Neuropathic pain: The sea provides a new hope of relief

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A compound initially isolated from a soft coral (*Capnella imbricata*) collected at Green Island off Taiwan, could lead scientists to develop a new set of treatments for neuropathic pain - chronic pain that sometimes follows damage to the nervous system. Currently this form of pain is very poorly controlled by the usual analgesics (aspirin like drugs (NSAIDS) or even opioids like morphine) and novel treatments are urgently required. The conclusion of a paper published today in the *British Journal of Pharmacology* is that this new compound could be a candidate.

Recent research suggests inflammation in the nervous system is a major causative factor for this condition. Inflammation activates supporting cells, such as microglia and astrocytes, that surround the nerve cells. These activated cells release compounds called cytokines that can excite nerves carrying pain sensation (nociceptive pathways) and cause the person to experience mildly uncomfortable stimuli as very painful (hyperalgesia), or stimuli that would normally induce no discomfort at all as painful (allodynia). Thus, cold drafts or lightly brushing the skin can produce intense pain, severely affecting the person's quality of life.

The treatments that give some relief to some patients are a very mixed bunch, nearly all found empirically and with many other effects. Amitriptyline, an anti depressant now used for urinary incontinence, has given relief in neuropathic pain; similarly, two drugs designed for treating epilepsy - gabapentin and pentagabalin have also proved effective for some sufferers. However, many patients do not respond to

these currently available drugs.

"New, effective and safe painkillers are urgently needed for patients with neuropathic pain," says Dr Zhi-Hong Wen, who played a key role in a research study searching for novel compounds that have potential for use in pain relief. Dr Wen and colleagues work at the Department of Marine Biotechnology and Resources, National Sun Yat-Sen University, Taiwan.

Although the chemical they studied, capnellene, was originally isolated in 1974, it is only recently that scientists have started to appreciate its potential. Capnellene is interesting because its structure is very different from pain-relieving drugs currently in use. Initial experiments suggested that it may have pain-relieving properties. Working with Yen-Hsuan Jean MD, PhD and other colleagues, Dr Wen tested capnellene and a second very similar compound, in isolated microglial cells and in experimental models of the condition in rats.

They found that the compounds significantly reduced pain-related activities in isolated microglia, and that these compounds also significantly reversed hyperalgesic behaviour in the experimental rats.

"To provide better quality of life, we need new drugs that can act rapidly and have specific functions with low side effects. Moreover, we need better management for chronic pain conditions," says Dr Wen.

"Today there are few pharmacological agents that can help people suffering from neuropathic pain, but we believe that these marine-derived compounds could lead to the development of a new range of drugs of great potential," he adds.

Source: Wiley (news : web)