Assessment of acute and chronic pain

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Abstract

Acute and chronic pain states overlap in chronology and pathophysiology but both can remain under-managed. Assessment aims to elucidate underlying pain generators that can then guide treatment strategies. Assessment should be regularly repeated to assess efficacy of treatments and the presence of side effects. Self-report questionnaires are available to assist in diagnosis and monitoring of pain and its related dimensions but they do not replace a thorough assessment by an experienced clinician.

Keywords Acute; assessment; chronic; neuropathic; nociceptive; pain; pain measurement; questionnaires

Royal College of Anaesthetists CPD Matrix: A1503, 1D01, 2DO2, 2E03, 3E00

Learning objectives

After reading this article, you should understand:

- the bio–psycho–social model of pain assessment for acute/chronic/cancer pain
- that pain assessment should be repeated
- nociceptive and neuropathic pain
- common tools used in pain assessment
- the assessment of pain in special circumstances

It is estimated that 14 million people live with chronic pain in England alone.[1] Despite the efforts of in-patient pain teams, the incidence of post-surgical and acute pain remains high. At least one-third of patients with cancer rate their pain as either moderate or severe.[2]

In order to make progress and improve management, pain assessment is of paramount importance. Assessment needs to be thorough, reliable and accurate to enable safe, effective and individualized care.

The International Association for the Study of Pain (IASP) defines pain as:

> *"…an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.[3]"*

When this is considered, the complexity of pain assessment or measurement becomes apparent. Pain is an individualized, subjective experience modulated by past events, genetic, physiological, psychological, social, cultural and environmental factors. There is no objective measure.

The traditional categories of pain have also become blurred. Pain is rarely a pure nociceptive or neuropathic process but normally a mixture of the two (Box 1). Acute pain is generally considered to be of less than 3 months' duration, at which point it becomes chronic, although this is an arbitrary definition. A more useful definition of chronic pain is pain that persists beyond the period expected of healing.

A pain assessment starts with a history, moves onto an examination and review of any investigations.

The pain history

The pain history falls within a wider medical assessment. Its aims are to facilitate a diagnosis and guide treatment. Treatments are then repeatedly evaluated.

The Bio–Psycho–Social approach remains a useful framework to construct a pain history.

'Bio' refers to the biological aspects of the pain itself (Table 1) – the 'What, Where, When, Worse and SORE?'

'Psycho' refers to psychological factors, 'SAD', and any previous mental illness (Table 2). They can also be referred to as 'yellow flags' (Box 2). The degree to which these factors are relevant vary with circumstances but they should not be neglected during an acute pain assessment.

'Social' (Table 3) again varies in importance according to the circumstances. It examines aspects of 'Work, Rest and Play'.

The pain history provides a structure on which pain can be assessed and therefore managed. It allows three fundamental questions to be answered:

- Is the pain acute, acute on chronic or chronic?
- Is the underlying mechanism nociceptive or neuropathic or mixed?
- Are there 'red flags' or is it secondary to cancer?

Nociceptive and neuropathic pain

Nociceptive pain is pain that arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors.[4] Pain is often described as 'burning'.

Neuropathic pain is pain caused by a lesion or disease of the somatosensory nervous system.[5] Specific features of neuropathic pain include pain descriptions of 'tingling', 'shooting' or 'electric shock'. The presence of positive findings such as allodynia (a stimulus that would not normally provoke pain) or hyperalgesia (increased sensitivity to pain) or negative findings such as weakness or numbness also support diagnosis.

Box 1

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Pain history "Bio"

What	Character of pain — sharp, throbbing, ache, electric shock
Where	Site and radiation — body map diagrams can be useful, deep or superficial
When	Chronology — onset: sudden or gradual, circumstances, e.g. post-surgical, trauma, infection, traumatic life events, duration: constant or intermittent, pattern and evolution
Worse	Aggravating and relieving factors
S = Score	Pain intensity at rest and movement Verbal Rating Scale (VRS)/Numerical Rating Scale (NRS). At worst and on average
O = Other	Associated factors — nausea, drowsiness, numbness, weakness
R = Red flags (see Box 2)	Symptoms needing urgent investigation, e.g. non-accidental injury, cauda equina syndrome, compartment syndrome, dissecting aneurysm
E = Experiences/ Expectations	Have you had the pain before? What do you think is the cause? What are your expectations of treatment

Table 1

Adapted from Essential Pain Management RAT model[8]

Previous therapies, both successful and unsuccessful, can then be elucidated for drug and non-drug treatments. The full medical history can then be completed along with a relevant examination, self-report questionnaires and review of investigations. According to the assessment, an appropriate management plan can then be formed.

Acute pain assessment

Acute pain is often the consequence of injury or disease. It generally improves with healing and rest. It is encountered in a wide variety of clinical circumstances (e.g. postoperative, trauma and medical illness). It is also increasingly common to find patients with chronic pain complaints in an acute setting.

Acute pain is generally considered nociceptive pain, but it can be neuropathic pain or a combination. The cause is often known, but the clinician should be alert to a differential diagnosis.

There are patient, societal, psychological and economic reasons to treat acute pain. One of the consistent risk factors, in the development of chronic pain, is the presence of high levels of acute pain.

Assessment needs to be made for static pain (i.e. pain at rest) and dynamic pain (i.e. pain on movement, deep breathing or coughing).

Previous medications are particularly relevant in a patient already on opioid therapy.

Less time is spent on psychological aspects, although undiagnosed mental illness or societal issues can be communicated by complaints of uncontrolled acute pain.

Pain history "Psycho"

S = Stress	How does stress affect the pain?
A = Anxiety	Are you troubled with anxiety?
D = Depression	During the last month have you been feeling down, depressed or hopeless?
	During the last month have you often been bothered by having little interest or pleasure in doing things?
	Previous mental illness
	History of alcohol, smoking and illicit drug use

Table 2

Yellow flags

Red flags: Red flags are warning signs that mandate further investigation. They were first associated with use in back pain, where red flags highlighted symptoms of cancer, infection, trauma, cauda equina or other underlying medical condition. They are now used in a wider context, although they do demonstrate low sensitivity.[6]

Yellow flags: Yellow flags are psychological factors that have been shown to be indicate a risk of long-term chronicity and disability. They include catastrophizing, attitudes that pain indicates harm, thoughts that passive as opposed to active treatments are the answer, a tendency to depression, reduced activity and social withdrawal. Social or financial problems can also be considered to be a 'yellow flag'.[7]

Box 2

Chronic pain assessment

Chronic pain is pain that persists for over 3 months.[9] A more useful concept is pain that persists beyond the period expected of healing. Neuropathic pain is more common in chronic pain states, due to peripheral and central sensitization. Psychological factors can also be more prominent. Tissue healing has often occurred and there may be no hallmarks of tissue injury, but there may be signs of neuropathic pain.

Pain history "Social"

Work	What is your occupation? Do you enjoy your work?
Rest	Who is at home with you? How does pain affect your sleep?
Play	What activities do you enjoy? How does pain affect your function? What does the pain prevent you from doing?

Table 3