Causes and management of chronic pain

ANN ROBINSON

Nearly eight million people in the UK suffer moderate to severe chronic pain, resulting in a major impact on quality of life. This article discusses the main causes of chronic pain, the treatments available and when referral is necessary.

We need pain; the unpleasant sensation triggers us to avoid potentially dangerous situations. Pain makes us snatch our hand out of the fire or jump back from an electric shock. The unpleasant sensory and emotional experience of pain is associated with actual or potential tissue damage.

Chronic pain is probably the result of changes in sensitisation in peripheral and central pain pathways as well as changes in levels of neurotransmitters such as serotonin, dopamine and noradrenaline. Functional MRI imaging suggests that cognitive processes can also modulate the experience of pain. This lends support to the idea that distraction and cognitive therapies may have a greater role to play in our approach to managing chronic pain.

Scale of the problem
It is very hard to live life to the full if you are in pain. It can also be very dispiriting for patients who have to deal with the long-term consequences and the healthcare professionals who have limited resources to help. Chronic pain – defined as pain lasting all of the time or on and off for more than three months – is one of the most common reasons that people consult their doctor or pharmacist. People in chronic pain consult their GP up to five times more frequently than others, which equates to almost five million GP appointments a year. The implication is that these are probably among the least satisfactory consultations for patient and doctor alike.

A recent estimate has shown that 7.8 million people in the UK suffer moderate to severe pain that has lasted for more than six months. At least a third of over 65-year-olds report being in pain, frequently due to arthritis in the knees or low back pain. Pain is often seen, by patients and doctors alike, as a natural consequence of ageing that has to be borne. But many of the underlying conditions are treatable and strategies including drugs, physical therapy and relaxation techniques need to be considered and offered. The alternative of leaving people in chronic pain means they cannot enjoy life, become depressed, cannot work and lose independence in old age. Strong painkillers such as opioids can alleviate pain but come at a price, with an
Chronic pain is more likely to be experienced by men (37% vs 31% for women) and those with lowest income. Those living in the lowest income quintile of equivalised household income were more likely to report having chronic pain (40% vs 35% for men and 44% vs 37% for women) than those in the highest income quintile. According to data from the Health Survey for England, 2011.

It is hard to calculate the overall cost of chronic pain to the economy but back pain alone is said to cost around £12.3 billion per year in England.6

**How does pain become chronic?**
Pain can become chronic and persist after acute pain caused by trauma, infection or inflammation has healed. The pain persists even after the initial cause has got better because of muscle spasms and activation of neural pain pathways. Some pain becomes chronic because the underlying cause remains or tends to recur, such as migraine, postherpetic pain or rheumatoid arthritis.

Some people experience pain even when the stimulus is not noxious to others, such as wind on the face triggering trigeminal neuralgia. This is called allodynia. In hyperalgesia, noxious stimuli, like a cut, produce a more pronounced pain reaction than normal. People with neuropathic pain may have both allodynia and hyperalgesia.

**What are the main causes of chronic pain?**
Most cases of chronic pain will be due to mechanical (musculoskeletal) problems, neurological disorders, headache, psychological disorders, localised disease or a generalised disease process.

The main mechanical problems we see are mechanical low back pain, osteoarthritis, overuse syndromes and, less often, rheumatoid arthritis. Myofascial pain syndrome is a chronic pain disorder in which pressure on sensitive trigger points in the muscle causes referred pain in another part of the body. It can happen after a muscle has been contracted repetitively and can be stress-related muscle tension.

Neurological causes of chronic pain include diabetic polyneuropathies, which affect up to a quarter of all people with diabetes, spinal stenosis and trigeminal neuralgia. Complex regional pain syndrome (CRPS) develops in an area of the body after it has been immobilised, for example in a plaster cast, or has been injured. The underlying mechanism is poorly understood but the pain experienced is more severe and debilitating than one would expect. It is usually confined to one limb but may spread. Postherpetic neuralgia that persists more than a month after an attack of shingles affects nearly a third of people who have had shingles and can last over a year in 10% of cases.7

Persistent, disabling pain despite treatment
Progressive pain
A history of alcohol or drug abuse
High doses of opioid analgesics
Patient request

**Table 1. Considerations for referral to a pain clinic**

**Preventing pain**
Vaccination against shingles is now offered in the UK to anyone over 70 years old. This should cut the risk of postherpetic neuralgia. Postoperative pain can be reduced by prompt pain control. In addition, the huge range of work-related musculoskeletal and overuse conditions can be mitigated by good practices in the workplace.8

**Assessing pain**
Patients can be asked to assess their pain before and after a treatment using a variety of tools.9 Three useful and validated rating scales are in common use: the Visual Analogue Scale, the Verbal Rating Scale and the Numerical Rating Scale.10 The numerical rating scale is an 11-point pain severity score where 0=no pain and 10=excruciating pain. It is easy to use and a reduction of two or more points on this scale is considered a significant improvement.

**Nonmedical treatments for pain**
Physiotherapy is recommended for myofascial pain. Losing weight helps musculoskeletal problems in obese patients. Work-related sources of pain

**Figure 1. WHO analgesic ladder for cancer pain**

**Step 1**
Non-opioid (eg aspirin, paracetamol or NSAID) ± adjuvant

**Step 2**
Weak opioid for mild to moderate pain (eg codeine) ± non-opioid ± adjuvant

**Step 3**
Strong opioid for moderate to severe pain (eg morphine) ± non-opioid ± adjuvant

- Pain controlled
- Pain persisting or increasing

Increased risk of addiction in those with chronic pain who use opioids.
require interventions in the workplace such as modifications to work stations. Relaxation techniques, cognitive behavioural therapy (CBT), including internet-guided CBT, and stress management can benefit people living with the psychological and social stress of long-term pain.

Mindfulness, a technique derived from meditation that encourages people to ‘live in the moment’, is attracting interest in the management of pain and is already advocated in the treatment of depression. Apps that allow people to track and rate their pain and monitor their medication use and general wellbeing can give people with chronic pain more control over their condition.

The analgesic ladder
WHO recommends a three-step analgesic ladder (see Figure 1) to manage cancer pain. A similar stepwise approach to noncancer chronic pain is also useful.

The main drugs used for pain control fall into four classes: NSAIDs (eg ibuprofen, diclofenac), opioids (eg codeine, morphine), antidepressants (eg amitriptyline) and antiepileptics (eg gabapentin, pregabalin). As GPs, our prescribing tends to be on a ‘suck it and see’ basis in which we opt for drugs with the fewest side-effects first rather than the most effective. This is perfectly rational given the risk of adverse effects, overdose, dependence and misuse associated with opioids.

Detailed advice on prescribing of analgesics can be found in the BNF or MIMS. Doses of drugs usually need to be adjusted in the elderly because they metabolise drugs differently, are more sensitive to side-effects and more prone to interactions as they may be taking several different drugs.

Referral to a pain clinic
Patients with chronic pain that GPs and primary health care professionals should consider referring to a pain clinic are outlined in Table 1. If there are any red flags – for example, bladder and bowel symptoms or difficulty walking indicating possible spinal cord compression – immediate or urgent referral is important.

In 2009, the Chief Medical Officer acknowledged that the provision of pain clinics across the UK was woefully patchy and inadequate. The National Pain Audit (www.nationalpainaudit.org) was set up to improve access to and awareness of specialist pain services and reduce variation in care. Its 2012 report showed some progress: “Overall, patients report that specialist pain services in England and Wales perform well in helping them feel involved in treatment decisions. Many services also help patients enjoy a bet-

<table>
<thead>
<tr>
<th>Drug name</th>
<th>Drug dose</th>
<th>Equivalent oral morphine dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Codeine</td>
<td>30mg</td>
<td>4.5mg</td>
</tr>
<tr>
<td>Dihydrocodeine</td>
<td>10mg</td>
<td>1mg</td>
</tr>
<tr>
<td>Tramadol</td>
<td>50mg</td>
<td>5mg to 10mg</td>
</tr>
</tbody>
</table>

BuTrans (buprenorphine) patches conversion doses – should only be used if patient intolerant of tramadol/codeine

<table>
<thead>
<tr>
<th>Drug</th>
<th>Drug dose</th>
<th>Approximate codeine equivalence</th>
<th>Approximate oral morphine equivalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>BuTrans 5</td>
<td>5µg/hour</td>
<td>60mg/24hours</td>
<td>10mg/24 hours</td>
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<tr>
<td>BuTrans 10</td>
<td>10µg/hour</td>
<td>120mg/24hours</td>
<td>20mg/24 hours</td>
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<tr>
<td>BuTrans 20</td>
<td>20µg/hour</td>
<td>240mg/24hours</td>
<td>40mg/24 hours</td>
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Strong opiate conversion doses

<table>
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<tr>
<th>Drug name</th>
<th>Drug dose</th>
<th>Equivalent oral morphine dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamorphine (subcut.)</td>
<td>10mg</td>
<td>30mg</td>
</tr>
<tr>
<td>Diconal (dipipanone/cyclizine)</td>
<td>10mg/30mg</td>
<td>5mg</td>
</tr>
<tr>
<td>Meptazinol (Meptid)</td>
<td>200mg</td>
<td>4mg to 8mg</td>
</tr>
<tr>
<td>Oxycodeone*</td>
<td>10mg</td>
<td>20mg</td>
</tr>
<tr>
<td>Pethidine (oral)</td>
<td>50mg</td>
<td>5mg to 6.25mg</td>
</tr>
<tr>
<td>Pethidine (injected)</td>
<td>12.5mg</td>
<td>3mg</td>
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Fentanyl patches conversion doses

<table>
<thead>
<tr>
<th>Drug name</th>
<th>Drug dose</th>
<th>Equivalent oral morphine dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fentanyl 25 patch</td>
<td>25µg/hour</td>
<td>30mg to 134mg/24 hours</td>
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<tr>
<td>Fentanyl 50 patch</td>
<td>50µg/hour</td>
<td>135mg to 224mg/24 hours</td>
</tr>
<tr>
<td>Fentanyl 75 patch</td>
<td>75µg/hour</td>
<td>225mg to 314mg/24 hours</td>
</tr>
<tr>
<td>Fentanyl 100 patch</td>
<td>100µg/hour</td>
<td>315mg to 404mg/24 hours</td>
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*Oxycodeone: Palliative care only

Table 2. Approximate opioid conversion doses equivalent to oral morphine. Individual patient variability needs to be considered when switching from one opioid to another.
Chronic pain

Prescriber July 2016

- Decide when to start or initiate opioids – consider nonpharmacological therapies, non-opioids then opioids
- Establish treatment goals – discuss risks and benefits with patient
- Select opioid, dosage and duration. Accidental overdose is more common with long-acting preparations so start with short-acting until optimal dose is established. Start with a low dose and titrate up. Monitor response – aim for improved function or >30 per cent reduction in pain intensity. Review every two weeks. If there is a poor response after two to three dose increases, unacceptable side-effects or signs of misuse, stop opioids or switch to different one
- Avoid concurrent benzodiazepines – giving them with opioids increases the risk of death from overdose in a dose-dependent way
- Identify and treat opioid dependence. Patients can be directed to local services and self-help groups. Narcotics Anonymous (ukna.org) offers support to people addicted to opioids and other medication and is run on similar lines to Alcoholics Anonymous. Public Health England supports services for drug and alcohol misuse although local provision can be patchy

Guidance in pain management

NICE lists several reliable sources of evidence-based guidelines. These include Management of Chronic Pain, a national guideline produced by the Scottish Intercollegiate Guidelines Network (SIGN), in December 2013. The document includes recommendations on assessing and planning care, supported self-management, pharmacological and psychological options, physical and complementary therapies.

The management of pain associated with specific conditions is covered in the NICE Clinical Knowledge Summaries (cks.nice.org.uk) on the management of low back pain, palliative cancer care and neuropathic pain.

Newer treatment options

The opiate oxycodone can be combined with naloxone (Targinact) for use in severe pain. The naloxone counteracts constipation, which is a frequent problem side-effect of opiates.

Tapentadol is indicated for the relief of moderate to severe acute pain in adults. It works in two ways: as an opioid agonist and a noradrenaline reuptake inhibitor. Capsaicin cutaneous patches are licensed for the treatment of peripheral neuropathic pain, either alone or in combination with other analgesics.

Vitamin D deficiency is implicated in widespread pain and supplementation is advised if serum levels are low.

Opioids

Opioids are effective in controlling pain, but they show tachyphylaxis (a rapid decrease in response to a drug given several times) and tolerance (larger doses of the drug are needed to achieve the same effect). The higher the dose of opioid, the greater the risk of overdose, falls and a paradoxical increased sensitivity to pain. Doses should be kept to under 200mg daily morphine. Working out equivalent doses to morphine in different opioids (see Table 2) is important to ensure the lowest effective dose is prescribed for the minimum time necessary. Long-term opioids have significant risks.

Transdermal patches are advantageous if tablets are not well tolerated. Long-acting preparations may be advised once the correct dose is established.

The US Centers for Disease Control and Prevention (CDC) have produced useful prescribing guidelines for opioids in chronic (noncancer) pain; these are outlined in Table 3.

Table 3. Summary of Centers for Disease Control and Prevention (CDC) guideline for prescribing opioids for chronic (noncancer) pain

<table>
<thead>
<tr>
<th>Practice guidelines</th>
<th>Monograph</th>
<th>Website</th>
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<td>3. Decide when to start or initiate opioids – consider nonpharmacological therapies, non-opioids then opioids</td>
<td>BMJ Best Practice. Chronic pain syndromes.</td>
<td><a href="http://bestpractice.bmj.com/best-practice/monkey/694.html">http://bestpractice.bmj.com/best-practice/monkey/694.html</a></td>
</tr>
<tr>
<td>5. Select opioid, dosage and duration.</td>
<td>Chronic pain.</td>
<td></td>
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References

reveals a nation in pain

Declaration of interests
None to declare.

Ann Robinson is a GP and health writer.