REVIEWS

Biochemical and physiological basis of muscle pain

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Abstract

Pain is the most important reason an individual seeks the help of a physician.

It is a complex sensation which results from noxious stimulation by physical or chemical agencies. The subtle biochemical mechanisms of pain production have been well studied, and actual knowledge has helped us to better understand and treat pain.

Pain appears only in the presence of a painful stimulus sensitizing the nociceptors – nervous cells capable of decoding the signal transmitted by the stimulus, transforming chemical into electrical energy. From this level, the painful signal is transmitted to the central nervous system where pain becomes a complex sensation, generating defense reactions.

Physiological pain theories involve intense activity of sodium channels, TRP ion channels, sodium and potassium ions, among with many other physical and chemical mediators. Among this, the presence of acethilcoline, serotonine, hystamine, plasma kinins, adenosin triphosphate, in different concentrations sensitizing the nociceptors, produce pain.

Muscle pain appears during intense physical exercise, as a result of muscle fiber ability to receive and respond to a noxious stimulus. It is a normal evolution of intense physical exercise, under physiological circumstances, meaning the mismatching between the oxygen demand and offer at the muscle cell.

With this review, we tried to open new research pathways to explore pain and muscle pain production and therapy.

Keywords: pain, physical activity, NA channels, TRP ion channel.