection for a structure that should remain uncompressed by position or normal pressure.
- The multiple bronchioles and alveoli provide a greater surface area for diffusion than if a single surface was adapted.
- The proximity of the capillaries provides a turnover mechanism for delivery and removal of substances from adjacent tissues.
- Hemoglobin functions in the release of CO2 and absorption of O2.
- The diaphragm acts as a bellows creating negative pressure within the thoracic cavity thus drawing in air.
- The ribs provide a framework for the action of the muscles allowing for a change in diameter of all planes and thereby increasing the volume of the thoracic cage.
- The secondary muscles of respiration assist in changing the position of the ribs and altering thoracic cage volume.
- The costal cartilage is flexible contributes to inhalation and exhalation.
The body has an inherent ability to defend, heal and repair itself

- The hairs in the nares filter particulate matter
- Some infecting agents and particulate matter is captured in mucous, mixed with saliva and swallowed for destruction in the acid environment of the stomach
- The cilia act as an “escalator” and deliver some foreign components back to the oropharynx
- There are large lymph nodes adjacent to all bronchi with many terminal and conducting lymphatic structures adjacent to all lung tissue
- The structures change based on altitude, with expansion of the chest cavity and adaptation to lower oxygen environments
Disease occurs when the body is overwhelmed or ill-prepared

- We are exposed to pathogens every day yet we don’t become ill unless our immune systems are affected or unless the pathogen is able to overwhelm the body’s defenses.
- Allergic reactions occur because of an overwhelming and sometimes inappropriate immune response.
- Asthma is a combination and cascade of reactions including precipitating elements, bronchospasm, and inflammatory response.
Rational treatment is based on the above principles

- Decrease the work of breathing
  - Improve oxygen flow
- Increase the efficiency of structures
  - Relax hypertonic muscles
  - Remove rib motion restrictions
  - Increase excursion of the diaphragm
  - Stimulate sympathetic response
  - Treat C3-5 to remove restrictions to the scalenes and phrenic nerves
  - Rib raising
Rational treatment is based on the above principles

- Encourage the inherent defensive and adaptive mechanisms
  - Lymphatic techniques
- Vaccination
  - Influenza
  - Pneumococci
Rational treatment is based on the above principles

- Provide interventions
  - Remove possible environmental and other irritants
  - Identify factors influencing host response and resistance
  - Medications when appropriate

- Exercise

- Patient education
Rational treatment is based on the above principles

- **Lifestyle changes**
  - Exercise
  - Patient education
  - Stress reduction
  - Nutrition
  - Habits
  - Social and familial factors