

The challenge of managing wounds in the injecting drug-dependent patient

Managing wounds in the patient who injects drugs is complex for healthcare professionals. As with the non-drug taking population, the problems of mobility, odour from the wound, social limitation and pain still occur, but fears of discrimination may lead to reluctance to seek medical intervention, potentially leading to slower recovery and chronicity. This article focuses on the problems encountered by injecting drug users, a group that can suffer significant wound care issues, including infection, wound abscess and fistula formation, along with other management problems, such as a reciprocal mistrust of healthcare professionals.

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KEY WORDS

Heroin
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Heroin (diacetylmorphine or diamorphine) is a powerful analgesic synthesised from the group of mixed alkaloids present in cultivated and processed opium poppies. The drug was initially developed around 1900 by what is now the Bayer Company as a non-addictive morphine substitute and cough suppressant while doctors at the company were trying to isolate codeine. Any GP can prescribe heroin for pain relief in terminal illness, but they require a Home Office licence if the drug is to be prescribed for drug addiction.

Irrespective of the route of administration, once heroin is taken users report a feeling of well-being, relaxation and safety, which Finnie and Nicolson (2002; p. 18) describe as 'like being wrapped up in a warm blanket'. It is these properties, along with the euphoria associated with taking heroin, which makes it such a potentially powerfully addictive drug.

There is no therapeutic discovery that has been so great a blessing and so great a curse to mankind as the hypodermic injection of morphia (Kane, 1881).

All strong opioids can produce adverse effects such as respiratory depression, nausea and vomiting, but McQuay (1999, p. 2229) noted that although healthcare professionals need to be mindful of the effect of opioids, they should not fear them: 'What happens when opioids are given to someone in pain is different from what happens when they are given to someone not in pain. The respiratory depression that results from the acute use of opioids is seen in studies of volunteers who are not in pain. But respiratory depression is kept to a minimum when appropriate regular

doses of opioid are given to patients with chronic pain.'

It is quite possible that a patient may have a tolerance/addiction to opioids, which requires analgesia, as well as pain from a chronic wound, which also needs managing. This can be a difficult task for the healthcare professional and is one where specialist help from a drug and alcohol specialist team will be required. By administering opioids, practitioners may also be seen as condoning or reinforcing the drug-taking behaviour.

Tolerance

Opioid dependence is a complex health condition that often requires long-term treatment and care (World Health Organization [WHO], 2009). McQuay (1999, p. 2230) describes tolerance as 'the need for a higher dose (or increased plasma concentration) to achieve the same pharmacological effect'. Clinicians treating patients in the non-drug taking population will automatically assume that any increased need for analgesia is due to a worsening of the patient's condition. However, in patients with a known drug habit, any increased request for strong analgesics may be seen as drug-seeking behaviour. WHO (2009) have stated that no single treatment is effective for all individuals with opioid dependence — diverse

treatment options are needed, including psychosocial approaches (i.e. counselling and cognitive behavioural therapy [CBT]) and pharmacological treatment.

Dependence/addiction

Early definitions of dependence or addiction focused on the mechanics of taking a drug, for example, WHO (1979) described dependence as 'a compulsion to take a drug on a periodic or continual basis'. However, this view does not consider the holistic view of patients in this category. Heather (1998) suggested that a more complete definition should include reference to a person's behaviour and not purely his or her drug taking, and that Edwards et al's (1982, p. 4) definition of 'repeated use of a substance despite awareness of resultant harm' is a more satisfactory one.

The scale of intravenous (IV) drug use in the UK

Due to the secretive nature of heroin use, exact numbers are difficult to accurately gauge, but Frisher et al (2006) estimate UK IV drug use at 48.8 per 100,000, although there will be areas of higher use. As long ago as 2001, the Home Office Research Study suggested that 2% of men and 1% of women had used heroin on at least one occasion (Ramsay et al, 2001). Stimson and Metrebian (2003) estimated the total number of problematic heroin users in the UK at around 200,000, while also acknowledging the difficulty in estimating its use.

How is the drug taken?

Depending on its source and purity, heroin varies from white to brown in colour with a crystalline appearance. It can be smoked, snorted or injected subcutaneously/intramuscularly or intravenously. Initially, heroin is usually inhaled by users using a technique known as 'chasing the dragon'. When this fails to deliver a 'high', the individual's next step may be to inject intravenously in order to reach the desired euphoric state.

However, it may be too simplistic to suggest that users automatically gravitate to intravenous injection having previously smoked heroin. Strang et al

(1992) found huge differences in the method of administration across the UK, for example, in South London, 50% of new patients on treatment programmes smoked heroin, whereas in the Wirral, this figure was 95% — at the same time it was estimated that 95% of users in Edinburgh were injecting the drug, possibly because this method reduces the cost, as less heroin is needed to produce the same effect (Finnie and Nicolson, 2002).

This article will focus on the problems encountered by injecting drug users, as this is a group that can suffer significant wound care issues, including infection, wound abscess and fistula formation, along with other management problems, such as a reciprocal mistrust of healthcare professionals (Butcher, 2000; Merrison et al 2002; Palfreyman et al, 2007; Roose et al, 2009).

Why are patients who inject at risk of developing skin and vascular problems?

In people that use drugs there are several prominent issues with regards the development of skin and vascular problems, including:

- ▶▶ The drug is adulterated or 'cut' with other substances, e.g. chalk, talcum powder or gravy browning (up to 99%) in an effort to produce more profit. This cutting is likely to be done in unhygienic conditions, potentially introducing bacteria and spores (Finnie and Nicolson, 2002)
- ▶▶ Heroin needs to be dissolved in an acidic medium before being injected, which often means mixing it with lemon juice or citrate — any substance which is acidic or alkaline is irritant to veins
- ▶▶ Before injection, the heroin may be filtered in an attempt to remove impurities. This may be done through a clean cigarette filter or through cotton wool, but even this practice may introduce particulate matter into the veins
- ▶▶ Injecting against the blood flow — once the veins thrombose, injecting against the flow may lead to the their bursting under the pressure
- ▶▶ Once the veins of the body have been exhausted, the patient may be forced to inject directly into the

skin and underlying tissue/muscle. This practice is called 'skin-popping' and can lead to the development of 'shooter's patches' (non-healing ulcers which the patient will use as a means of administering their drugs when no vascular access can be found) (Williams and Southern, 2005).

Barriers to effective treatment

Individuals with substance use disorders are less likely than others to receive effective pain treatment (Rupp and Delaney, 2004). This is due to four main factors:

- ▶▶ Fear of addiction at the outset of treatment
- ▶▶ Patients seeking opioids for reasons other than pain relief
- ▶▶ Difficulty in knowing where pain ends and craving starts
- ▶▶ Distrust of healthcare professionals.

Fear of addiction at the outset of treatment

Bennett and Carr (2002) described this as 'opiophobia', an irrational fear of the drug for both drug-users and non-drug users, which impedes its appropriate use, fearing that patients will become addicts.

Bennett and Carr (2002) suggest that opioids may be withheld due to their inherent side-effects, or the fear that the patient will become a management problem. There is limited information relating to the risk of the patient becoming addicted to the opioids while being treated for a painful condition, although Lema (1998) suggested the incidence to be less than 1:20,000. However, Passik et al (2006) found that 47% (51/109) of people presenting for addiction to oxycodone (a strong synthetic opioid) received their first exposure to opioids through a legitimate prescription.

Patients seeking opioids for non-pain purposes

Savage et al (2008) described the difficulties associated with the use of opioids in individuals with a history of substance abuse, stating that such patients raise complex clinical and ethical issues. Healthcare professionals have a duty to alleviate suffering, which is the purpose of opioid drugs, however, their administration may ultimately lead to

harm, i.e. through the subsequent misuse of the drug.

Difficulty knowing where the pain ends and the craving begins

The issue for healthcare professionals is being able to differentiate between the symptoms of pain and the signs of craving or withdrawal from opioid medication. Typically, a patient in severe acute pain will exhibit signs such as increased blood pressure and heart rate, sweating and hyperventilation. In chronic pain, patients may also show psychological signs such as distress, restlessness and depression (Savage et al, 2008). All these symptoms may be difficult to distinguish from acute withdrawal from opioid medication (NHS Clinical Knowledge Summaries, available online at: www.cks.nhs.uk/opioid_dependence/management/detailed_answers/managing_acute_withdrawal_syndrome/recognizing_acute_withdrawal_syndrome).

Healthcare professionals' mistrust of the degree of pain and suffering

The anecdotal attitudes of ward-based staff towards patients who misuse substances reveal a deep-seated mistrust and an assumption that requests for analgesia are made to feed addiction. Ford et al (2008) supported this observation in a large (n=1,600) questionnaire examining nurses' perceptions of patients who use illicit drugs. The conclusion was that nurses struggle to provide care to this patient group and that access to appropriate skilled support staff (drug and alcohol teams) was very important.

Problems associated with patients who inject drugs

The problems associated with patients who inject drugs regularly can be divided into three distinct areas:

- ▶▶ Vascular complications
- ▶▶ Infective complications
- ▶▶ Management issues.

Vascular complications

The injection of illicit drugs is a significant problem in Western society and many different substances, such as heroin, cocaine, oxycodone, pethidine and methadone are taken via the

intravascular route. Vascular problems may arise when the user seeks to use deeper blood vessels due to the prolonged use of more superficial veins, which allow easier access but become damaged over time. This may be due to phlebitis, which is caused by repeated injections in a single area, a process further complicated by the unhygienic conditions of preparation and the injection of particulate matter

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(Finnie and Nicolson, 2002). This is often associated with the injection of temazepam tablets (which have been crushed) or gels (Woodburn and Murie, 1996). Coughlin and Mavor (2006; p. 391) warn about the specific dangers of cocaine due to its effects upon both the myocardium and the arterial tree in general, and suggest that 'arterial problems must always be considered in cocaine users who present acutely'.

As peripheral vascular access becomes more difficult to achieve over time, the user runs the risk of an inadvertent intra-arterial injection, a potentially lethal complication, and the formation of pseudo-aneurysms. Inadvertent intra-arterial injection predisposes users to distal limb ischaemia and arterial puncture leading to the formation of infected pseudo-aneurysms (sometimes referred to as an 'aneurismal abscess'). *Mosby's Medical Dictionary* (2009) defined these as:

- ▶▶ Dilation of an artery caused by damage to one or more of its layers as a result of arterial trauma or rupture of a true aneurysm
- ▶▶ A tortuosity of a blood vessel or cavity resulting from a herniated infarction — also called pulsatile haematoma.

In a study of 26 injecting drug users who were treated for pseudo-

aneurysms, Georgiadis et al (2005) noted that the presenting signs and symptoms included a pulsatile mass (69%), ischaemic pain (23%), active bleeding (38.5%), signs of inflammation (61.5%) and positive blood culture (31%). Bleeding complications developed in two patients, who subsequently underwent extra-anatomic bypass. In this study, the pseudo-aneurysms most commonly involved the femoral and brachial arteries.

Woodburn and Murie (1996) warned about the need for careful examination for pseudo-aneurysms. Up to 23% are non-pulsatile and attempts at incision and drainage should be avoided, as what might appear to be an abscess could in fact be a pseudo-aneurysm.

Ting and Chen (1997) found similar results in a study of 34 patients with infected pseudo-aneurysms, with all of the patients presenting with pain and swelling — interestingly, 70% were also found to be anaemic.

Chronic venous insufficiency (CVI) and venous hypertension as a result of injecting drugs may also lead to the formation of chronic ulcers (Sudhindran, 1997). Similarly, Pieper et al (2006) found that in a subject group of 46 drug users, CVI, leg function and drug injection were all interrelated.

Georgiadis et al (2005) stated that limb salvage with immediate revascularisation is safe and achieves functionality; therefore, its use is justified in the treatment of pseudo-aneurysm. Ligation and excision of the pseudo-aneurysm with debridement and drainage of the infection appears to be standard treatment, but Ting and Chen (1997) warned that the timing and method of re-vascularisation is still controversial. Immediate re-vascularisation had the advantage of minimising limb loss. However, putting a graft into potentially infected tissue could lead to haemorrhage and secondary infection.

Infective complications

It has already been noted that drugs are often prepared in unhygienic conditions

and mixed with a variety of unsterile components. The risk of infection is made greater by the re-use of syringes and needles, potentially passing infection from one user to the next (McCreddie, 2001).

Sutton et al (2006) highlighted the problem of serious blood-borne infections such as hepatitis B (HBV) and hepatitis C (HCV) from a large sample of injecting drug users (n=20,000). They found that rates of 38% of HBV and 95% of HCV were attributable to drug users who make up less than 1% of the overall population.

One way to prevent spread of infection is through the use of needle-exchange programmes (NEPs). Such programmes are now commonplace but are seen by some as condoning illicit drug use, thus their role is contentious (Bates, 2002). The National Institute for Health and Clinical Excellence (NICE) (Cole, 2009) supports the use of NEP, estimating that 200,000 people in Wales and England inject illegal opiates and stimulants and that around 25% share their needles, which greatly increased their risk of contracting hepatitis B and C or human immunodeficiency virus (HIV). However, Strathdee et al (1997) questioned the role of NEPs, stating that despite having the largest NEP in North America, Vancouver has been experiencing an ongoing HIV epidemic. They concluded that although NEPs are crucial for sterile syringe provision, they should only be considered as one component of a comprehensive programme, including counselling, support and education.

A range of infections has been reported in this group of patients. Brett et al (2005) noted spore-forming bacteria were responsible for *Clostridium novyi* in 63 patients in 2000 and 71 patients in 2001, as well as 20 cases of tetanus between late 2003 and early 2004 in the UK and Ireland. Brett et al (2005) also noted an increase in wound botulism. Botulism is usually contracted through the ingestion of contaminated food, but Mulleague et al (2001) identified two cases that developed as a result of injecting heroin. Morrison et al (2002) also described a case of botulism

associated with subcutaneous heroin injection. Although rare, early detection of such infection is vital for improving outcomes.

Management issues

Managing patients who have a drug habit is an emotive topic and the author has found that anecdotal evidence gathered from working with the acute and chronic pain team in a large district hospital highlighted many areas of conflict.

Williams and Southern (2005) noted the trend among heroin addicts to use wound/ulcer granulation tissue as a route of drug administration once vascular access became impossible. This may result in the patient wanting the wound not to heal as it allows easy access to the vascular bed.

Healthcare professionals were reluctant to prescribe/administer analgesia as they viewed the pain-behaviour as drug-seeking behaviour and providing strong (opioid) medication as compounding the issue. Other commonly encountered problems included non-compliance with treatment regimens. This was illustrated by Williams and Southern (2005) who noted the trend among heroin addicts to use wound/ulcer granulation tissue as a route of drug administration once vascular access became impossible. This may result in the patient wanting the wound not to heal as it allows easy access to the vascular bed. Roose et al (2009) also noted that mistrust led to self-management techniques, such as drug users treating themselves with illicit antibiotics, or purposely disrupting the wound so that the non-healing wound bed was a port for the drugs to be administered through.

The failure to administer opioids for fear of overdose is another issue in clinical practice, however, as McQuay

(1999, p. 2229) noted, 'concern about respiratory depression should not inhibit the appropriate use of opioids, i.e. to provide analgesia when the pain is deemed to be opioid-sensitive' and 'that the medical use of opioids does not create drug addicts, and restrictions on this medical use hurts patients' (McQuay, 1999, p. 2230). In the hospital setting, the failure of patients to disclose true drug usage for fear of prosecution should also be considered (Morrison et al, 1997).

The use of an 'opioid contract', a formal written agreement between clinician and patient may be beneficial. Many are available and include issues such as seeking or selling medication, misuse of resources, e.g. not attending clinics, random drug screening, and side-effect education. However, Fishman et al (1999) cautioned that although their use is widespread, efficacy has not been proven. Fishman et al (1999; p. 37) concluded that: 'The contract may be an appealing tool for clarifying terms, addressing potential pitfalls, acquiring informed consent, and helping to establish a therapeutic relationship. Its efficacy in improving compliance, enhancing the treatment process, or protecting the rights of patients or clinicians is far from certain.'

Conclusion

The nature of managing wounds in the patient who injects drugs is a complex one for the healthcare professional. As with the non-drug taking population, the problems of mobility, odour from the wound, social limitation and pain still occur; but fears of discrimination may lead to reluctance to seek medical intervention, potentially leading to slower recovery and chronicity. The advice of specialised drug and alcohol services should be sought in an effort to rationalise treatment and avoid conflict between the many teams, including GPs, consultants, nurses, pain teams, and tissue viability and leg ulcer specialists, all of whom may be responsible for the patient's management. **WUK**

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Key points

- ▶▶ The number of illicit drug users continues to rise.
- ▶▶ Their management may be complex and time-consuming for healthcare professionals.
- ▶▶ Management requires specialist input and effective multidisciplinary communication to ensure a coordinated strategy is employed by all practitioners.
- ▶▶ Potentially fatal wound management issues may arise with patients who inject due to abscess, pseudo-aneurysm, haemorrhage and serious infections.
- ▶▶ Education among practitioners on the nature of addiction and the action of opioid medications to overcome the 'opiophobia' may be beneficial.

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