Psychosocial issues relating to external fixation of fractures

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The use of external fixation devices has become increasingly popular for the treatment of fractures and for limb reconstruction procedures. This article reviews the nursing literature that examines psychosocial issues in the context of treatment with external fixation. Nearly all the evidence cited is anecdotal. Personal experience should not be ignored, but this review exercise highlights the lack of research-based evidence to back up provision of care in what is a fundamentally important aspect of the patient experience.

As with any innovation in care, there has been a great deal of interest in the practical application of external fixation devices and the related nursing care that may be required. For nurses, the emphasis is on pin-site care. Despite a lack of empirical evidence, a good deal of the literature debates what the best method of dealing with this critical aspect of care may be. However, as is often the case when trying to reduce the risk of complications and the cost and level of professional input required, there may be a tendency to overlook the patient’s individual needs. For example, while there is literature describing ‘pin-site care’ or ‘care of the fixator’, fewer studies focus on care of the patient. There is a considerable difference between ‘care of the fixator’ and ‘care of the person with a fixation device in situ’.

What is external fixation?

Meredith (1979) defines a fixator as ‘a metal maze of pins, clamps and connecting rods bristling from the patient’s limb (see Fig 1 for examples of two types of fixators). This description, however, does little to help the patient or nurse understand the scientific principles involved in external fixation therapy, although Meredith suggests it is very difficult to visualise a fixator from verbal descriptions.

Goldberger et al (1987) refer to a fixator as an orthopaedic instrument, while Sims and Saleh (2000) describe the procedure as a method of skeletal fixation. These authors also comment that the process involves the use of percutaneous transfixing pins and wires that are in some way attached to the external frame. It is important to note that the metal apparatus is outside the body – this is probably one of the most important things to consider when looking at the effect this may have on the patient (Gill and Laflamme, 1984).

The patient experience

While it may not be acceptable for health care professionals to use terminology such as the above when discussing issues with clients, it may accurately reflect their experience. For example, Olsen et al (1991) found that patients with halo-pelvic fixation devices in situ described themselves as ‘mutilated’ and ‘freakish’, findings that highlighted the effect the device may have on a patient’s body image and concept of self. However, when the literature relating to the use of the devices on extremities is examined, the evidence relating to psychosocial issues is not so consistent.

The main psychosocial concepts to emerge relate to fear, body image and self-image. Jauernig (1990) identifies fear as usually being related to seeing the device on the limb. Waking up from surgery to find extensive metal work surrounding an extremity may not be easy to accept, regardless of the adequacy of prior information. According to Gill and Laflamme (1984), a patient’s reaction is likely to be one of terror, horror or plain anxiety. They describe an incident when a patient screamed when she saw her fixator. While this report was produced nearly two decades ago, Wallis (1991) showed that shock and revulsion are reactions that nurses may expect, regardless of prior awareness of this when working in trauma orthopaedics.

Body image

The possibility of changes in body image being a concern to patients was identified by Miller (1983), Seligson et al (1989), Jauernig (1990), Calcraft (1995), Sims et al (1999) and Lee-Smith et al (2001). However, there has been little attempt to define what this concept actually means. Definition is important if we are to gain an understanding of these issues in the context of improving patient care. Price (1990), rather than trying to give an overall definition of body image, breaks the concept into three related areas outlined below.

1. Body reality

Two factors influence body reality (that is, the body as it objectively appears). The first is the patient’s genetic predisposition to developing a congenital deformity...
requiring limb lengthening or reconstruction. In addition, nurtural factors may further influence the development of the body — how we treat/use it may lead to changes. For example, treatment for trauma or injury could be related to an external cause such as a sporting accident. Sims et al (1999) comment that individuals with both types of problem present for treatment. Sims and Saleh (2000) report that, over a five-year period, of 248 individuals having 279 fixators applied, 206 were for the treatment of fractures or fracture-related problems. Obviously treatment of congenital deformities would be more common in the field of paediatrics.

2. Body ideal

Body ideal (the body as the individual would like it to be) is, to a great extent, influenced by cultural values and norms. Sims et al (1999) identified that people are influenced by their perception of normality and that this may be the driving force in seeking treatment to correct a deformity or lengthen a limb.

3. Body presentation

This refers to overcoming the difference between body reality and body ideal. Clothing and adornments should be considered here. Santy (2000) and Sims et al (2000) discuss possible ways of covering the fixator, for example using clothing. This issue may already have been addressed before treatment, as the patient may previously have had to wear a splint, brace or adjusted shoe.

The problem for patients in this case is altered body image. Price (1990) defines altered body image as any significant alteration that occurs outside the realms of expected human development. Hay and Karas (1981) describe this sudden change as the type that may be the driving force in seeking treatment to correct a deformity or lengthen a limb.

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Cash and Pruzinsky (1990) talk of the body as being one of the most fundamental determinants of a sense of self. Olson et al (1991) claim that body image is closely linked to self-esteem. Lisanti (1989) identifies that a person who has experienced a change in body image feels that his/her self-esteem has been undermined. Not being in control may make this worse. Loss of control itself is not a cause, but it may compound the problem associated with physical changes. Olson et al (1991) add that dependency resulting from injury can further affect a patient’s body image and concept of self. Patients who undergo limb reconstruction will obviously experience temporary but negative physical changes.

Adapting to change

Calcraft (1995) noted that when patients have to adapt to a change in appearance they are forced to control to terms with the social aspects of disability. For patients having a limb reconstruction, this may occur on a number of levels. First, there is the use of mobility aids such as crutches or wheelchairs. Santy (2000) points out that patients may prefer to use crutches, as a wheelchair may be perceived as a sign of permanent disability. With crutches the patient may be able to walk, which is considered important both individually and culturally (Oliver et al, 1988). Goffman (1963) found that there is a desire to reject equipment associated with people with disabilities because of the stigma attached to it by society.

**FIG 1. TWO METHODS OF EXTERNAL FIXATION**

<table>
<thead>
<tr>
<th>Transfixing pins (must be parallel)</th>
<th>Locking nut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clamp</td>
<td>Methylmethacrylate cement</td>
</tr>
<tr>
<td>Universal joint</td>
<td>Insulated carriage moves on threaded bar</td>
</tr>
<tr>
<td>Compression/distraction device</td>
<td>Threaded bar</td>
</tr>
<tr>
<td>Longitudinal rod (one each side)</td>
<td>Continuous threaded half pins</td>
</tr>
<tr>
<td><strong>UNIVERSAL DAY FRAME</strong></td>
<td>Fixed insulated carriage</td>
</tr>
<tr>
<td></td>
<td><strong>PORTSMOUTH FIXATION BAR</strong></td>
</tr>
</tbody>
</table>

**KEYWORDS**

- Surgery
- Body image
- External fixation

**REFERENCES**


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Davies (1973) further states that appliances and aids required to facilitate mobility and activities of daily living may be seen by patients with disabilities as impediments to achieving feelings of normality.

Second, it may be necessary for patients with external fixation devices to change the way they dress. As mentioned previously, clothing may have to be adapted to accommodate the fixator. Cohen (1991) points out that clothes are integral to body image, and young people in particular are often very concerned with dress and fitting into society. While there is an argument that clothing is chosen to reflect the personality of the wearer, in the case of the patient with external fixation in situ, it is often chosen for comfort and practicality as well as to prevent others from seeing the device. Bernstein (1990) points out that these patients are struggling to maintain self-esteem and achieve public acceptance by trying to fade into the background rather than stand out in a negative way in a crowd.

Obviously, changes in an individual’s appearance mean that some adaptation has to occur, as the treatment can have a considerable impact on both lifestyle and relationships (Santy, 2000). As part of this adaptation the individual may experience a period of grieving. If there are adverse reactions this may have an impact on treatment outcomes and thus have implications for the future. Lee-Smith et al (2001) identify that non-concordance may be an indicator that the individual is not adapting, although they do not identify how this may affect the outcome. Droupkin (1989) cited by Sims et al (1999) expands this notion by stating that people who cannot cope with disfigurement or dysfunction may be non-compliant, and associate this with a higher risk of infection, depression, social isolation and obsession with, or denial of, changes in body image. However, it should be noted that this research was undertaken with patients with cancer of the head and neck.

Finally, Seligson et al (1989) identified that patients with a poor body image may experience negative clinical outcomes, and that, conversely, a positive body image is associated with a rapid and trouble-free recovery. However, the nature and reliability of the evidence has to be considered. Seligson et al (1989) used self-drawing techniques to assess the perceptions of patients undergoing limb reconstruction. Interpreting these images, however, is outside the remit of most health care professionals and should be carried out by someone trained in this area. In addition, Seligson et al (1989) provide little evidence to suggest that their comments on the effect on outcomes are valid or reliable.

Recommendations for practice

Patient information

To address a patient’s fears in connection with the appearance of an external fixation device, information should be provided in verbal, written and pictorial form. Meredith (1979), Gill and Lafllamme (1984) and Lee-Smith et al (2001) all emphasise the provision of information as being an important part of health care intervention. Meredith (1979) adds that explanations have to be judicious.

Gill and Lafllamme (1984) and Sims et al (1999) suggest that discussion with a person with similar experience may help a patient adapt to having a fixator. Information given to patients tends to be related to physical care and required interventions rather than to considering the potential impact of the fixation device on the person as a whole. While physiological success is important, greater consideration may need to be given to the psychosocial impact of wearing the device and its potential effect on compliance and outcomes.

Lee-Smith et al (2001) recommend using photographs to inform and prepare patients for what they might look like after surgery. The use of pictures is advocated by Meredith (1979) and Miller (1983), who put out that photographs of devices can be found in manufacturers’ catalogues, although it is important to point out that the pictures do not show real patients. However, photographs of a real patient with a device in situ may be too distressing. Careful ongoing assessment of the situation on a case-by-case basis is therefore required.

Patient self-care

Patient involvement in pin-site care is recommended by some authors. Calcalt (1995) feels that this encourages ownership and desensitises the individual to the appearance of the device. Wallis (1991) feels that it also encourages acceptance and control of the situation. However, she advises caution on the part of nurses when patients are self-caring, care must be sensitive and the patient directed, and the nurse must not show signs of revulsion or avoidance as this can reinforce the patient’s worst fears about his/her appearance.

Support groups

Jauernig (1990) recommends putting patients in touch with support groups. By this she means either at a clinic where patients meet informally, chat and realise that others have similar experiences, or as part of a group outside the clinic.

Haines (2000) writes about his experiences of external fixation from the patient perspective. He recommends that patients contact the Ilizarov & External Fixator Wears’ Support Group, where both patient and health professional can find pictorial and written information about the impact of the fixator on lifestyle from a wide variety of perspectives. The group’s website can be found at (www.ilizarov.org.uk).

Conclusion

Much of the evidence presented in this article is either taken from reviews of the literature or anecdotal. This indicates that there is an opportunity for nurses to research the area of how external fixation devices affect patients and how they can be helped to come to terms with the resulting change in their body image. A solid evidence base is essential for developing care provision in this group of patients.