New Findings for Central Augmented Pain

New studies with functional MRI’s are indicating that 20 to 30% of patients with chronic pain states such as osteoarthritis (OA) will have some degree of central augmented pain.

This central augmented pain appears similar to what we view as fibromyalgia (FM). Tender points are no longer considered the major diagnostic tool for these patients. Fatigue, sleep disturbances and pain at multiple sites are thought to be more reliable.

Stressors such as infection or surgery could trigger these symptoms which have a strong heredity component. This occurs at least twice as often in the female population and daughters of mothers who have this condition are very likely to have this as well.

The volume of pain threshold (the ascending pathway) is turned up and at the ability to dampen or turn down pain threshold (the descending pathway) is turned down. In addition the natural occurring opioids in our bodies (endorphins and enkephalins) are elevated so that Mu receptors are saturated and opioids are not effective in this condition.

These patients with central sensitization will not only be sensitive to pain, but also sound, light smell. They will often be sensitive to the side effects of medications that are used to manage their pain.

CNS Influences on Pain and Sensory Processing

Facilitation:
- Substance P
- Glutamate and EAA
- Serotonin (5-HT_2A,3A)
- Nerve growth factor
- CCK

Inhibition:
- Descending antinoceptive pathways
  - Norepinephrine-serotonin (5-HT_1A,1D), dopamine
  - Opioids
  - GABA
  - Cannabinoids
  - Adenosine

Practical aspects to manage patients with central augmented pain.

If you recognize this central sensitization in your patient, limit sound, noise and stressors in their room, private rooms would be best.

Be aware that opioids will frequently not be effective for these patients. Medications that act on the descending pathways are more helpful. Chemical coping is common in this population, since many were placed on high doses of opioids, which were not effective.

Lyrica and Cymbalta are FDA approved medications for FM. The problem is in a post-op or acute pain setting these medications take time to be effective.

Ultram has been used off-label with some success. Nucynta is a new mediation similar to Ultram, but it acts more on nor-epinephrine rather than serotonin in the descending pathway, also with a stronger Mu receptor affinity.