

Case studies: Octenilin Wound Irrigation Solution and Octenisan Wash in self-harm wounds

KEY WORDS

- ▶ Depression
- ▶ Infection prevention
- ▶ Mental illness
- ▶ Self-harm

Deliberate self-harm carries negative connotations for many healthcare professionals and members of the public; this is widely due to lack of knowledge and ‘revulsion’ for the act itself (Kilroy-Findley, 2015; National Institute of Health and Care Excellence [NICE], 2004). NICE guidance (2004/2011) aimed to improve the understanding and treatment received by those who self-harm; however, there is evidence from a number of charities that this has not improved the experience for many service users (MIND, 2010).

Drivers for self-harm are multiple and diverse; these are individual to the person concerned. Some people may have a mental illness for which harming themselves is a component, others will use it as part of every day life to ‘manage’ overwhelming emotions. The risk of infection is particularly high in the former group due to their illness and there is a need for effective prevention and management of this risk in all settings.

SELF-HARM: CAUSES AND STATISTICS

Episodes of deliberate self-harm are identified in patients across all age groups and ethnicities. It is more common in those under 25 years of age (NICE, 2011) and has been found to be more common in those of lower socioeconomic status (Horton et al, 2014). Selfharm UK (2016a) assert that 13% of 11–16-year-olds will harm themselves deliberately.

Self-harm is associated with a multitude of possible causes, such as:

- ▶ Bullying
- ▶ Depression
- ▶ Sexual identity issues
- ▶ Feelings of rejection/humiliation/anger.

Figures collated from accident and emergency departments during 2012–14 suggested a 70% increase in young people attending for deliberate self-harm (Selfharm UK, 2016b). The type of injury sustained varies according to the individual (Table 1). The intensity of distress should not be judged by the size or type of the wound (MIND,

2010). For instance, Sutton (2007) identified that for some burning provided greater punishment due to the level of pain involved. In the authors’ experience this is true for full-thickness burns; however, superficial partial-thickness burns are often done opportunistically in some settings, as access to ‘sharps’ is limited. It should also be noted that injuries of those responding to ‘command’ voices can be severe and are usually burns (Kilroy-Findley, 2015).

Table 1. Common types of self-harm wounds

Type of wound	Cause
Burns	Using flame, cigarettes, boiling water, household implement (e.g. hair straighteners); or accelerant-related
Cuts	Lacerations/deep cuts using blades (e.g. razorblades or knives); scraping skin using other objects (e.g. rocks or stones); scraping skin using fingernails
Gouges	Using objects and inserting items (e.g. into abdomen)

HIGH-RISK PATIENT GROUPS

Some specific groups of people are at higher risk of self-harming, such as (Melzer, 2002; Selfharm UK, 2016a;):

- ▶ Prisoners
- ▶ Patients with eating disorders
- ▶ Patients with borderline personality disorder
- ▶ Sexually abused women
- ▶ Patients with psychosis.

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Self-harming within the prison population has a different profile to that of the general public. Horton et al (2014) noted that those at greatest risk were mentally ill patients, those with long sentences and young offenders; in the authors' experience, it is in this latter group that cutting and burning is most frequent. Prisoners may also be subject to factitious wounds for secondary gain — i.e. they harm themselves and perpetuate their wound to gain favourable treatment (Deroot et al, 2013).

Selfharm UK (2016c) put the incidence of self-harm amongst those with an eating disorder at 25% and stated it was higher in those with bulimia nervosa. The link between eating disorders and self-harm is long established, with both conditions having an element of 'gaining control' in one's life (Emerson, 2010; MIND, 2013a). It is not uncommon for one to replace the other if the individual is not in the right place psychologically to move on (Selfharm UK, 2016c).

Borderline personality disorder (BPD) and depression are more frequently diagnosed in women (MIND, 2013a) and this correlates with a high incidence of self-harm behaviours (Byrne and Rosen, 2014). Impulsivity is a key diagnostic criteria for BPD (MIND, 2013b) and some patients with this diagnosis are likely to have a cycle of chronic self-harm whereby they frequently cut/burn/overdose in response to what may seem, to others, relatively trivial causative factors.

Psychotic depression and paranoid schizophrenia can subject the individual to frightening and compulsive auditory hallucinations, which lead to self-harm; command voices can direct the patient to self-harm, with associated threats if this does not happen. In addition, those with schizophrenia may have delusional thoughts that do not directly cause their wound, but can impact on its healing — i.e. believing food is poisoned and thus affecting their nutritional status.

For some, the act of harming is a time of 'being kind to oneself' (Sutton, 2007; MIND 2013a): preparing the environment, instrument and taking care of the subsequent injury. In these episodes the individual is likely to be ensuring cleanliness and sterility, if cutting — as opposed to prisoners and episodes

of impulsivity where mental ill health is concerned. It is the challenges of wound care for these latter groups that needs to be focussed on from an infection prevention perspective.

INFECTION PREVENTION IN SELF-HARM

Infection risk escalates wherever a non-sterile implement breaches the skin; the implement will carry its own invading organisms plus that of the staphylococci family found frequently on the skin (Akst, 2014). Implements for self-harm are wide and varied; knives, razor blades, staples, plastic cases, pens, scissors, hair straighteners, stones, nails, lighters and glass, to name some common examples. All of these can appear 'clean' whilst harbouring a plethora of bacteria.

From a wound healing perspective, contamination has occurred from both an extrinsic and intrinsic source (implement and skin); multiplication of bacteria will be dependent on the availability of nutrients and the host. Edwards-Jones and Flanagan (2013) state that 'accurate diagnosis (of wound infection) relies on an accurate history and consideration of the factors likely to increase the risk of infection.' The use of a non-sterile implement is a key part of that history and it is essential that clinicians in this area identify with the service user what this is and to what extent it may escalate infection risk. For example, a rusty nail from a garden will carry a greater risk than a clean china cup that has been broken for its sharp edge.

Within the prison environment, not all will present to healthcare with their wounds and the bacterial load may already be high when seeking help; this group often need treating with antibiotics as well as topical antimicrobials due to spreading infection. Initial examination of a self-harm wound may indicate no traditional infection markers (e.g. heat, swelling, inflammation, increased exudate, malodour, friable granulation) but the clinician who understands the wound aetiology will recognise that infection is highly probable and take appropriate action (Edwards-Jones and Flanagan, 2013).

Appropriate use of an antimicrobial product for the first 48 hours post wounding will minimise the risk of infection on a wound that is not re-

traumatised by the service user; access to a wound can be important and increase infection risk as the service user touches/cuts the tissue in further episodes of self-harm (DeRoo et al, 2013). The World Health Organization (2009) noted that a wound where bacteria are pre-eminent would show signs of clinical infection within 48 hours.

Infection risks for self-harm increase where objects are inserted into the body — i.e. Biro-style pens, needles, razorblades. For these service users, a medical examination is essential to identify where the item is, whether it can be removed and whether it has damaged any internal structures. This specific type of self-harm is often seen where the person feels they are not in control (i.e. prisoners). A complicating factor here can be mental capacity and readers are referred to the Mental Capacity Act (2007) and the principle that everyone is assumed to have capacity and the right to refuse treatment/examination.

All wound care should involve optimising the patients' ability to heal through nutrition, co-morbidity symptom control and managing infection risk. The latter has been considered in relation to extrinsic factors but for some service users who have multiple scarring, healing will be delayed and infection risk increased due to local wound conditions. The presence of thick scar tissue, either from burns or repeated cutting at the same site, will cause an element of hypoxia at the wound bed; this will inhibit macrophage activity (Martin, 2013). In addition, repeated site trauma can turn an acute wound into a chronic one as the body goes into an inflammatory cycle at the wound bed; bacteria cause an increase in pro-inflammatory mediators through the secretion of endotoxins and excess matrixmetalloproteinases affect growth factor production.

BPD and young offenders often have heightened episodes of stress and anxiety; while this in isolation does not affect wound healing, prolonged episodes lead to an increase in cortisol secretion and reduction in the inflammatory response and collagen synthesis (Woo, 2010). The inflammatory phase is key in wound healing for reducing infection risk, thus service users who self-harm and have anxiety may benefit from the use of an octenidine irrigation solution to optimise their wound bed.

The increasing incidence of methicillin resistant staphylococcus aureus from 2002 engendered NHS Trust protocols for swabbing; all clinicians should be aware of the requirements in their own area. The swabbing of deliberate self-harm wounds should not be routine and clinicians should always consider what they will do with the result; if it is not to inform antibiotic choice or as part of a Trust screening programme then where is the clinical relevance? Signs and symptoms of wound infection are different for different types of wound (Edwards-Jones and Flanagan, 2013) and the skilled clinician can diagnose infection through visual/systemic markers without the need of a swab.

Wounds caused as part of psychosis may present as an infection risk depending on the service user and their current perception. Acceptance of treatment is variable and clinicians will need to engage at a level the service user is happy with in terms that they understand (MIND, 2014). It is also worth noting that for those taking anti-psychotic medication, neutrophil numbers are lowered and gastric motility can be affected, which are risk factors for infection (Hughes, 2013). Empowerment is key in helping those at risk of infection who self-harm; joint working towards agreed goals and a non-judgemental approach are imperative to success.

Although EWMA (2006) state that topical antimicrobial agents should not be subject to indiscriminate use, there is an argument with known gross contamination associated with self-harm wounds for this not to be the case. A broad-spectrum antimicrobial with good tolerability and lack of toxicity at the wound bed is ideal for the long-term management of self-harm wounds subject to continued contamination; treatment can be discontinued once the service user is ready to let the wound heal.

Octenidine is a broad-spectrum antimicrobial agent, effective against multi-resistant strains and is more active than other frequently used antimicrobials against common bacteria including *E coli* and *S aureus*. Octenidine also has an excellent tolerability profile; it has no systemic side effects, does not lead to resistance forming and has a 24-hour residual effect, and is ideal for use on the most vulnerable patient groups.

CASE STUDIES

The following case studies use Octenilin® Wound Irrigation Solution and Octenisan® Wash (schülke) in self-harm wounds. The active, antimicrobial ingredient in these products is octenidine, making them ideal for use in self-harm patients.

CASE 1

Background

The patient is a 20-year-old female who has suffered a history of sexual, violent and psychological abuse by her father, and had been in foster care since the age of 10. She used self-harm as a means to ‘cope with feelings of fear, shame and anger’. The patient has a history of using a razorblade to cut the same areas on the left forearm and upper arm, then cleans the wounds with hot water and covers with Tubigrip. For the past two years, she has been taking 10mg of Fluoxetine daily for anxiety-related issues.

Presentation

The patient presented with several wounds to the lower forearm and a further wound, full circumference to the forearm. These were multiple cuts at various stages of healing, which had been present for up to four months. The cuts repeatedly split open with arm movement, causing delayed healing and slough development.

At presentation, the arm was covered in wounds, with length of 28cm, depth 2mm and width 18cm. The wounds were infected, with inflamed and sloughy areas and celluitic tracking in areas, and red non-viable tissue present. A swab taken pre-evaluation was positive with staph aureus. Biofilm was suspected and mild malodour present.

The surrounding skin was classified as inflamed, macerated and celluitic, with non-blanching erythema. There were moderate levels of serous exudate present and the wounds were painful, with the patient rating the wounds as 10 on the pain score.

Initial application

The decision was made to use Octenilin Wound Irrigation Solution, principally due to the painful large area of skin affected. The affected arm was rinsed using a large 50ml syringe and then gauze

soaked in the product was applied for 5 minutes prior to dressing application. Ease of application was described as excellent, with dressing change planned for three times per week (Mondays, Wednesdays and Fridays).

Week 1

At dressing change after a week of treatment, the wounds appeared the same size but noted to have improved and showed signs of healing (*Figure 1*). Some minor epithelialisation and reduction in slough was observed. Malodour had reduced and the patient’s pain score reduced to 8.

The wound bed was less inflamed with a reduction in slough. The surrounding skin now appeared healthy and intact, with no celluitic changes. Levels of serous exudate remained moderate.

Both patient and clinician were highly satisfied by the wounds’ progress and with the treatment regimen. The decision was made to continue treatment using Octenilin Wound Irrigation Solution, with dressing change three times per week.

Week 2

The wounds were noted to have improved further at Week 2, with no inflammation, minor slough remaining and some cuts fully healed. The patient’s pain score was reduced to 4 and odour further reduced.

The wounded area now measured 22cm in length, 1mm depth and 16cm width, with the wound bed further improving and the surrounding skin healed completely. Exudate levels were reduced and now classified as low.

Both clinician and patient continued to be highly satisfied with treatment and the decision was made to continue the treatment regimen. The patient noted an improvement of quality of life, with increased comfort and reduced pain.

Week 3

At Week 3, the wounds continued to improve. Many of the cuts had now healed with no slough; however, minor itching to some areas was present as healing progressed. The patient’s pain score had reduced to 2. Malodour had now reduced to nil. Exudate levels remained low.



Figure 1: Case 1 wound at Week 1



Figure 2. Case 1 wound at Week 4



Figure 3. Case 2 wound at Week 1



Figure 4. Case 2 wound at week 2



Figure 5. Case 2 wound at week 4

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The treatment regimen continued to be rated as excellent and seen to facilitate ongoing healing, so the decision was made to continue with treatment as previously.

Week 4

By Week 4 (Day 28) all lesions had fully healed, with only scar tissue remaining and the surrounding skin healthy. The patient's pain rating had reduced to 1 (no pain) (Figure 2).

Both clinician and patient were highly satisfied with the treatment and the outcome, rating it as excellent. The treatment regimen was discontinued as full healing had been achieved and the patient was discharged.

CASE 2

Background

The patient is a 48-year-old male who suffers with ongoing alcohol/substance misuse. He has suffered with depression since the age of 21 and has been self-harming since his teens, burning his skin with cigarettes. The patient is under the care of the mental health team and is taking 40 mg of citalopram daily, and tramadol for pain. He is also a heavy smoker, smoking 40 cigarettes daily.

Presentation

The patient presented with a burn to the right forearm. The wound had been present for 2 months pre-evaluation. The wound measured 7 cm in length, 3 mm in depth and 5.5 cm in width.

The wound was static and had failed to progress within the expected timeframe, described as static and non-healing as well as sloughy and

erythemic. The wound bed was classified as 10% granulating and 90% sloughy, described as sloughy, hot, erythemic, cellulitic and tracking, with high levels of serous exudate. The surrounding skin was macerated and inflamed, with non-blanching erythema.

The wound was classified as critically colonised and infected, due to slough, malodour and spreading cellulitis. Biofilm was suspected due to these factors and the shiny appearance of the wound bed, which was confirmed with microbiology results pre-evaluation. The infection had previously been treated with flucloxacillin (500 mg twice daily for one week); the course of treatment finished at the start of the evaluation. The wound had also previously been treated with a honey gel.

Strong malodour was a significant issue, which was affecting the patient's quality of life. The patient was also affected by severe pain, rated at 10 on the pain scale, and was taking tramadol (50 mg, as required) to manage the pain.

Initial application

It was decided to use Octenilin Wound Gel under the existing dressing (Mepilex® Border Adhesive). The wound was cleansed with sterile saline and Octenilin Wound Gel applied to the wound bed. Ease of application was rated as excellent.

Dressing change was agreed to be continued at twice weekly (every Tuesday and Friday).

Week 1

The wound continued to be painful at dressing change, but the patient's pain score had reduced

to 8 (from 10). Although pain had reduced, only minor improvement had been made to the wound at Week 1 (a minor reduction in width) (Figure 3). Slough, heavy exudate and malodour continued to be significant issues. The wound bed was red and inflamed, with visible yellow exudate.

However, the patient and clinician were both highly satisfied with the treatment and the reduction in pain and associated improvement to the patient's quality of life, and it was agreed that treatment with Octenilin Wound Gel should continue.

Week 2

At Week 2, the patient's pain score reduced further to 6 and there were signs of healing to the wound (Figure 4). Malodour had reduced and was now classified as mild. Erythema, slough and inflammation had all reduced. Exudate levels were now moderate. The wound had reduced in size and now measured 7 cm length, 2 mm depth and 5 cm width. The wound bed was now classified as 20% granulating and 80% sloughy.

Both patient and clinician continued to be highly satisfied with the treatment and improvement to the wound, and agreed that the treatment regimen should continue.

Week 3

The wound continued to improve and the patient's pain score had reduced to 2. Malodour had resolved entirely and exudate levels were low. The wound bed was now slough-free with a granular base and improved epithelialisation (wound bed 40% epithelialising; 60% granulating). The wound measured 5 cm length, 2 mm depth and 3 cm width. The surrounding skin was now healed and intact.

The wound was almost healed and treatment was noted to be highly effective, particularly with regard to the patient's reduced pain levels (which had previously been an issue severely affecting quality of life). Treatment was agreed to be continued.

Week 4

The patient was now pain-free and the remaining wound superficial (Figure 5). The wound bed was clean and moist, with no slough, exudate

or malodour present. The surrounding skin was healthy. The wound measured 2 cm length, 1 mm depth and 1.8 cm width; the wound bed was classified as 70% epithelialising, 30% granulating.

The patient commented that Octenilin Wound Gel 'kept my wound pain-free' and did not soak through the dressing, making the dressing easy to keep on during treatment. The clinician noted that the wound gel was quick to apply, stayed on the wound and didn't leak even when the top dressing pressed downwards.

CASE 3 Background

The patient is a 17-year-old female who was diagnosed with type II bipolar disorder at the age of 14. The patient's bipolar disorder manifests as anger, agitation and paranoia, with a cycle of 3–6 months manic personality and 2–3 months depressive personality. The patient had previously attempted suicide twice and self-harm is more prevalent during depressive phases. The patient presented at Week 1 suffering with depressive mood.

The patient has also been diagnosed with type II diabetes and has a body mass index (BMI) of 38. The patient's medications for these conditions are metformin (500 mg daily) and venlafaxine (75 mg daily).

Presentation

The patient presented with full circumference arm cuts measuring 24 cm depth, 3 mm depth and 18 cm width, made with a razor blade and a sharpened metal pen lid. The wound had been present for 3 months and failed to progress within the expected timeframe. The wound was red, inflamed and irritated, with mild malodour and thick serous exudate. The wound bed was 90% granulating and 10% sloughy. The wound was classified as critically colonised but not infected. Biofilm was suspected due to shiny surface and the presence of slough; microbiology results showed mixed growth colonised cells.

The wound had previously been treated with daily saline wash, Prontosan irrigation and fusidic cream, with no benefit to healing.

The wound was painful, with the patient's pain level rated at 9.

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Figure 6. Case 3 wound at Week 1



Figure 7. Case 3 wound at Week 2



Figure 8. Case 3 wound at Week 4

Initial application

It was decided to use Octenisan Wash, as the patient would be able to use the product easily to facilitate ongoing self-care. Octenisan Wash would remove bacteria and keep the wound bed moist.

Due to the patient's pre-evaluation pain levels, Octenisan Wash was applied with a damp sterile gauze, gently removing all slough/debris with gentle gliding of wash-soaked gauze. Ease of application was rated as excellent. The patient refused application of any dressing after the wash was used. It was planned to continue with Octenisan Wash twice daily for the four-week treatment duration.

Week 1

The wound continued to be painful at dressing change, but pain levels reduced to 6. The wound had improved and showed signs of healing (*Figure 6*). Irritation and itchiness had reduced, erythema reduced. Exudate was reduced and malodour had resolved entirely.

The wound now measured 21 cm length, 2 mm depth and 16 cm width; 8% epithelialising, 90% granulating and 2% slough. The surrounding skin was healing, with mild erythema and no oedema.

The patient and clinician were both highly satisfied with treatment and noted improvement to the patient's quality of life. Treatment with Octenisan was planned to continue due to this visible improvement.

Week 2

The patient's pain score had reduced to 4 and the wound showed signs of continued healing (*Figure*

7). The wound size had reduced slightly and was categorised as 20% epithelialising and 80% granulating. The surrounding skin was healthy and non-irritated. Exudate levels were now low.

The patient and clinician continued to be highly satisfied with the treatment, noting that the Octenisan Wash was healing and soothing, reducing pain levels as well as improving the condition of the wound bed. Ease of application was excellent, with the patient able to continue a self-care regimen using the wash.

Week 3

At Week 3, the wound showed continued signs of healing and the patient's pain score further reduced to 2. The size of the wound was now 14 cm length, 1 mm depth and 10 cm width. The wound bed was classified as 40% epithelialising and 60% granulating. The wound was healing well and the surrounding skin healthy. The decision was made to continue with the treatment regimen as healing continued.

Week 4

By Week 4, the patient was pain-free and the wound had fully epithelialised. The wound had healed, with a minor dry area, and the surrounding skin was generally healthy (*Figure 8*).

The patient commented that Octenisan Wash was easy to use: 'I could just wash my wounds with the cleanser and pat dry, it was a bit sore at first but the pain went down quickly.'

The clinician was also highly satisfied with the treatment and noted the reliability of the product.

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