OSTEOPATHIC CRANIAL MANIPULATION

Neuroscience Correlation

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OBJECTIVES: At the end of this presentation, participants shall

1) Discuss the Neuroscience Concepts involved in Osteopathic Cranial Manipulation (OCMM).

2) Discuss the Neuroscientific mechanisms by which different indications for OCMM are resolved.

3) List potential future studies that might further establish Neuroscience Concepts involved in OCMM.

4) Be better motivated to use and implement OCMM in their respective practices.
OCMM – Admittedly, one of the more difficult and least practiced of OMM
Principles of Diagnosis

HISTORY: Trauma: including birth trauma, MVA, surgery, thumb sucking, dental work, fractures, concussions, falls, infections etc.

T- soft tissue changes, heat, muscle tightness, intra-osseus changes
A-landmarks including sutures, fontanelles
R-in joints and membrane
T- Counterstrain tender points for TMJ and cranium
Beauchene’s Skull
A Child’s Cranium

[Diagram of a child's cranium with labeled parts such as Parietal bone, Frontal fontanelle, Frontal bone, Occipital bone, Lambdoid suture, Occipital bone, Mastoid fontanelle, Temporal bone, Site of squamous suture, Site of coronal suture, Site of sagittal suture, Sphenoidal fontanelle.]
Spinal Attachments of the Dura

Technique Principles
Subject: Osteopathic Medicine

Content: Texts

Attachments of the falx cerebri, the falx cerebelli, the tentorium cerebelli, and the spinal dura are collectively known as the reciprocal tension membrane (RTM). These attachments and their connections from the dural tube at the foramen magnum to the second sacral segment is known as the core link, which coordinates...

Atlas of Osteopathic Techniques, 4e > Osteopathic Cranial Manipulative Medicine
DURAL ATTACHMENT TO THE SPINE

(a) Anterior view showing regions of the vertebral column

(b) Right lateral view showing four normal curves

Cervical vertebrae (7)
Thoracic vertebrae (12)
Lumbar vertebrae (5)
Intervertebral disc
Sacrum (1)
Coccyx (1)
Cervical curve (formed by 7 cervical vertebrae)
Thoracic curve (formed by 12 thoracic vertebrae)
Lumbar curve (formed by 5 lumbar vertebrae)
Sacral curve (formed by 5 fused sacral vertebrae)
Arterial Pulsation of the Brain
Venous Pressure in the Brain
Respiration and Intracranial Pressure

Breathing control centers:
- Pons centers
- Medulla centers

Efferent nerve impulses from medulla trigger contraction of inspiratory muscles:
- Phrenic nerves
- Intercostal nerves

Breathing control centers stimulated by:
- CO₂ increase in blood (acts directly on medulla centers by causing a drop in pH of CSF)
- Nerve impulse from O₂ sensor indicating O₂ decrease

CSF in brain sinus

O₂ sensor in aortic body of aortic arch

Intercostal muscles
Diaphragm
Cerebro-Spinal Flow and Pressure

Lateral ventricle
Anterior horn
Interventricular foramen
Third ventricle
Cerebral aqueduct
Fourth ventricle
Central canal
Posterior horn
Inferior horn
Median aperture
Lateral aperture
Cerebro Spinal Fluid Flow and Pressure

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INTRACRANIAL PRESSURE

ICP = BRAIN MASS + BLOOD VOLUME + CSF VOLUME
Cranial Base, Brainstem and Cranial Nerves

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Sphenoid bone.
Superior view

- Anterior
- Posterior
- Greater wing
- Lesser wing
- Tuberculum sellae
- Superior orbital fissure
- Optic foramen
- Foramen rotundum
- Dorsum sellae
- Foramen ovale
- Foramen spinosum
VAULT HOLD FLEXION
VAULT HOLD EXTENSION
OCCIPITAL HOLD (CRADLE)
IT MAKES SENSE TO DO OSTEOPATHIC CRANIAL MANIPULATION (OCMM)?
OCMM and NEUROSCIENCE

QUESTIONS REMAIN:

1) Given Migraine Headaches as an indication for OCMM, how might we prove OCMM's efficacy on the basis of Neuroscience.

2) How about Trigeminal Neuralgia?

3) Other listed indications?

4) How might the Autonomic Nervous System be involved in OCMM?

5) Could Relaxation or Meditative influence be involved? How might we prove or disprove this?

What other questions might you have?
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