When Moving Hurts

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GLOBAL YEAR AGAINST MUSCULOSKELETAL PAIN

OCTOBER 2009 – OCTOBER 2010

• **FACT SHEET No. 19**

Joint Pain

Introduction

Joint pain is among the most frequent types of pain. The main causes of joint pain are trauma and acute and chronic arthritis. Usually joint pain is associated with disturbed function of the joint, ranging from restricted movements to disability.

Epidemiology and Economics

- Osteoarthritis (OA): Symptomatic (painful) OA affects 10-15% of the population. With increasing age, more joints develop OA. However, early stages of OA may be free of pain.
- The incidence of rheumatoid arthritis is ~1%.
- The incidence of gout is ~1-4%.

Pathophysiology

- In joint diseases, pain most commonly occurs during exercise or even during normal daily activities (see “Clinical Features” below). This heightened pain sensitivity is attributed to:
- Peripheral sensitization: enhancement of the sensitivity of joint nociceptors to mechanical stimuli applied to the joint. It is induced by inflammatory mediators such as bradykinin, prostaglandins (short effects), nerve growth factor and proinflammatory cytokines (long-lasting effects).
- Central sensitization: enhancement of the sensitivity of nociceptive neurons with joint input in spinal cord and brain areas to mechanical stimuli applied to the joint. It is induced by the input from sensitized joint nociceptors and furthered by central amplification mechanisms.
- Reduced conditioning pain modulation showing that pain inhibitory mechanisms are disturbed.
- In particular in OA pain, a neuropathic component may be present.

Clinical Features

- Joint pain can be acute (lasting days) or chronic (lasting months or even years).
- Depending on the underlying disease pain is felt only in one joint (e.g., after trauma or during

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osteoarthritis) or in several joints (e.g., during rheumatoid polyarthritis).

- Pain is usually localized to the afflicted joint or joints, but it can also be referred (e.g., hip OA may cause knee pain).
- Joint pain is often dull and aching and thus different from cutaneous pain, which is sharp and more precisely localized.
- The pain usually appears as ongoing pain and hyperalgesia (or allodynia): in a normal joint only movements against the resistance of the tissue cause pain, whereas pain occurs in an injured or inflamed joint during movements within the normal working range.
- Testing of mechanical pain thresholds reveals that the area of hyperalgesia can be extended to the whole limb, or it can even be more widespread.
- Pain in the joint often leads to physical impairment, limping, restriction of movement, and loss of force.
- Joint pain is usually worsened by use (weight-bearing or movement) and relieved at rest, but it may also be constant.
- A particular quality of osteoarthritic pain is resting pain at night.
- Pain can be associated with other symptoms such as stiffness, instability, or warmth.

Diagnostic Criteria

- An injured or inflamed joint hurts upon application of light or moderate local pressure (palpation), and strong pressure may evoke severe pain.
- During joint disease, pain can be evoked by passive movements in the working range of motion or by stretching the joint, and the range of motion may be limited.
- An inflamed joint may be swollen, warm, and red.
- Chronic joint disease be may characterized by deformation of the joint and/or bony enlargement.
- Joint pain may be accompanied by a reduction of the range of motion or by movements beyond the normal range (e.g., after rupture of ligaments).

Diagnosis and Treatment

- Diagnosis of joint pain is based on physical examination (see “Diagnostic Criteria”), X-ray, MRI, examination of synovial effusion, and blood tests.
- X-rays can document deformation, loss of cartilage, rupture of ligaments, etc.
- MRI scans can document synovial hyperplasia, bone marrow edema, and other soft-tissue alterations.
- Blood tests are used to check inflammatory markers.
- For treatment of pain, analgesic drugs (usually nonsteroidal anti-inflammatory drugs) are commonly used.
- Physical therapy, exercise, education, and TENS are effective in arthritic pain conditions.
- Specific treatments include (1) the use of disease-modifying drugs (e.g., neutralization of tumor necrosis factor alpha or interleukin-6) in order to stop the progression of rheumatoid arthritis; and (2) surgical joint replacement.

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