A woman with persistent postoperative pain

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The immediate management and investigation of an acute pain presentation in general practice is discussed in this article.

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Marianne is 43 years old and has come to your general practice for the first time. She was discharged from a nearby tertiary hospital three days ago following right-sided wide local excision and axillary clearance for invasive breast cancer. She was an inpatient for four days, and is soon to commence radiotherapy and chemotherapy. Marianne did not take any regular medications prior to surgery. Her tumour was discovered during a regular screening examination, and her history includes a maternal aunt who died from breast cancer at the age of 55 years.

Marianne sees you today for analgesia as she is experiencing constant moderate-to-severe pain over the wound sites, and intermittent unpleasant sensations radiating from her right breast into the axillary region. She was discharged from hospital with oxycodone immediate-release 5 mg tablets (20 tablets in total) and she finished the box last night. She hands you her discharge summary. She is distressed and teary during the consultation.

What are the important features of Marianne's history and examination that are related to managing her pain?

Answer: Patients are discharged from hospital following uncomplicated major surgery considerably earlier than in previous years.[1] A large proportion will still be experiencing postsurgical pain, which can be moderate to severe in intensity. This necessitates ongoing management of acute pain in the community, often with opioid pharmacotherapy, because poorly controlled pain is a barrier to rehabilitation and recovery.[1]

Assessment of Marianne will follow the biopsychosocial model and include a pain history that explores the site, character and radiation of her pain, as well as any aggravating or relieving factors, associated features and previous treatment. Details of her preoperative health, particularly the presence of any pain problems (either at the site of surgery or elsewhere) is relevant. These include migraine headache, irritable bowel syndrome and fibromyalgia. The history of her inpatient postoperative pain experience, particularly pain intensity and treatment administered, is also important.

Careful consideration, particularly on examination, should be given to possible surgical complications that may exacerbate pain, such as wound infection or haematoma. A detailed substance use history should also be obtained, including premorbid opioid use (over-the-counter and prescribed), alcohol consumption, cigarette smoking and illicit drug use. Marianne's mood (and any mental health background), her social circumstances and available support network, will also have a significant impact on her ability to cope with her current situation.

Information from Marianne and the hospital discharge summary reveals she had moderate-to-severe pain following her procedure, which was localised to the surgical sites. Preoperatively, she received a single dose of gabapentin and, postoperatively, oral paracetamol and an oxycodone immediate-release formulation as required. However, on postoperative day one she was given a fentanyl patient-controlled analgesia device for 24 hours because of high pain intensity. Marianne reports that although she felt mildly nauseated, her pain was better controlled with the parenteral opioid but she thinks 'she used a lot'. She was then restarted on the same oral regimen as previously (paracetamol and oxycodone) in preparation for discharge.

Opioid risk tool

This tool should be used for patients at the initial visit before starting opioid therapy for pain management. A score of 3 or less indicates low risk for future opioid abuse, a score of 4 to 7 indicates moderate risk, and a score of 8 or higher indicates a high risk for opioid abuse.

	Female	Male
Family history of substance abuse		
Alcohol	1	3
Illegal drugs	2	3
Prescription drugs	4	4
Personal history of substance abuse		
Alcohol	3	3
Illegal drugs	4	4
Prescription drugs	5	5
Age between 16 and 45 years	1	1
History of preadolescent sexual abuse	3	0
Psychological disease		
Attention deficit disorder, obsessive compulsive disorder, bipolar, schizophrenia	2	2
Depression	1	1
Scoring totals		

Source: National Institute on Drug Abuse; National Institutes of Health; US Department of Health and Human Services. From Lynn R. Webster et al. Predicting aberrant behaviours in opioid-treated patients: preliminary validation of the opioid risk tool. Pain Med 2005; 6: 432-442 (Table 1).[6] By permission of Oxford University Press on behalf of the American Academy of Pain Medicine.

Marianne's pain intensity has remained moderate-to-severe, and she is struggling to sleep and perform her normal daily activities. She has three children under 10 years old, and although she is receiving assistance with the household duties from her husband and mother, she is feeling overwhelmed. She experiences episodic migraine (approximately one every three months) that she manages with a triptan. She does not have a history of substance use or depression, but feels that she is probably 'an anxious sort of person'. She is very worried about how she and her family will cope with radiochemotherapy. On examination her vital signs are normal. Her wounds are healing well with no evidence of infection or haematoma. She is reluctant to abduct her right arm past 90° because of pain.

How will you manage Marianne?

Answer: Moderate-to-severe acute pain is a risk factor for progression to persistent pain, and a multimodal approach to pharmacological management is appropriate.[2,3] Provided there are no contraindications, simple analgesia such as paracetamol and NSAIDs given regularly for five to seven days should be started. Ongoing opioid therapy may be required in the acute phase, with careful consideration of the possible adverse effects and risks. These commonly include debilitating problems such as nausea, vomiting, constipation, sedation and cognitive impairment. The relative merits of controlled- or immediate-release formulations will also need to be carefully considered in the context of each patient. Both short- and long-acting opioids are associated with serious adverse outcomes, particularly in the opioid-naïve patient.[4] Limited prescribing and/or dispensing may be required. Regular assessment of efficacy and adverse effects is essential,[4,5] and a plan for weaning and cessation must be established with the patient. Opioid therapy commenced in the post-operative period is associated with initiation of long-term use leading to opioid tolerance, dependency and possible misuse or diversion.[1] Risk factors for ongoing use of opioids in the postoperative population include anxiety and depression, and a brief questionnaire such as the Opioid Risk Tool may be useful to identify at-risk patients (see Box).[6]

Marianne will need monitoring for symptoms and signs of problematic anxiety, low mood and/or depression, especially in the context of a cancer diagnosis. Ongoing assessment of her functional status is also important to identify pain-associated disability. Sessions with a psychologist and a physiotherapist would be beneficial for addressing pain-associated fear-avoidance behaviour (such as unwillingness to move her shoulder) and other unhelpful thoughts surrounding her diagnosis. It may be possible to access such services through cancer treatment centres or organisations such as the Cancer Council. Early physiotherapy treatment would also be important to maintain functional status and reduce the risk of developing other complications.

You continue Marianne on regular paracetamol and commence celecoxib for seven days. You also start her on a low-dose buprenorphine transdermal patch 5 µg/hour and give her a limited supply of immediate-release oxycodone tablets, with the recommendation to start regular aperients. You educate Marianne on the proper use of opioids and the potential side effects, and plan to review her in seven days. You also discuss her vulnerability to mood disturbance during this period and refer her to the oncology service psychologist at her hospital for further support.

Over the next four weeks Marianne visits you regularly. She is still taking paracetamol and the buprenorphine transdermal patch (now at a dose of 10 µg/hour), and she has ceased the short-acting opioids. She is still struggling with moderate pain that is interfering with her sleep and ability to care for her children. She remains distressed with low mood. She has had two sessions with a psychologist; however, she was lost to follow up during radiochemotherapy, which has now finished. There is no evidence of metastatic disease.

Marianne returns to see you five months after her surgery. She still has pain in her right breast and axilla, although it has

changed in character to a constant burning pain. She is unable to wear a bra or tight clothing, and running her finger lightly along the area causes 'electric shocks'. Her scars have healed well. She is still taking regular paracetamol, a different controlled-release opioid (oxycodone and naloxone 10/5 mg three times per day), and additionally pregablin 150 mg twice per day. She struggled with adverse effects during radiochemotherapy, including increased pain. She also describes symptoms of anxiety and depression (without suicidal ideation), and she conveys several unhelpful cognitions such as 'my life is ruined by pain'. Given the death of her aunt from breast cancer, she is very worried 'the cancer will return'. Her family relationships have been strained by her persistent pain and associated problems.

What is persistent postsurgical pain (PPSP) and what are the risk factors for its development?

Answer: PPSP can be defined as pain that develops after surgical intervention and lasts at least two months; other causes of the pain have to be excluded, in particular pain from a condition preceding the surgery.[2] This definition is problematic given that the natural healing course of many surgical procedures may exceed two months, and that operations are often performed for painful conditions. The incidence of PPSP is difficult to quantify given the variations in definition and the inclusion or exclusion of presurgical pain in the region of the surgery. Therefore, a range of 10 to 50% is often quoted, with severe pain in 2 to 10%.[7] Procedures with a higher incidence of PPSP include those with a greater risk of nerve damage, such as amputation, thoracotomy, mastectomy and inguinal hernia repair. This emphasises that PPSP is commonly neuropathic in origin, and nerve-sparing surgery may reduce the risk.[3,7]

Other factors robustly associated with PPSP include preoperative pain (at the surgical site or elsewhere), moderate-to-severe postoperative pain, anxiety traits, depression and pain catastrophising.[2,3,8] Unlike perioperative pain levels, catastrophising has been shown to exert an effect months to years after the procedure and is the variable most strongly associated with PPSP. Repeat surgery, younger age and female sex have weaker associations with PPSP. Postoperative factors such as radiation therapy to the area and neurotoxic chemotherapy are also associated with PPSP.

What is pain catastrophising and how does it impact on a patient's pain, mood and quality of life?

Answer: Pain catastrophising is related to anxiety and represents exaggerated negative cognitive and emotional schema towards actual or anticipated pain experiences.[9,10] It is often conceptualised as a set of maladaptive beliefs, with the individual tending to magnify or exaggerate the threat value of painful sensations, and to feel helpless in the context of pain.[10,11] The frequently used Pain Catastrophising Scale, a self-reported questionnaire used for the assessment of catastrophising cognitions, incorporates questions from three different dimensions, namely magnification, rumination and helplessness. Anxiety and catastrophising are associated with both increased pain intensity and emotional distress during painful experiences.[12] High pain catastrophising is a risk factor for severe acute pain and for PPSP. Catastrophising is a strong predictor of a number of pain-related outcomes, including increased pain interference and disability, increased use of health services, increased analgesic requirement and increased duration of hospital stay.[12] It is also linked to mood disturbance, particularly depression.

What options do you have for managing Marianne's PPSP?

Answer: Marianne's problems include PPSP, pain-associated disability and mood disturbance. Management will need to address all of these issues, ideally with early referral to a multidisciplinary pain management service. The features of her pain suggest a neuropathic process. Neuropathic pain is defined by the International Association for the Study of Pain as 'pain arising as a direct consequence of a lesion or disease affecting the somatosensory system',[13] and it is further classified as being central or peripheral in origin. A diagnosis of neuropathic pain requires the painful area to be neuroanatomically plausible, and the history must suggest a relevant lesion or disease. Neuropathic pain is usually maximally located in an area of sensory deficit. Pain descriptors such as burning, shooting, lancinating and aching are often used; however, the presence of these features is not pathognomonic. Associated positive sensory symptoms are common, and can include allodynia, paraesthesia and dysaesthesia.

Pharmacological agents for managing neuropathic pain include gabapentinoids, antidepressant agents such as serotonin and noradrenaline reuptake inhibitors (SNRI) and tricyclic antidepressants, and anticonvulsants such as sodium valproate.[14] Combination therapy may be required if a single agent is only partially effective or causing side effects at higher doses, and again this is an indication for referral to a pain management service. Neuropathic pain is often not responsive to opioids, and there are many issues surrounding the use of these agents for the treatment of persistent pain. Consideration should be given to weaning Marianne off her opioid medication.

It will be important to address Marianne's mood disturbance, and she may need a referral to a mental health service. Development of psychological strategies to address her unhelpful cognitions (catastrophising) is also vital. This can be achieved during individual sessions with a psychologist trained in the management of pain catastrophising or within a pain management program. Most training involves cognitive behavioural therapy techniques. Pain management programs also address the disability associated with persistent pain, and aim to upgrade the patient's activity levels over time. A comprehensive pain management service may also provide Marianne with the option of an interventional strategy to assist with the management of her persistent chest wall pain.

You commence Marianne on an SNRI, as well as pregabalin, which has a modest but positive effect on her mood, sleep and pain intensity. She is able to wean her opioid dose by half. You refer her to a tertiary pain management service where she completes a pain management program. **PMT**

References

A list of references is included in the website version (www.medicinetoday.com.au) of this article.

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References

1. Macintyre PE, Huxtable CA, Flint SL, Dobbin MD. Costs and consequences: a review of discharge opioid prescribing for ongoing management of acute pain. Anaesthesia and Intensive Care 2014; 42: 558-574.
2. Schug S, Pogatzki-Zahn E. Chronic pain after surgery or injury. Pain: Clinical Updates 2011; XIX(1): 1-5.
3. Kehlet H, Jensen T, Woolf C. Persistent postsurgical pain: risk factors and prevention. Lancet 2006; 367: 1618-1625.
4. Webster L. Eight principles for safer opioid prescribing. Pain Med 2013; 14: 959-961.
5. Faculty of Pain Medicine, Australian and New Zealand College of Anaesthetists. Principles regarding the use of opioid analgesics in patients with chronic non-cancer pain. Professional Document Pm1. ANZCA; 2010.
6. Webster L, Webster R. Predicting aberrant behaviours in opioid-treated patients: preliminary validation of the opioid risk tool. Pain Med 2005; 6: 432-442.
7. Schug S. Persistent post-surgical pain: a view from the other side of the fence. Pain 2012; 153: 1344-1345.
8. Schug SA, Palmer GM, Scott DA, Halliwell R, Trinca J; APM:SE Working Group of the Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine. Acute pain management: scientific evidence 4th ed. Melbourne: ANZCA & FPM; 2015.
9. Turner J, Aaron L. Pain-related catastrophizing: what is it? Clin J Pain 2001; 17: 65-71.
10. Theunissen M, Peters ML, Bruce J, Granke HF, Marcus MA. Preoperative anxiety and catastrophizing: a systematic review and meta-analysis of the association with chronic postsurgical pain. Clin J Pain 2012; 28: 819-841.
11. Quartana P, Campbell C, Edwards R. Pain catastrophizing: a critical review. Expert Rev Neurother 2009; 9: 745-758.
12. Sullivan MJ, Thorn B, Haythornthwaite JA, et al. Theoretical perspectives on the relation between catastrophizing and pain. Clin J Pain 2001; 17: 52-64.
13. Haanpää M, Treede RD. Diagnosis and classification of neuropathic pain. Pain; Clinical Updates 2010; XVIII(7): 1-6.
14. Finnerup NB, Attal N, Haroutounian S, et al. Pharmacotherapy for neuropathic pain in adults: a systematic review and meta-analysis. Lancet Neurology 2015; 14: 162-173.