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Expert Panel Consensus Recommendations for the Pharmacological Treatment of Acute Pain in the Middle East Region

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The findings of an expert panel convened to review critically how best to apply evidence-based guidelines for the treatment of acute pain in the Middle East region are presented. The panel recommended a three-step treatment protocol. Patients with mild-to-moderate levels of acute pain should be treated with paracetamol (step 1). If analgesia is insufficient after 1 – 2 days, a selective cyclo-oxygenase-2 inhibitor or, if gastrointestinal safety and bleeding risk are not an issue, a non-specific non-steroidal anti-inflammatory drug, should be used (step 2). If analgesia remains inadequate, treatment with tramadol, or paracetamol plus codeine/tramadol is recommended (step 3). Patients reporting severe pain should be referred to a pain clinic or specialist for opioid analgesic treatment. Measures of pain and functioning that have been validated in Arabic, with culturally appropriate and easy to understand descriptors, should be used. Early and aggressive acute pain management is important to reduce the risk of pain becoming chronic, especially in the presence of neuropathic features.

KEY WORDS: Opioid analgesics; Non-narcotic analgesics; Non-steroidal anti-inflammatory drugs; Selective cyclo-oxygenase 2 inhibitors; Middle East; Acute pain; Guidelines

Introduction

Pain is the most common reason for seeking medical care[1] but is frequently under-treated despite the associated enormous healthcare cost, loss of productivity and decreased ability to work.[2] The International Association for the Study of Pain (IASP) formally defined pain as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage'.[3,4] Pain is categorized as acute ('pain of recent onset and probable limited duration, usually with an identifiable temporal and causal relationship to injury or disease') or chronic ('commonly persists beyond the time of healing of an injury, and frequently there may not be any clearly identifiable cause'), based on time of onset and duration.

The IASP make it clear that the subjective 'sensory and emotional experience' of pain is as central to its definition as the objective neurobiology of nociception,[3] and the inherently subjective nature of pain necessitates the use of a biopsychosocial model.[5,6] Guidelines for the pharmacological treatment of pain must take into account psychological and cultural factors that shape the perception and communication of pain. Conceptualizing pain and its treatment within the context of a patient's culture is not simply an academic exercise, but is essential for optimizing accurate assessment, and effectiveness and patients' acceptance of evidence-based pain treatment guidelines.

Treatment guidelines are one of the most useful decision-making tools available to physicians. They are not intended to replace professional experience, but to provide an evidence-based resource that complements the expertise of individual physicians. With these principles in mind, an expert panel met to promulgate consensus recommendations for the pharmacological treatment of acute pain in the Middle East region (MER), aligned with patient needs and clinical practice. This paper summarizes the recommendations of this expert panel for the adaptation of pain assessment and treatment regimens to the region-specific ethnic and cultural realities of the MER. A brief background on the epidemiology, physiology, psychology and assessment of acute pain in the MER is provided, highlighting unmet needs and areas that would benefit from additional research. The consensus recommendations for the pharmacological treatment of acute pain in the MER are summarized.

ACUTE PAIN: EPIDEMIOLOGY AND CONSEQUENCES IN THE MER

The causes and clinical situations associated with acute pain are highly heterogeneous and the common types and their causes are shown in Table 1. The lifetime prevalence of acute pain leading to use of analgesics is close to 100%.[7] There are no epidemiological surveys reporting the 1-year prevalence of specific acute pain syndromes in the population or in the general practice (GP) setting in the MER, so information must be extrapolated from Western data. The prevalence of pain varies according to clinical setting; the predominance of acute pain is higher, > 40%,[8 – 12] among hospitalized patients and those presenting to the emergency department.

ACUTE PAIN: BRIEF REVIEW OF PHYSIOLOGY AND PSYCHOLOGY

The subjective experience of pain may be summarized as a four-stage process.[13,14] In stage 1 (transduction) a sensory cell converts nociceptive environmental stimuli with tissue damaging potential (including mechanical, chemical and thermal stimuli) into action potentials. Stage 2 (transmission)

TABLE 1:
Common types of acute pain and their causes

Types of acute pain	Causes of acute pain
Orofacial pain	Postdental extraction
	Tonsillectomy
	Pharyngitis
	Mucositis
Systemic medical conditions	Acute pain in human immunodeficiency virus infection
	Acute cancer pain
	Sickle cell crisis
	Acute cardiac pain
Postoperative	Thoracic surgery (thoracotomy)
	Abdominal surgery (abdominal hysterectomy, colonic resection)
	Orthopaedic surgery (total hip or total knee arthroplasty, other elective or emergency surgery)
	Non-cosmetic breast surgery
	Laparascopic surgical procedures (cholecystectomy)
	Herniorraphy
	Haemorrhoidectomy
Musculoskeletal pain secondary to injury, sports, etc.	Acute strains, sprains
	Acute back pain
	Lateral elbow pain (tennis elbow, golfer's elbow)
	Broken bones
Headache	Tension-type headache
	Migraine
	Cluster headache
	Postdural puncture headache
Spinal cord injury	
Miscellaneous	Acute burn injury
	Corneal abrasions
	Dysmenorrhoea
	Renal and biliary colic
	Gout
	Irritable bowel
	Herpes zoster

involves the travel of these action potentials along afferent neurons to the dorsal horn of the spinal cord. In stage 3 (modulation), information on the location, quality and intensity of nociceptive stimuli is coded under the influence of specific neurotransmitters, other stimuli (e.g. tactile) and descending pathways. Modulation in the dorsal horn can be excitatory or inhibitory, thereby increasing or decreasing the resulting pain. The overall subjective experience of pain is generated in various parts of the brain in stage 4 (perception), leading to autonomic, affective, cognitive and behavioural responses to the painful stimulus.

The subjective experience of acute pain is significantly influenced by psychological, ethnic and sociocultural factors,[1,3,4,7 – 21] including emotional state (level of anxiety or depression) and personality traits (level of neuroticism, tendency to catastrophize).

The subjective nature of pain has several important practical implications. First, the extent of injury does not always correlate with the severity of pain, since the major determinant of pain is not the injury itself, but the body's reaction to the injury.[22,23] Secondly, the complex, multistage process offers multiple targets for pharmacological treatment and provides a rationale for a multimodal approach. Analgesia may be achieved by reducing the body's peripheral reaction to injury (via non-specific non-steroidal anti-inflammatory drugs [ns-NSAIDs] or selective cyclo-oxygenase-2 [COX-2] inhibitors),[24 – 28] blocking transmission (local anaesthesia),[29] enhancing inhibitory modulation (with opioids,[30] clonidine[31] or antidepressants)[32] or reducing excitatory modulation (ketamine,[33] pregabalin).[34] Thirdly, inhibitory descending pathways may be augmented by expectation (placebo response),[35] physical exercise,[36 – 38] or relaxation techniques such as meditation, hypnosis and distraction.[39]

ACUTE PAIN: PROGRESSION TO CHRONIC PAIN

Acute pain and chronic pain are not discrete clinical and pathophysiological entities, but lie along a continuum.[13] Acute pain, even of relatively short duration, activates secondary peripheral and central mechanisms that may result in hyperalgesia and allodynia.[22,23] Hyperalgesia is increased sensitivity to pain, and allodynia is a special case of hyperalgesia involving painful sensations caused by stimuli that do not normally elicit pain.[4] The physiological mechanism underlying both hyperalgesia and allodynia is sensitization, including a reduction in pain threshold and increased intensity of response to a previously painful stimulus.[4] Sensitization may occur peripherally (increased responsiveness of receptors) or centrally (increased responsiveness of secondary neurons in the central nervous system to stimuli that may even be subthreshold).[22,23]

The cellular and neurochemical mechanisms underlying hyperalgesia and allodynia are complex and beyond the scope of the current article. The clinical implications of hyperalgesia and allodynia are important, since individuals who develop sensitization are at high risk of progressing from acute to chronic pain.[40,41] Persistent acute pain that becomes chronic is associated with several negative consequences, including significantly reduced quality of life, increased disability and risk of depression.[42 – 44] Despite considerable conflicting data, which recent reviews have attributed to problems with study designs, it appears that the aggressive early treatment of acute pain may reduce the likelihood that chronic pain will develop.[45]

OBJECTIVES

The present article has the following objectives: (i) to summarize the evidence-based consensus recommendations of an expert panel for the pharmacological management of acute pain in the MER; and (ii) to highlight key clinical areas for future research. The scope of these guidelines is limited to the pharmacological management of acute pain. They do not discuss the effectiveness of non-pharmacological treatment modalities or the management of other pain syndromes, such as neuropathic or chronic pain.

Materials and methods

A multidisciplinary expert panel with clinical and research expertise in the diagnosis and treatment of acute pain was convened in Dubai, United Arab Emirates, on 13 January 2011. The panel included physicians from the MER, as well as

international experts. Relevant publications summarizing results of randomized controlled trials were identified via searches of Medline (PubMed) and the Cochrane Database. The databases were searched using the terms: acute pain OR postoperative pain AND [clinical trials OR meta-analysis] OR [treatment guidelines OR practice guidelines]. A wider search of the term 'pain' was also conducted, using the limits ['English' AND 'humans'] AND ['randomized clinical trial' OR 'review' OR 'practice guideline']. The results were also looked at to identify reviews of treatment studies of acute pain that may have been missed. The current expert consensus panel's recommendations were based on a review of meta-analyses, systematic reviews and evidence-based guidelines on the treatment of acute pain. The decision was made by the expert panel not to re-review reports of individual randomized clinical trials.

Professor SA Schug, a member of the expert panel, served as one of the editors of the most recent edition of *Acute Pain Management: Scientific Evidence* from the Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine,[46] which served as a source document for the current MER-specific guidelines. Additional relevant publications were identified via searches of Medline and the Cochrane Database. The attendees generated a draft report and consensus was achieved based on editorial feedback from the authors.

Results

ASSESSMENT AND MEASUREMENT OF ACUTE PAIN AND TREATMENT RESPONSE

The expert panel concurred that an essential precondition for the effective treatment of acute pain is a thorough medical examination. This must include a general medical history, physical examination to characterize the anatomical correlates of the pain and exclude potentially treatable systemic causes, and a specific history of pain location and characteristics, including intensity (at rest or with movement) and any associated functional impairment.

The advantages and disadvantages of pain measurement via a visual analogue scale (VAS), numerical rating scale (NRS) and verbal rating scale (VRS) in the MER were discussed. After reviewing the evidence, the expert panel concluded that the NRS and VRS were more useful than the VAS in the GP setting and that patient education is important to ensure accurate measurement. The expert panel emphasized the importance of using measures of pain and functioning that have been validated in Arabic (or the local language), with descriptors that are both culturally appropriate and easy to understand without high levels of education. Appendix 1 shows an example of a pain history and examination worksheet on which patients can record their pain and functional impairment, including pictures of the human body (front and back) on which they can mark the areas where they feel pain.

The expert panel concurred that it is important for GPs to conduct regular assessments of pain intensity and related functional impairment during treatment in order to monitor therapeutic effectiveness. Treatment may then be modified, as summarized in later sections of these guidelines, if improvement has not been achieved after a reasonable length of time.

CURRENT APPROACH TO ACUTE PAIN: CULTURAL DIMENSIONS

Ethnic and cultural differences in the MER

The MER is a culturally diverse region with a population of > 300 million people,

primarily Arabic speaking and encompassing well over a dozen ethnic groups. There is enormous diversity in educational level, per capita income, and rural versus urban residence, frequently within the same nation. The panel noted the lack of empirical research into the impact of this ethnic, cultural and educational diversity on the experience of acute pain, how it is communicated, and the effect it has on functioning, medical care seeking and response to treatment.

Significant MER-specific trends that were noted by the expert panel included the low recognition of pain as a 'fifth vital sign' requiring monitoring and the relative absence of medical personnel with specific training in pain management. A cultural bias against opioids ('opiophobia') was identified by the expert panel.[47]

Unmet needs in the MER

Acute pain management has improved over the last 5 – 7 years in some countries in the MER (Egypt and United Arab Emirates: personal communication, AE Ayad, N Ghaly, R Ragab and A Salti), with concerted efforts in major cities being made to improve the education of GPs and pharmacists in acute pain management. Despite these advances, the expert panel found that the concept of pain management is not well established throughout the MER. Adequate financial resources and training of sufficient medical personnel with specific expertise in the management of acute pain is still lacking. The expert panel members agreed that there was considerable discrepancy between major cities and rural areas in the level of knowledge of pain management, the provision and availability of pain management services, and the education and training of physicians (both specialists and GPs), nurses and allied healthcare practitioners. Disseminating pain management expertise to rural areas was considered to be the most challenging unmet need in the MER. Misconceptions regarding analgesic use, especially opioids, and fear (of epidural anaesthesia, for example) that result in under-treatment can only be overcome with higher levels of education.

GENERAL MANAGEMENT CONSIDERATIONS

General management considerations for a patient who presents to a GP with acute pain are summarized in Fig. 1. Initial diagnostic evaluation should focus on specific clinical concerns, including the presence of comorbid medical conditions, and any existing treatment that may influence the choice of analgesic or the dose administered. Acute pain treatment is most effective if the patient is given a sense of control by communicating to them that treatment is a collaborative endeavour and that their feedback is essential, regarding both the positive effects of treatment on pain severity and functioning and any side effects. It is also important to educate the patient to ensure realistic expectations of the achievable degree of pain relief and the time to response. Patients also benefit from knowing that pharmacological treatment is more effective when combined with behavioural strategies. These strategies can include physical measures such as heat, cold, rest or sometimes exercise, the use of distraction and relaxation techniques and, if indicated, the treatment of comorbid anxiety and/or depression.

Treatment progress should be systematically evaluated on a regular basis by assessing the severity of pain and functional impairment, and the treatment regimen should be adjusted accordingly.

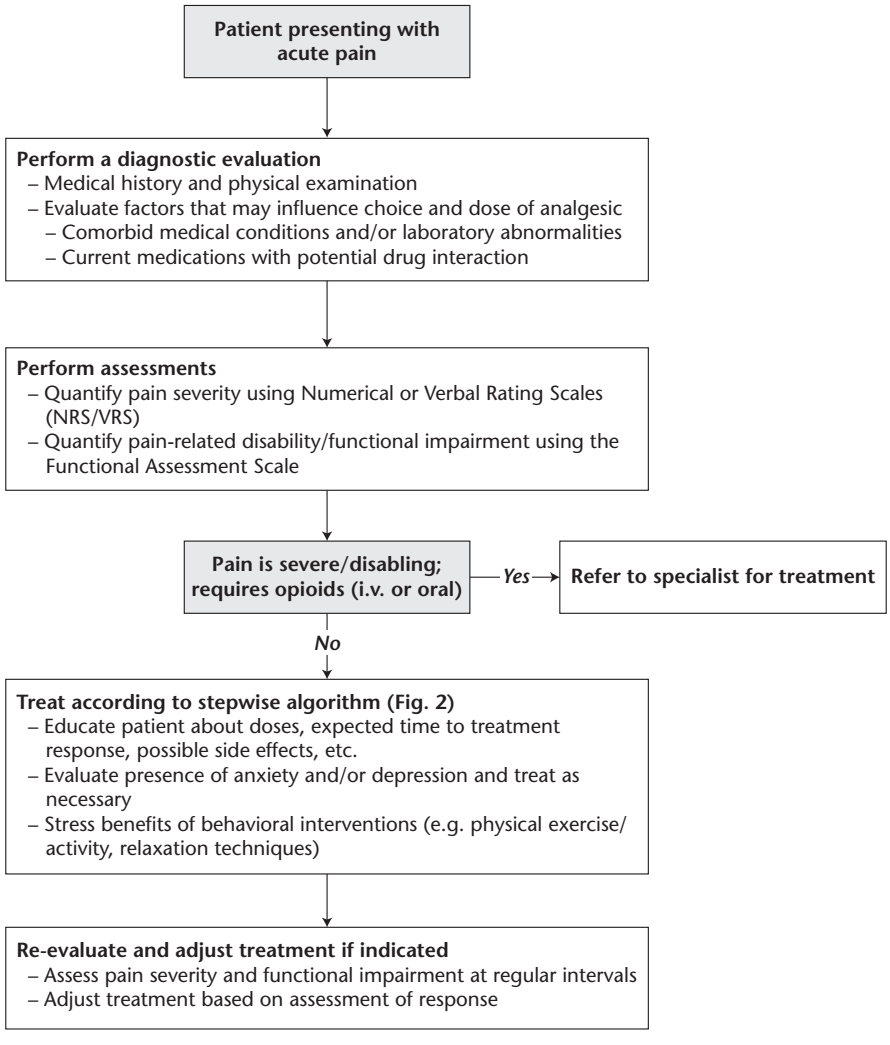

FIGURE 1: Acute pain: evaluation and treatment flow chart for patients in the Middle East region

MILD-TO-MODERATE ACUTE PAIN: MER TREATMENT RECOMMENDATIONS

Step 1 recommendation: paracetamol

The consensus MER recommendation for patients with mild-to-moderate acute pain is to initiate treatment with paracetamol, at a maximum dose of 4 g/day, with a minimum 4 h interval between each 1 g dose (Fig. 2). Patients should be clearly instructed to abstain from using over-the-counter combination analgesics that might contain paracetamol in order to avoid accidental overdose. Some degree of pain relief is frequently achieved after a single dose; lack of response after 1 – 2 days suggests that alternative analgesic treatment is indicated.[46,48,49] Patients with an inadequate response to paracetamol may be shifted to stronger analgesics, such as ns-NSAIDs or

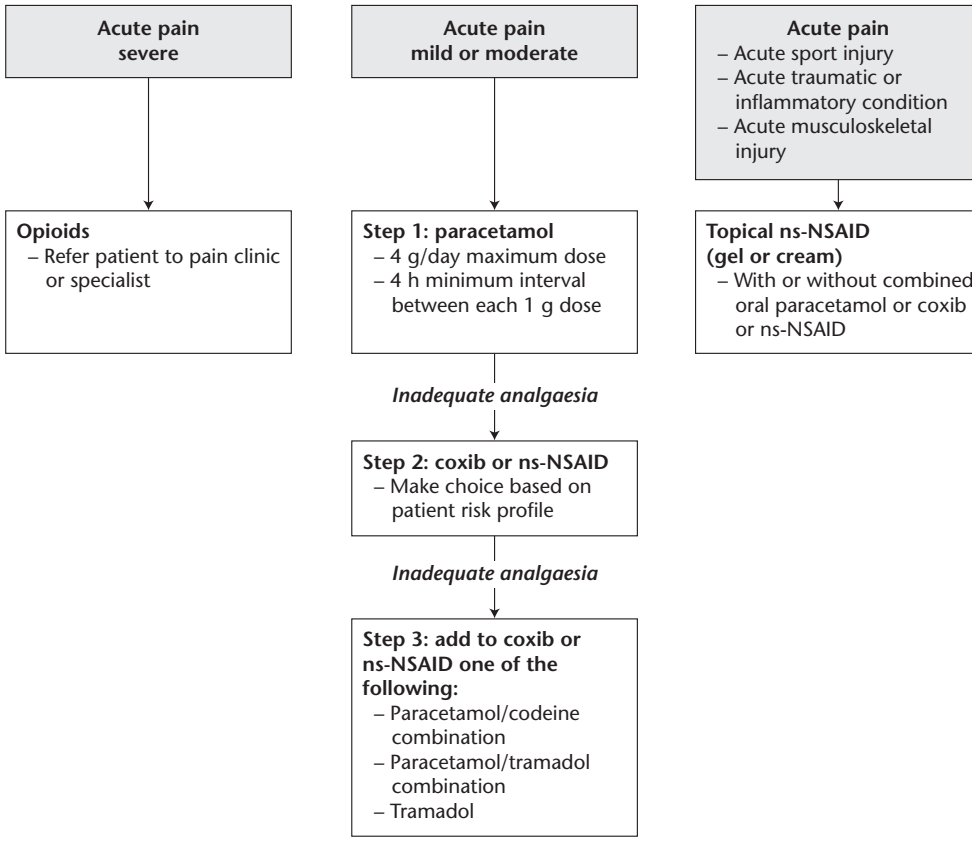

FIGURE 2: Acute pain: treatment algorithm by severity category for patients in the Middle East region (coxib, selective COX-2 inhibitor; ns-NSAID, non-specific non-steroidal anti-inflammatory drug)

selective COX-2 inhibitors (see step 2 recommendations, below).[46]

Intravenous paracetamol has a faster onset of action and is more efficacious than oral paracetamol;[49] however, intravenous administration is generally not practical in the GP setting. The greater efficacy of the intravenous formulation appears to be partly attributable to the higher systemic concentration achieved, but may also be due to the placebo effect associated with receiving an intravenous infusion.[49,50]

This paracetamol recommendation is consistent with previous guidelines[46] and the consensus experience of the expert panel, but it should be noted that there are no well-designed studies evaluating the efficacy and safety of paracetamol for the treatment of acute pain in patients in the MER.

Step 2 recommendation: ns-NSAIDs or selective COX-2 inhibitors

The consensus MER panel recommended treatment with a selective COX-2 inhibitor or ns-NSAID for patients who have not responded to a 1 – 2 day period of paracetamol (Fig. 2).[46] The expert panel concluded that oral or parenteral ns-NSAIDs

and selective COX-2 inhibitors are similarly effective in the management of acute pain.[51,52] Selective COX-2 inhibitors are preferred to ns-NSAIDs due to their lower incidence of adverse events and greater gastrointestinal safety.[46] The gastrointestinal safety advantage of selective COX-2 inhibitors has been recently confirmed in a large (4448 patient) double-blind, placebo-controlled, 6-month trial that found celecoxib treatment to be associated with significantly fewer adverse gastrointestinal events than ns-NSAIDs, even when administered with a proton pump inhibitor.[53] The expert panel noted that there is a perception among MER physicians that selective COX-2 inhibitors are less effective for acute pain; however, the data have clearly established that choosing a selective COX-2 inhibitor as a safer alternative does not sacrifice analgesic potency in acute pain management.[46]

The preferred profile of a candidate for treatment with an ns-NSAID class drug is a relatively young patient (< 65 years) with no history of gastrointestinal disease or adverse gastrointestinal events during previous treatment.[54 – 57] First-line ns-NSAID treatment is not recommended in patients with a history of ulcers or gastrointestinal bleeding, gastro-oesophageal reflux disease, or in those with traumatic and/or perioperative pain who are at increased bleeding risk;[46] ns-NSAID treatment is also not recommended for patients undergoing current treatment with aspirin or other anticoagulants.[58]

Treatment with a selective COX-2 inhibitor is recommended in elderly patients (≥ 65 years) and those with traumatic or postoperative pain, even in the absence of a history of gastrointestinal events. Selective COX-2 inhibitors do not impair platelet function and perioperative treatment with selective COX-2 inhibitors does not increase the risk of significant postoperative bleeding.[59,60] Treatment with a selective COX-2 inhibitor, preferably combined with a proton pump inhibitor, is also recommended in patients with a history of gastrointestinal events, or aspirin users.[61,62]

Comparative analyses of cardiovascular risk have found no difference in the incidence of myocardial infarction or other cardiovascular complications in patients treated with selective COX-2 inhibitors or ns-NSAIDs.[63 – 65] The US Food and Drug Administration has stated that 'short-term use of NSAIDs to relieve acute pain, particularly at low doses, does not appear to confer an increased risk of serious adverse cardiovascular events';[63] this statement refers to ns-NSAIDs, such as ibuprofen.

Step 3 recommendation: combination therapy

The analgesic effect of selective COX-2 inhibitors and ns-NSAIDs may be augmented by combination therapy with paracetamol in patients with a partial response to selective COX-2 inhibitor/ns-NSAID monotherapy (Fig. 2).[46] The expert panel recommended step 3 combination therapy with either paracetamol/tramadol or paracetamol/codeine, both of which are available throughout most of the MER, for patients who have achieved inadequate analgesia in step 2. Other combinations of paracetamol with opioids may also be effective. Meta-analyses of controlled trials have found that paracetamol combined with either tramadol or codeine is more effective than monotherapy with either drug class.[66,67] A clear dose–response effect is observed for combination therapy. If pain control is not achieved after a reasonable length of time, other causes of pain should be investigated and the treatment plan should be critically reviewed. Combination treatment with strong opioids, if available, may be indicated in these cases.

SEVERE ACUTE PAIN: MER TREATMENT RECOMMENDATIONS

The choice of a first-line analgesic for the treatment of acute pain should be selected based on pain severity. Patients who present with severe acute pain, especially if associated with significant functional impairment, should receive opioid analgesics as first-line treatment (Fig. 2).[46] Access to potent opioid analgesics is greatly restricted in the MER primary care/GP setting; patients with severe and/or disabling acute pain should generally be referred to a pain clinic or specialist to receive treatment.

If opioid analgesics are available, the preferred route of administration is oral, or intravenous if oral administration is not clinically appropriate, rather than subcutaneous or intramuscular.[68,69] Intramuscular opioid analgesics should be avoided as far as possible due to inconsistent pain relief.[70] Intravenous administration, if possible via intermittent bolus, is recommended for rapid control of severe acute pain since drug absorption by other routes is delayed and/or unpredictable. Intravenous administration of opioid analgesics is associated with an increased risk of respiratory depression, so must be closely monitored. Sedation precedes respiratory depression so it is especially important to monitor the level of sedation as an important warning sign of potentially impending respiratory depression.

ACUTE PAIN DUE TO MUSCULOSKELETAL INJURY: MER TREATMENT RECOMMENDATIONS

The most frequent causes of mild-to-moderate acute pain are traumatic and inflammatory musculoskeletal conditions caused by traumatic or sports injuries. In general, topical NSAIDs are effective for short-term (up to 1 week) treatment of acute strains, sprains or other sports-related musculoskeletal injuries (Fig. 2). Cross-study comparisons have suggested that topical ketoprofen and diclofenac may be the most effective agents,[71 – 75] whereas topical indomethacin has shown no better efficacy than placebo.[76] A review of available evidence suggests that topical NSAIDs may have limited efficacy for specific musculoskeletal conditions such as tendonitis, especially Achilles tendonitis and lateral elbow pain. Topical NSAIDs have fewer gastrointestinal side effects than oral NSAIDs.[75] For many sports injuries, especially involving soft tissues, ns-NSAIDs and selective COX-2 inhibitors appear to have similar analgesic efficacy; however, selective COX-2 inhibitors cause less gastrointestinal bleeding.[52] Anecdotal evidence suggests that combined use of topical NSAIDs with oral paracetamol, selective COX-2 inhibitors or ns-NSAIDs may result in increased analgesia; however, insufficient randomized controlled trial data are available to confirm this.

SPECIFIC ACUTE PAIN SYNDROMES

The expert panel reviewed two acute patient syndromes that are common in the primary care setting: acute back pain and postoperative pain.

Acute back pain

Acute back pain, typically lumbar or sacral and lasting ≥ 2 weeks, has a lifetime prevalence of 14%.[77] Transient cases of low-back pain occur in > 75% of individuals at some time in their lives.[78] In approximately 95% of cases, the cause of acute low-back pain is non-specific and self-limiting.[79,80]

The most important initial goal in the management of acute low-back pain is to identify the 5% of patients who have an underlying pain-causing condition that is

either serious or treatable. The Australian Acute Musculoskeletal Pain Guidelines Group[81] have summarized the key signs and symptoms ('red flags') associated with an increased likelihood of an underlying condition. The most common 'red flags' that must be evaluated and ruled out are summarized in Table 2. A full neurological examination is indicated for any patient who presents with lower limb pain or neurological symptoms (including weakness, foot drop, cauda equina syndrome and loss of bladder and/or bowel control). While it is necesssary to rule out potentially serious causes, it is important for GPs to remember that many clinical and radiological findings occur in asymptomatic patients and may not be the actual cause of pain. For this reason, lumbar X-rays are not routinely recommended for uncomplicated low-back pain with no 'red flags'.[81]

Pharmacological treatment of low-back pain should follow the same step-wise procedure outlined in Fig. 2, based on pain severity. A multimodal approach to treatment is especially important in the effective management of acute low-back pain, including encouraging the individual to avoid bed-rest and stay active, minimize the time off work and generally attempt to maintain their former level of functioning. The main goal of analgesic medication is to enable functional

TABLE 2:
'Red flags' and 'yellow flags' in the treatment of acute low-back pain

'Red flags'[81] **Acute low-back pain associated with one of the following signs/symptoms/risk factors**	**Pain may be due to a serious condition**
Fever, chills Generalized fatigue or malaise Risk factors: recent penetrating wound, immunosuppression, underlying systemic disease	Infection (osteomyelitis; epidural abscess; renal infection)
Recent history of trauma Risk factors: age > 50 years, history of osteoporosis, corticosteroid use	Fracture
Past history of malignancy Age > 50 years Failure to improve with treatment Unexplained weight loss Pain at multiple sites Pain at rest	Tumour (primary: myeloma, bone, cartilage, neuronal; secondary: prostate, breast, lung, thyroid, kidney, gastrointestinal, melanoma)
Pain is not associated with any aggravating factors	Visceral referred pain (aortic aneurysm; pancreatitis; pelvic disease)

'Yellow flags'[81] **Psychosocial factors that may increase the risk of acute low-back pain becoming chronic**
Attitudes and beliefs about pain – negative attitude, pain viewed as disabling, high neuroticism
Behaviour – poor coping skills
Compensation issues – filing or receiving disability for back pain
Emotions – symptoms of depression
Family – poor social support, perceived excessive stress/demands
Work – job dissatisfaction

recovery. Failure to adopt a multimodal approach to therapy increases the risk that acute low-back pain will become a chronic and disabling condition. Psychosocial and occupational factors ('yellow flags')[81] that appear to be associated with an increased risk of progression from acute to chronic low-back pain have been identified and these should be assessed early in order to facilitate appropriate intervention (Table 2).[82]

Acute postoperative pain

Postoperative pain is a common type of acute pain (Table 1). A large proportion of surgical procedures now occur in an ambulatory or short-stay setting. Effective pain management is one of the primary considerations in determining whether surgery can be accomplished in an ambulatory setting or on a short-stay basis, and inadequate analgesia is the most common cause of delay to discharge and recovery.[83 – 85]

Evidence-based, procedure-specific postoperative pain management recommendations have been developed by the PROSPECT (PROcedure-SPECific clinical decision support for postoperative pain managemenT) Working Group for a wide range of surgical procedures.[86] Many of the same general management principles summarized in previous sections of these current guidelines also apply to acute postoperative pain. Prior to a surgical procedure, GPs should educate their patients on the likelihood of acute postoperative pain, allowing patients to be better prepared mentally and helping them to cope. It is important to minimize the number of days off work after surgery and the GP should promote a return to normal activities as quickly as possible.

Postoperative pain has a high risk of progressing to chronic pain because of the frequent occurrence of neuropathic complications due to surgery-related nerve injury. It is, therefore, especially important that postoperative pain be treated early and aggressively. Management of postoperative pain may require the involvement of anaesthetists and treatment with regional anaesthesia and analgesia.[46]

PROGRESSION FROM ACUTE TO CHRONIC PAIN

One of the most important goals in the management of acute pain is to prevent progression to a chronic pain state. Chronic or persistent pain is associated with a high degree of disability and a lower treatment response rate.[87 – 89] Specific acute pain conditions, such as herpes zoster, back pain, postoperative pain and pain due to injury, are associated with a significantly higher risk of progression to chronic pain.[42,43,90 – 94] Factors predicting progression from acute to chronic pain include severity of pain, nerve injury, the presence of clinically significant anxiety and/or depression and psychosocial factors such as high levels of neuroticism or catastrophizing.[41,46,90 – 94]

The expert panel recommended that GPs provide early diagnosis and appropriate pharmacological treatment in order to reduce the likelihood of progression to chronic pain in high-risk individuals. They also referred to the importance of screening patients for other risk factors, since a multimodal treatment approach is more effective. Exercising and otherwise maintaining activity levels must be encouraged; early return to work should be promoted whilst also reassuring patients that they will have the pharmacological tools available to assist them in the transition back to work. Treatable psychological problems, such as anxiety and depression, occur in > 25% of patients at risk

for chronicity[95 – 97] and should be screened for and appropriately treated.

Some analgesic interventions in the treatment of postoperative pain have an effect, known as preventive analgesia, that exceeds the expected duration of action of the drug.[45] Aggressive preventive analgesia has been shown to reduce overall postoperative analgesic consumption[45] and may reduce the risk of acute pain becoming chronic or neuropathic in nature. Regional anaesthesia has been shown to be effective in reducing the progression from acute to chronic postoperative pain in some pain settings.[46]

Summary

Pain is the most common reason for seeking medical care[1] and is frequently under-treated.[2] The present article summarizes expert panel consensus recommendations for the treatment of acute pain in the MER, focusing mostly on treatments available in outpatient general practice. Treatment recommendations were based on categorizing acute pain into two severity categories, mild-to-moderate and severe, with a third category, not based on pain severity, for acute pain due to musculoskeletal injury from sport or other trauma.

In patients with mild-to-moderate levels of acute pain, the recommendation is to initiate treatment with a maximum dose of 4 g/day paracetamol, with a minimum 4 h interval between each 1 g dose (step 1). Patients who do not achieve sufficient analgesia within 1 – 2 days should switch to a selective COX-2 inhibitor or, if gastrointestinal safety and risk of bleeding are not an issue, a ns-NSAID (step 2). If analgesia continues to be inadequate, the recommendation is to add tramadol, or combination therapy with paracetamol plus either codeine or tramadol (step 3).

Patients reporting severe pain should be referred to a pain clinic or specialist for treatment with an opioid analgesic.

Treatment with an oral selective COX-2 inhibitor or topical ns-NSAID gel or cream, or a combination of oral and topical treatments, was recommended for patients with acute pain from musculoskeletal injury due to sport or other trauma.

The expert panel emphasized the importance of using measures of pain and functioning that have been validated in Arabic (or the local language), using descriptors that are both culturally appropriate and easy to understand without high levels of education. They also stressed the importance of early and aggressive treatment of acute pain in order to reduce the risk of pain becoming chronic or neuropathic in nature.

Conflicts of interest

Dr N Ghaly, Dr R Ragab, Dr S Majeed, Dr A Al Jalabi, Dr A Al Shoaibi, Dr S El Noor and Dr J Costandi all had no conflicts of interest to declare in relation to this article. Dr AE Ayad is in receipt of a speaking honorarium from Lilly. Dr H Nassar is in receipt of a speaking honorarium from Pfizer. Dr A Zeidan receives consulting payments from MSD and Pfizer. Dr A Salti receives speaking and/or consulting honoraria or payments from GE Ultrasound and Baxter. Professor SA Schug (in his role at the Anaesthesiology Unit of the University of Western Australia) has received research and travel funding, and speaking and consulting honoraria from Gruenenthal, CSL, Janssen Pharmaceuticals and Pfizer within the last 2 years.

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Appendix 1

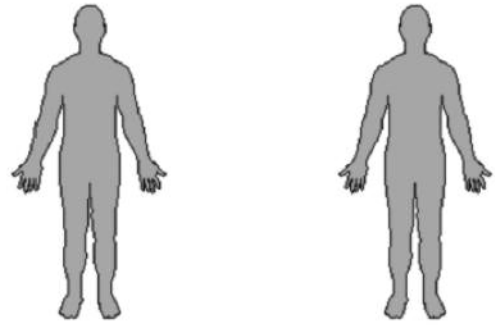
Example of a pain history and examination worksheet on which patients can record their pain and functional impairment, including pictures of the human body (front and back) on which they can mark the areas where they feel pain.

1. **Site of pain: mark "x" in areas where the patient feels pain**

Mark all the places that hurt and what time the pain started.

S = shooting pains
X = stabbing pains
B = burning pains
A = aching pains
T = throbbing
C= cramping
D = dull
N = numbness
P = pins and needles

Notes:_____



2. **What causes or worsens the pain (e.g., activity, etc):** _____

➔ **details** of trauma, surgical procedures, etc; **duration** of current pain

3. **Intensity and character of pain**
   a. Rate severity of pain (circle):
      ⓪- No pain ①- Slight pain ②- Mild pain ③- Moderate pain ④- Severe pain ⑤- Extreme pain
   b. Describe the pain (check all that apply):
      ☐ Sharp ☐ Throbbing ☐ Aching ☐ Burning ☐ Cramping ☐ Crushing ☐ Dull ☐ Stabbing
   c. Check whether the pain is: ☐ Continuous ☐ Intermittent
   d. Evaluate changes in severity (check the box that best applies):
      i. Does pain occur at rest: ☐ Yes ☐ No
      ii. Does pain worsen with movement: ☐ Yes ☐ No
      iii. Is pain worse in: ☐ Morning ☐ Afternoon ☐ Evening ☐ Night
      iv. What other factors increase or decrease pain severity: _____

4. **Associated symptoms / related problems** (check the box that best applies):

a. **Effect of pain on sleep**	None	Mild	Moderate	Severe	Very severe
Prevent or delay getting to sleep:	⓪	①	②	③	④
Wake you in the middle of the night:	⓪	①	②	③	④
Waking you up too early:	⓪	①	②	③	④
b. **Current level of depression:**	⓪	①	②	③	④

   c. Is the pain associated with **other symptoms**: ☐ Nausea ☐ Pins & needles ☐ Numbness
   ☐ Electric shock sensations ☐ Loss of appetite ☐ Dizziness ☐ Loss of balance
   Other pain-related symptoms: _____

5. **Pain-related impairment in functioning:** rate the degree to which pain interferes with or limits functioning:
   - ☐ No limitation (the patient is able to undertake the activity without limitation due to pain)
   - ☐ Mild limitation (the patient is able to undertake the activity but experiences moderate to severe pain)
   - ☐ Significant limitation (the patient is unable to complete the activity due to pain, or pain treatment-related side effects, independent of pain intensity scores)
6. **Relevant medical history**
   a. Prior or coexisting pain conditions and treatment outcomes: _____
   _____
   b. Prior or coexisting medical conditions: _____
   _____
7. **Treatments**

	Current	Previous
a. For pain		
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
b. For other medical conditions		
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____
	_____	_____

   c. Comment on how effective previous pain treatment has been
   _____
   _____
   d. What side effects you have experienced with previous pain treatments ☐ None
   ☐ Nausea ☐ Sedation / drowsiness ☐ Heartburn/upset stomach / acidity
   ☐ Other side effects: _____
   _____

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