Abstract: Chronic pain is a complex phenomenon characterized by an interaction of sensory and emotional variables. Effective patient care can be facilitated by an understanding of the differences between acute and chronic pain and by recognition of its origins. The lack of visible pathology to explain the severity of symptoms should not be the basis for seeking psychological explanations or questioning the reality of the patient's pain. The article examines some of the psychophysiological mechanisms evident in chronic pain syndromes especially when mediated by myofascial pelvic dysfunction.

Key words: Myofascial; Trigger point; Pelvic pain syndrome; Vulvodynia.

INTRODUCTION

The importance of pain management in patient care is reflected in the recognition of pain as the fifth vital sign. As a result, pain needs to be assessed and charted together with temperature, respiration, pulse, and blood pressure whenever a patient undergoes medical review. However, unlike the other vital signs, pain is difficult to define in ways that provide the clinician with practical, workable options. The challenge with pain is that there is no localized centre in the body for its control nor is there a single intervention for its effective management. Although there are various diagnostic labels to identify the location of pain and describe its qualities, these have little practical value. Labels often disguise the fact that little is known about the cause of pain and its mediating mechanisms and have little bearing on the treatment, which in most instances ends up being the same. For these reasons pain poses a complex set of difficulties and the complexity increases manifold in relation to chronic pain. This paper considers some of the clinical challenges in understanding and managing chronic pain and recommends a multidisciplinary approach which recognizes the importance of psychophysiological variables.

DEFINITION OF PAIN

The International Association for the Study of Pain defines pain as an unpleasant sensory and emotional experience associated with actual or potential damage to tissue. This succinct definition introduces one of the most important qualities of pain, namely that it has both a sensory and an emotional component. To the ancient Greeks, pain was an affective feeling state rather than a sensory experience. In the 20th century greater emphasis was placed on the sensory component of pain. With technological advances and the use of imaging techniques to map brain areas associated with the experience of pain, knowledge has taken on a new level of complexity with a recognition that pain has both sensory and emotional components.

It may seem highly implausible to both the patient and practitioner that the interplay of sensory and emotional variables is relevant to post surgical pain or to chronic pain syndromes involving pelvic, perineal and urogenital regions. Yet, most of these complex pain syndromes can serve to illustrate the intricate interaction between physiological, psychological and behavioural variables. Urogenital pain conditions such as vulvodynia, a form of chronic vulvar discomfort, can serve to illustrate this point. This condition is characterized by burning which can vary in severity but has a disabling effect on intimate sexual behaviour and compromises the quality of life of women. Vulvodynia occurs in the absence of any clinically identifiable physical or neurologic findings. Biopsies taken from the vulvar vestibule of sufferers revealed unique physiological characteristics such as increased immunoreactivity, nociceptor sensitivity, and even increased density of superficial nerve endings. These physiological markers appear to form a constitutional predisposition to this complex pain syndrome. Evidence points to psychological traits such as anxiety as modulating the severity of pain experienced. Tests utilizing quantitative sensory testing in female genital sensation consistently confirmed that differences in pain thresholds between patients and controls were mediated by anxiety. From these findings it is evident that enhanced pain perception, greater emotional response and increased autonomic reactivity are closely related to measures of anxiety. Anxiety and cognitive schemas, such as catastrophizing (the tendency to focus on pain and to pessimistically assess one’s coping ability) not only contribute to higher levels of pain, but account for up to 31% of the variance in pain ratings. Clinically, anxiety and catastrophizing serve as reliable predictors of the severity of the patient’s experience of pain and should be considered in clinical assessments.

ACUTE AND CHRONIC PAIN

Differentiating between acute and chronic pain is important in understanding chronic pelvic pain syndromes. Acute pain is most common, often experienced by patients after surgery or other soft tissue traumas. It tends to be immediate, severe and short lived however, pain that extends beyond a normal recovery period and lasts longer then 3-6 months constitutes chronic pain.

Chronic pain is more difficult to understand and often exists where there is no visible pathology. Pain continues long after soft tissue damage has occurred and persists well beyond the time of healing. In simple terms, chronic pain occurs when there is little if any reason for it to exist. Yet the pain is real and can significantly affect the patient’s quality of life.
of life, limiting their daily physical activities and disrupting their ability to rest and sleep.

When acute pain enters the chronic phase, normal sensory processes are affected by progressive sensitization of the peripheral and central nervous system. Sensitization is an important property of nociceptors and manifests itself in:

- decreased thresholds to nociceptor stimulation
- increased field of nociceptor reception (progressing from localised to generalised)
- increased nociceptor responsiveness to normally non-noxious stimuli (allodynia)
- increased intensity of response (hyperalgesia)
- prolonged post-stimulus sensations (hyperpathia), and
- the occurrence of unexplained spontaneous pain.\(^{15}\)

Such sensory changes are the defining characteristics of chronic pain syndromes and require management strategies that are different to those used in the management of acute pain.

When seeking medical help, chronic pain patients often hope that tests will uncover some form of pathology or produce sufficient evidence to explain their pain. With most chronic syndromes however pain is not proportional to pathology findings. In discussing chronic pelvic pain, Steege comments on this important chronic pain anomaly:

“I’m not aware of a single chronic clinical problem associated with pain in which pain is seen as proportional to tissue damage... most clinicians intuitively or by training look for enough pathology to explain the pain. With pain this proportionality simply does not exist... the intensity of pain is not consistently related (either directly or inversely) to the apparent degree of tissue damage”.\(^{14}\)

Patients often hope for positive pathology findings and inadvertently look for easy answers. It is essential to inform patients about the distinctions between acute and chronic pain.

Medical reviews of chronic pain syndromes can also be influenced by individual specialty bias. Each specialty may look for information which supports their preconceptions. In relation to pain, a surgeon will focus on structural issues, a neurologist may focus on neuropathic origins, a gynaecologist may be inclined to see it as secondary to endometriosis, while a psychologist may look for unresolved and repressed emotional issues as possible explanation of pain. Likewise, patients may come in for a consult with a set of assumptions and preconceived ideas as to what the cause of their pain might be and this will not only influence their selection of specialists but also their preference of treatment. Those who seek out the services of a surgeon may do so because of their own personal belief that surgery is the best option. The need for effective means of identifying the pain confirms in the patient immediately recognize and identify “their” pain. This simple and reliable method of palpation of the tender spot identifying the suspected muscles. Palpation of the tender point produces electric current-like sensations.\(^{15}\)

Identifying the source of pain is not always reliable but can facilitate the patient’s accounts of symptoms. Of the three sources of pain, myofascial Trigger Points (TrPs) are the most common.

**MYOFASCIAL PAIN**

Myofascial Pain Syndrome refers to regional pain of soft tissue origin. Studies estimate that in 75-95 per cent of cases, myofascial pain is a primary cause of regional pain.\(^{16}\) Myofascial pain is associated with muscle tenderness that arises from TrPs, focal points of tenderness, a few millimetres in diameter, found at multiple sites in a muscle and the fascia of muscle tissue. Biopsy tests found that trigger points were hyperirritable and electrically active muscle spindles in general muscle tissue.\(^{17,19}\)

**TrPs are defined by several primary characteristics:**

- A TrP has a clear and consistent referred pain pattern. Pain from TrPs can be felt not only at the site of its origin but also in areas remote from it. Since the pain originating from a given muscle tends to exhibit a relatively consistent pattern of pain referral, it is often possible to identify the muscle from which the pain originates if the pattern of pain is clearly delineated
- TrPs can arise in response to acute and chronic overload, or repetitive overuse of the muscle in which it occurs. Such muscle overuse can arise from muscle wind-up following physical trauma or as result of sympathetically mediated tension (anxiety related bracing and guarding/splinting)
- TrPs contribute to motor dysfunction by causing increased muscle tension (the primary function of the muscle spindles is the regulation of tension in muscle tissues), spasm of neighbouring muscles, loss of coordination in affected muscles, substitution patterns in recruitment of muscles and a weakening of affected muscles
- TrPs cause weakness and limited range of motion. In most cases the patient is only aware of the pain but not of the other dysfunctional aspects of muscle function
- The intensity and extent of the pain depends on the degree of irritability of the TrPs and not on the size or location of the muscle
- TrPs disturb the proprioceptive, nociceptive and autonomic functions of the affected anatomical region.

Pain from TrPs can go unrecognized unless the clinician is prepared to actively look and identify the source by palpating the suspected muscles. Palpation of the tender spot always evokes discomfort and assists the patient to immediately recognize and identify “their” pain. This simple and reliable means of identifying the pain confirms in the patient mind that the pain is of muscular origin and not arising from treatment related complications such as infections or scar tissue. Such specificity of diagnosis reduces the anxiety of the patient and immediately provides options for treatment. In most instances myofascial pain will respond to stretching of the muscle, message of the area, injection of TrPs and management of perpetuating factors.\(^{20}\) Pelvic musculature is structurally and functionally predisposed to developing Myofascial TrPs due to its work load supporting abdominal and pelvic viscer, maintaining posture and facilitating movement.

**MYOFASCIAL PAIN IN PELVIPERINEOLOGY**

The presence of TrPs in pelvic muscles has been well documented.\(^{20}\) TrPs in specific muscles of the posterior half of the pelvic floor can be the source of poorly defined pain in the perineal region and discomfort in the anus, rectum, coccyx and sacrum and is commonly labelled as coccygodynia or levator ani syndrome. TrPs in muscles in the anterior half of the pelvic floor refer pain to genital structures (vagina, penis and scrotum). Active TrPs in these muscles can interfere with intercourse by causing entry dyspareunia and aching pain in the perineal region. Myofascial TrPs in the deeper pelvic muscles can effect bowel and bladder
function, contributing to urethral syndrome symptoms and clitoral pain. Myofascial TrPs and dysfunctional pelvic muscles have been frequently linked to symptoms of interstitial cystitis, urgency and frequency, pelvic pain and dyspareunia.\textsuperscript{11-23} Palpation of pelvic muscles in patients with chronic pain symptoms not only elicits discomfort but refers pain into the suprapubic, perineal regions, rectum and labia.\textsuperscript{11} In all reports the TrPs appeared to be linked with hypertonicity of pelvic muscles and an inability of patients to relax and exercise adequate voluntary control.\textsuperscript{11} In reducing pelvic floor hypertonicity and manually releasing myofascial trigger points, this has significant implications for therapeutic interventions, where the patient suffering from chronic pain syndrome will benefit most from a psychophysiological approach to management. Various triggers can give rise to neuromuscular wind-up. Triggers such as soft tissue injury, surgical trauma, infections and visceral disease can potentially lead to progressive sensitization in the pelvic-perineal region. The emotional disposition of the patient and their coping mechanisms can, in turn, impact on the perception of pain. Various models have been proposed elucidating the mechanisms by which this can occur. With anxiety as the best predictor of pain thresholds, the psychophysiological model provides the most rational approach to the care of the chronic pain patient.

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6 – INCONTINENCES

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