## **Supplementary Material 2**

## **1** Drugs

A meta-analysis has shown that both antidepressants (including duloxetine, fluoxetine, serqulin, and amitriptyline) and anticonvulsants (such as carbamazepine, gabapentin, lamotrigine, and pregabalin) can relieve pain in CPSP patients.[1] Pregabalin and gabapentin have potent effects but are also associated with the most significant side effects.[1] Lamotrigine, an anticonvulsant, can alleviate spontaneous pain with minimal side effects and is commonly used to treat CPSP.[2] Duloxetine is effective and safe for patients with moderate to severe CPSP.[2, 3] Gabapentin enhances gamma-aminobutyric acid levels in various brain regions, aiding in pain relief. Due to its good fat solubility, pregabalin may effectively reduce excitatory neurotransmitter release and the influx of calcium ions, thus controlling neuropathic pain. A combination of epinephrine (1:200,000) and lidocaine was injected at the primary site of pain to explore the efficacy of peripheral nerve block, which showed a favorable prognosis.[2, 3] Opioids have only a slight analgesic effect on CPSP patients,[4] which is inconsistent with reduced binding to opioids in pain circuitry.

## 2 Neuromodulation therapy

In cases of CPSP that do not respond to typical treatments, neurostimulation therapies can be used. These therapies include transcranial magnetic stimulation, deep brain stimulation, and motor cortex stimulation.[5, 6] Both repetitive transcranial magnetic stimulation and motor cortex stimulation can effectively alleviate acute CPSP by stimulating the motor cortex, which may increase serum brain-derived neurotrophic factor (BDNF) levels.[7] Deep brain stimulation can relieve pain through synaptic transfers and correcting signals to the motor cortex.[8] Another option is transcranial direct current stimulation targeting the dorsolateral prefrontal cortex, which can potentially mitigate perception and improve the emotional aspect of pain.[9]

## **3** Other treatments

The "stellate ganglion block" is a treatment administered on the opposite side of the brain injury. It involves injecting 8 mg dexamethasone in 5 ml of 0.25% bupivacaine between the internal carotid artery and the longus colli under continuous ultrasound guidance. This treatment is effective in preventing refractory patients from experiencing pain.[10] Acupuncture therapy and electroacupuncture at Huatuojiaji acupuncture points have shown a positive effect in treating thalamic pain and can serve as alternative therapies for CPSP.[11] Mirror therapy is another alternative therapy that combines visual illusion and movement. It can alleviate pain by inducing "sensory congruence" in the central nervous system. This allows the patient to visually experience movement or touch of the unaffected limb as if it were a painful limb.[12] This therapy has the potential to treat CPSP.