REPORT

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NEUROSTEROIDS MAKE THEIR DEBUT IN PAIN CARE

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In the year 1981 some neuroscience researchers discovered a group of hormones being made in the brain and spinal cord. Some were also made in the gonads. Initially the scientists didn't know why the CNS produces these hormones, but they soon learned they are in the CNS to protect, energize, and heal CNS tissues such as nerves and glial cells that may be injured or damaged. They also found that these hormones control pain. They were named neurosteroids because their chemical structure resembled that of the corticosteroids.

Function of Neurosteroids

A main function is to heal nerve tissue that is injured and relieve pain. This includes the glial cell that causes neuroinflammation, central sensitivity, and constant pain. Neurosteroids are potent anti-neuroinflammatory hormones. The main neurosteroids are:

Pregnenolone
Allopregnanolone
Estradiol
Testosterone
Progesterone
Nandrolone
Dehydroepiandrosterone (DHEA

You will note that some neurosteroids such as estrogen are known as hormones and have biologic effects outside the spine.

The Basic Research of Neurosteroids

The body of animal research and neurosteroids is large, well done, and compelling in that the studies clearly show that these hormones will benefit pain care. For example, rats had their spinal cord damaged, and they totally recovered when given neurosteroids. Also, glial cell inflammation which causes central pain was controlled by neurosteroids. The neurosteroids were potent suppressors of neuroinflammation.

Researchers showed that if there was a tissue tear, injury, or inflammation, the neurosteroids immediately restored it to its normal state. Once the functions of the neurosteroids were understood, it was widely believed among the neuroscience researchers that neurosteroids should be a powerful therapeutic tool to treat severe chronic and intractable pain. Like many great scientific discoveries, the main clinical constituency didn't know and didn't care. Fortunately, two clinical innovators have figured out you have to utilize neurosteroids in two severe painful conditions: burning mouth syndrome and adhesive arachnoiditis. The latter utilizes pregnenolone, DHEA, and palmitoylethanolamide (PEA).

Transition from Animals to Humans

The transition from giving a drug to laboratory animals to humans and giving them safely and effectively in the human takes a lot of time and experimentation. Factors that have to be considered include dosage, formulation, and combinations. The first physician to make the transition is Dr. Susan Sklar, who has developed a neurosteroid protocol for the heretofore, untreatable intractable pain condition known as burning mouth syndrome. Taking to great extent Dr. Sklar's success, I and my associates have developed a neurosteroid protocol for adhesive arachnoiditis. Results to date are gratifying and correlate with the therapeutic improvements seen in animal research.

In summary, neurosteroids are a group of hormones produced in the CNS specifically protect and heal nerve tissues. Animal studies show they heal injured spinal cord nerves and glial cells. They suppress inflammation, regenerate tissues, and reduce pai. Neurosteroid protocols have been developed heretofore for two difficult pain conditions: burning mouth syndrome and adhesive arachnoiditis. Neurosteroids are not a substitute for pain treatment with opioids and neuropathic agents, but an addition that greatly enhances pain relief. Experience to date should be a motivator to expand the use of neurosteroids for all intractable and chronic pain conditions.