Intermittent psychological (Empathy) stress-induced generalized pain syndrome in mice mimics pathophysiological and pharmacotherapeutic characters in fibromyalgia in clinic

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Fibromyalgia, a representative central and generalized pain is known to comprise an approximately 2% population ratio in developed countries. Fibromyalgia, patients are less responsive to classic and commonly used analgesic regimens, such as nonsteroidal anti-inflammatory drugs (NSAIDs) or opioids. Here we developed an animal model showing generalized chronic pain with female predominant sex difference, similar to clinical features of fibromyalgia in clinic, by exposing mice with intermittent psychological stress (IPS), by seeing, smelling and listening to uncomfortable sensory signs of mice given foot-shock (Neurobiology of Pain, 2017). To get long-lasting abnormal pain, intermittent psychological stress was necessary, while simply repeated psychological stress or foot-shock stress were not enough. In the present study we determined the least stressful condition to show the comparable generalized pain by changing the interval and number of electrical shocks. In addition, we will demonstrate the pharmacotherapeutic evidence to suppress the IPS-induced pain. Some of clinically available medicines completely cured the pain memory after repeated treatments. We will also discuss the pharmacological mechanisms underlying the lack of morphine analgesia, comparing with the findings using other fibromyalgia-like models.