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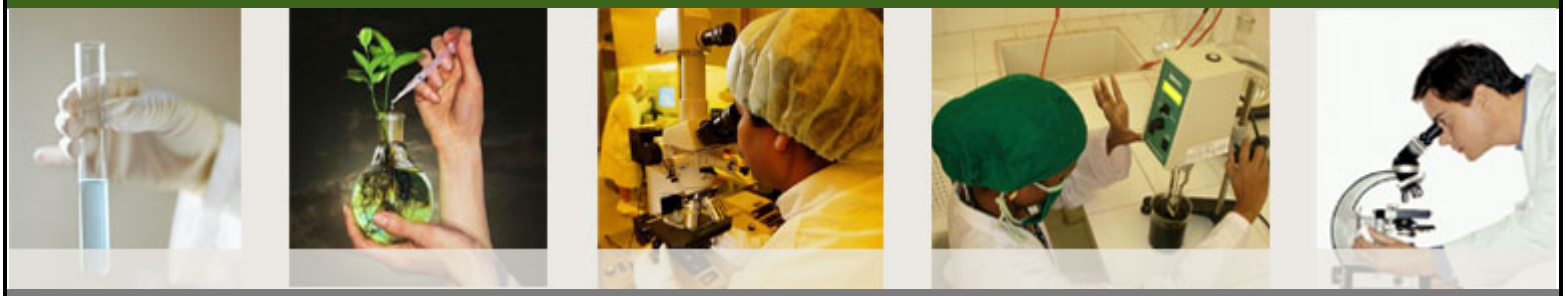

How Noni Works on Diseases:- Pain and Inflamation

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PAIN AND INFLAMATION

What is pain?

Pain is an unpleasant experience associated with potential or real damage to the body.

Protective function of pain: Pain is a protective reflex. It is a warning signal about a damage caused or an impending damage. When a pain is felt, the individual can just move away from the painful stimulus and thus it can be avoided.

Classification of pain: Depending on duration, pain can be broadly classified as acute pain, chronic pain, and neuropathic pain

• Acute pain - One common type of pain is acute pain, currently defined as pain lasting less than 3 to 6 months, or pain that is directly related to tissue damage. For example, pain caused by a small burn small cut or by a small abscess.
• Chronic pain - The term “chronic pain” is generally used to describe pain that lasts more than three to six months, or beyond the point of tissue healing.
There are at least two different types of chronic pain problems –
Chronic pain due to an identifiable pain generator (e.g. an injury). These conditions are due to a diagnosable anatomical problem
Chronic pain with no identifiable pain generator (e.g. the injury has healed). This type of pain continues beyond the point of tissue healing and there is no clearly identifiable pain generator that explains the pain. It is often termed “chronic benign pain”.
• Neuropathic pain - In most types of neuropathic pain, all signs of the original injury are usually gone and the pain that one feels is unrelated to an observable injury or condition. With this type of pain, certain nerves continue to send pain messages to the brain even though there is no ongoing tissue damage.

Origin of pain:
Pain may originate from various parts of the body and due to various causes. Depending on the site of origin, pain may be classified as (1). Cutaneous pain (2). Visceral pain (3) Deep pain
1.Cutaneous Pain: It may be produced by (i.) pathological states of skin (ii) injury to skin (iii) release of chemical substances, which produce itching. In some cases, the painful area may extend beyond the damaged or diseased area.

2. Visceral pain: It may occur due to an altered physiology of an internal organ like kidney, liver, etc. Sometimes, sensation of pain is displaced from the affected area and felt at adjacent areas. It is called as referred pain, e.g. pain arising from liver as felt in the skin of right shoulder.

3. Deep pain: It arises from receptors of muscles, tendons and joints. e.g. powerful contraction of muscle may occlude blood supply to the muscle and this may cause pain. Like visceral pain deep muscle pain can also be referred on the surface of the body.

Pathways of pain: The sensory neurons that mediate pain sensation are know as ‘nociceptors’

They have endings or receptors in skin, muscles, joints and internal organs activated by pain. These nociceptors on activation by pain send the signals along the nerve fibers to the spinal cord. From there the signals pass up the spinal cord and are transmitted to the brain stem. From there, the signals are ultimately transmitted to the thalamus where the center for pain (thalamic pain center) is present. Later the signals are transmitted to the cerebral cortex where the sensation of pain is registered.

What is inflammation?

Inflammation is a process in which the body's white blood cells and chemicals can protect us from infection and foreign substances such as bacteria and viruses.

In some diseases, however, the body's defense system (immune system) triggers an inflammatory response when there are no foreign substances to fight off. In these diseases, called autoimmune diseases, the body's normally protective immune system causes damage to its own tissues. The body responds as if normal tissues are infected or somehow abnormal.

What Is Going On?

The sequence of events which occur during an inflammatory response can vary, depending on the type or cause of injury (i.e bacteria, cold, heat, trauma, etc.), the site of the injury, and the state of the body. In a localized infection, for example, the sequence of events can be briefly

summarized in 7 steps:

• Entry of microbes (i.e. bacteria).
• Vasodilation (widening of the lumen of blood vessels) of the microcirculation (small blood vessels) resulting in increased blood flow.
• An increase in vascular (a channel or vessel for the conveyance of a body fluid) permeability to protein.
• Filtration of fluid into the tissue which leads to swelling.
• Exit of neutrophils (a type of white blood cell) and later monocytes (another type of white blood cell) from the blood vessels into the tissues.
• Phagocytosis and destruction of the microbes.
• Tissue repair.

The symptoms of inflammation

Inflammation is characterized by:

- Redness
- Swollen joint that's warm to touch
- Joint pain
- Joint stiffness
- Loss of joint function

Often, only a few of these symptoms are present.
Inflammation may also be associated with general "flu"-like symptoms including:

- Fever
- Chills
- Fatigue/loss of energy
- Headaches
- Loss of appetite
- Muscle stiffness

What causes the symptoms of inflammation?

When inflammation occurs, chemicals from the body's white blood cells are released into the blood or affected tissues to protect you from foreign substances. This release of chemicals increases the blood flow to the area of injury or infection and may result in redness and warmth. Some of the chemicals cause a leak of fluid into the tissues, resulting in swelling. This protective process may stimulate nerves and cause pain

What Diseases Are Associated With Inflammation?

Some, but not all types of arthritis, are the result of misdirected inflammation. Arthritis is a general term that describes inflammation in joints. Some types of arthritis associated with inflammation include:

- Rheumatoid arthritis
- Tendinitis or bursitis
- Gouty arthritis
- Polymyalgia rheumatica

Role of Cyclooxygenase (COX) enzyme on pain and inflammation

Pain, redness, heat, and swelling, which are the markers of inflammation, follow the release of prostaglandins. Aspirin and similar non-steroidal anti-inflammatory drugs (NSAIDS) reduce prostaglandins by blocking an enzyme which helps to produce them, called cyclooxygenase (COX).

In recent years some exciting studies have been published that shed light on how to more safely combat arthritis. There are actually two COX enzymes in the body. They are COX-1 and COX-2. COX-1 is called the good COX enzyme, while COX-2 has earned the unflattering name as the bad enzyme. COX1 is easily identifiable and is important in regulating cell function. COX2, on the other hand, is generally undetectable in most tissues, but increases to high levels during acute inflammation. The COX2 enzyme is largely responsible for causing pain and inflammation. Injury, disease, and trauma cause COX2 enzyme to produce prostaglandins, which cause pain and inflammation. In contrast to the COX-2 enzyme, COX-1 enzyme is responsible for protecting the body's stomach lining and kidneys. COX-1 enzymes continually produce protective prostaglandins.

COX-1 is essential for blood clotting and for protecting the stomach. COX-2 is the key player in inflammation, pain, and fever. NSAIDs and other arthritis medication steeply decrease the body's production of both enzymes, thereby decreasing inflammation while at the same time causing harm to the stomach and its lining. The ideal situation would be to find a substance that inhibited only COX-2, but did not significantly affect COX-1.

ROLE OF NONI IN PAIN, INFLAMMATION

Noni and Pain

Pain, painful inflammation and swellings are the second most common usage of Noni. Studies in mice have demonstrated that extracts from the root of Noni (again, not rendered from the fruit) have some pain relieving and sedative activity.

Noni is a selective COX-2 inhibitor

There are several other ways in which Noni may alleviate the undesirable symptoms of arthritis. Pain is the number one complaint with arthritis.

Researchers at an independent research facility found that indeed Noni was a selective inhibitor of COX-2 enzyme. In addition, the Noni did no damage to the COX1 enzyme. When scientists compared the Noni COX2 inhibition ratio of prescription arthritis medications, they found that

Noni compared “very favorably” to the prescription medications. Yet, Noni exhibited none of the negative side effects that the prescription medications are known to cause. Next, researchers compared the Noni COX2 inhibition ratio to the COX2 inhibition ratio of NSAIDs. In this category, Noni far out-performed the over-the-counter medications. And again, the Noni did not exhibit any of the negative side effects associated with NSAIDs.

Role of Scopoletin present in Noni in arthritis and inflammation

Another reason for Noni’s pain fighting qualities may stem from several of its constituents. Noni has been shown to contain Scopoletin, which has anti inflammatory effects. Scopoletin is needed in the body for smooth joint movement. It also produces anti-histamine effects. A laboratory in France conducted a study that showed mice, given a liquid form of Noni, increased pain tolerance as reflected by their reaction time to a hot plate. The researchers concluded that Noni helped the mice better deal with the pain from the hot plate.

The micronutrients present in Noni

The Noni contain xeronine, all the vitamins, all necessary minerals and 17 amino acids out of 20 and 150+ nutraceuticals those helps in providing the body’s required micronutrients for a smooth and harmonious function of all our system in both health and diseases

NONI and Nitric Oxide

The basic concept that everybody needs to remember about Nitric Oxide (NO) is that it is essential to body functions and needs to be product by the body on a continuous basis. When Nitric Oxide is not produced in the amounts needed, malfunction of body systems and disease is a guaranteed result. Finding solutions that will help the body return to its proper production of Nitric Oxide is a powerful key to unlocking the secret of good health. Noni is the solution.
In 1998 three researches won the Nobel Prize in Medicine for discovering that Nitric Oxide is a signaling molecule involved in “controlling the circulation of the blood, regulating activities of the brain, lungs, liver, kidneys, stomach and other organs. It acts in man tissues to regulate a seemingly limitless range of functions in the body” (Royal Society of British Science Writers, May 1996)

Noni helps relieve pain, and it’s a mediator in inflammation and rheumatism