Sexual dysfunction in intensive care survivors

Normal sexual function is an important component of a patient's overall health status. Sexual dysfunction has been described in a variety of patient populations including survivors of critical illness. This review gives an overview of the issues pertaining to sexual dysfunction in patients who have experienced intensive care unit treatment.

Until recently, an intensive care unit (ICU) stay was deemed successful if a patient survived to go to the ward. Intensive care practitioners paid little attention to what happened to patients after they left the ICU. No consideration was taken of the patient dying on the ward or soon after leaving hospital, or if the patient went home with an appalling quality of life. However, publications, including those from the Kings Fund (Kings Fund, 1989), the Audit Commission (Audit Commission, 1999) and the National Expert Group (Department of Health, 2000), have highlighted the futility of assessing survival and outcome of ICU treatment solely at discharge from the ICU and suggest that longer-term outcomes should be studied.

One mechanism of extended follow up for patients surviving critical illness is the ICU follow-up clinic (Griffiths and Jones, 1999; Griffiths et al, 2004). ICU follow-up clinics have provided a wealth of information on many of the longer-term, subjective outcome measures such as quality of life. Indeed, subjective measures are now superseding objective measures as the most important determinants of a successful outcome from ICU treatment. As healthy sexual function requires both physical and psychological integrity it is a potential sensitive marker of a patient's health-related quality of life. Indeed, the ICU follow-up clinic has proved to be a suitable arena for the study of sexual dysfunction in survivors of prolonged ICU treatment (Quinlan et al, 2001; Griffiths et al, 2006).

Prevalence of sexual dysfunction

Sexual dysfunction, as part of a full quality of life assessment, has been noted in patients following cardiac surgery, major trauma and spinal cord injury. It has been studied in patients surviving cancer, and in those with a variety of medical complaints such as neurological disease, urological disease and diabetes. The prevalence of sexual dysfunction estimated from community samples ranges from 10% to 52% of men and 25% to 63% of women (Spector and Carey, 1990; Rosen et al, 1993; Feldman et al, 1994). It appears that sexual dysfunction following critical illness mirrors research in the general population in being highly prevalent in both sexes (Griffiths et al, 2006). As improved treatments and delivery of intensive care become more widely available it is conceivable that more patients will survive a period of critical illness (Bernard et al, 2001). Moreover, the greater physiological reserves seen in younger patients make their chances of survival even greater at a time of life where healthy sexual and reproductive function is likely to be important. Therefore, focus on sexual function as a fundamental component of longer-term quality of life of ICU survivors is surely warranted.

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Manifestations of sexual dysfunction

Sexual dysfunction is a group of disorders that interfere with a full sexual response cycle and make it difficult for a person to enjoy or to have sexual intercourse. Sexual dysfunction takes different forms in men and women (*Table 1*). Sexual dysfunction in men usually manifests itself as impotence or inability to maintain an erection sufficient for satisfactory sexual activity. In either gender, symptoms of a sexual dysfunction include the lack or loss of sexual desire, anxiety or pain during intercourse, or the inability to achieve orgasm.

Associations and causes of sexual dysfunction

There is a paucity of studies detailing the exact cause and associations of sexual dysfunction in survivors of ICU treatment. However, patients who have experienced critical illness have been exposed to numerous physical and psychological factors associated with sexual dysfunction in other patient populations.

Poor body image

Poor body image scores are associated with decreases in the frequency of sexual behaviour in both males and females (Faith and Schare, 1993). Patients surviving an

episode of critical illness have often undergone numerous invasive procedures and operations, have scars and have suffered significant weight loss, or weight gain as a result of inactivity. Patients avoid participating in sexual intercourse because they do not feel as positive about the way their bodies look and feel. In the study of Griffiths et al (2006) nearly half of the ICU survivors reported 'physical changes' as an explanation for their sexual dysfunction, this most commonly being the presence of a colostomy.

A case from the authors' practice illustrates this: Mrs TD was 35 years old and had been admitted to ICU with necrotizing fasciitis of her inner thigh. She had been intubated and ventilated, and given inotropic support, and had stayed on ICU for 6 days. She screened positive for sexual dysfunction, saying: '[I have] Only recently stopped wearing dressings all the time', 'Mainly physical effect but also emotional. The unsightly nature of the wound makes me feel less attractive', 'I have also put on weight due to a long period of inactivity'. She was referred for psychosexual counselling.

Physical factors

Sexual dysfunction can be associated with pre-existing medical conditions, such as diabetes mellitus and coronary artery disease, certain types of surgery (e.g. aortic aneurysm and urological) or pelvic trauma. Critical illness and many of the drugs and treatments associated with it (e.g. dopamine agonists and steroids) have the ability to interrupt the endocrine axis and ultimately affect sexual function. The role of glycaemic control on the ICU in subsequent endothelial and sexual function awaits further clarification.

Chronic illness

Patients with chronic illness may become disinterested in sex or may become sexually inactive because of misconceptions about their ability to have sex or the safety of having sexual relations (Laumann et al, 1999). Concomitant body image concerns, grief related to the diagnosis of their disease, depression, fatigue, pain, stress, and anxiety may further contribute to sexual dysfunction.

Drugs

It is not unusual for patients attending the ICU follow-up clinic to have been prescribed medications that have been linked to sexual dysfunction (*Tables 2* and *3*). An important class of drugs are the antidepressants (Michelson et al, 2000), which are commonly started either on, or shortly after, discharge from the ICU. Numerous studies have demonstrated a strong association between the selective serotonin-reuptake inhibitors (SSRI) group of antidepressants and delayed or retrograde ejaculation (Lane, 1997). Indeed SSRIs have been successfully used to treat premature ejaculation. It is therefore important to take a detailed drug history in the course of enquiring about sexual function.

Table 1. The most common male and female sexual dysfunctions

Erectile dysfunction	An impairment of a man's ability to have or maintain an erection that is firm enough for coitus or intercourse
Premature or rapid ejaculation	Ejaculation with minimal sexual stimulation before, on, or shortly after penetration and before the person wishes it
Ejaculatory incompetence	The inability to ejaculate within the vagina despite a firm erection and relatively high levels of sexual arousal
Retarded ejaculation	A condition in which the bladder neck does not close off properly during orgasm so that the semen spurts backward into the bladder
Sexual arousal disorder	The general arousal aspect of sexual response is inhibited. A woman with this disorder does not lubricate, her vagina does not swell, and the muscle that surrounds the outer third of the vagina does not tighten – a series of changes that normally prepare the body for orgasm ('the orgasmic platform')
Orgasmic disorder	The orgasmic component of the female sexual response is impaired. The woman may be sexually aroused but never reach orgasm
Vaginismus	A condition in which the muscles around the outer third of the vagina have involuntary spasms in response to attempts at vaginal penetration
Painful intercourse	

Psychological factors

An association between psychological morbidity and sexual dysfunction has been demonstrated in other patient populations. This association is particularly evident with depression and anxiety. Indeed, psychological sequelae such as depression, chronic fatigue syndrome, pain, stress, and anxiety often surface during rehabilitation from critical illness. Moreover, between 5 and 63%

Table 2. Drugs associated with erectile dysfunction

Anti-androgens (e.g. finasteride)
Anticholinergics
Antidepressants
Benzodiazepines
Beta-blockers
Carbamazepine
Cimetidine
Digoxin
Finasteride
Methyldopa
Metoclopramide
Omeprazole
Phenothiazines
Phenytoin
Prazosin
Spironolactone
Thiazide diuretics

Table 3. Drugs associated with female sexual dysfunction
Antidepressants
Benzodiazepines
Cimetidine
Clonidine
Gonadorelin analogues
Methyldopa
Oestrogens
Propranolol
Spironolactone
Thiazide diuretics
Trazodone

of patients develop the symptoms of post-traumatic stress disorder (PTSD) following ICU treatment (Jackson et al, 2007) and PTSD has been shown to be associated with sexual dysfunction in this and other patient populations (De Rios et al, 1997; Griffiths et al, 2006).

Relationship satisfaction

Relationship satisfaction has been highlighted as a contributing factor in reports of sexual satisfaction and frequency (Hawton et al, 1994). Patients who have survived critical illness have good reason to become disinterested in sex. The period of critical illness, the memory of the ICU admission and its invasive treatments together with the prognostic uncertainty can have devastating consequences on the future dynamics of relationships. Significant levels of depression, anxiety and even PTSD can exist in a patient's spouse or partner as a result of their own 'ICU experience', but this psychological morbidity often goes undiagnosed.

A common theme highlighted by patients and their partners is the fear that commencing sexual activity could precipitate further illness or cause actual physical harm. Withdrawal of sexual intimacy because of misconceptions about their ability or safety of having sexual relations can damage relationships. However, overcoming these interpersonal difficulties is important, as touch and physical intimacy have been shown to be extremely important even for severely debilitated or terminally ill patients.

Diagnosis and difficulty raising issues

There are accepted diagnostic categories for sexual dysfunction that are described in *International Classification of Diseases*, 10th revision (ICD-10) (World Health Organization, 1993) and *Diagnostic and Statistical Manual of Mental Disorders,* fourth revision (DSM-IV) (American Psychiatric Association, 2000). However, these definitions may not reflect the reality of sexual dysfunction in survivors of critical illness and there is a need for the development and validation of specific instruments for evaluating sexual dysfunction after ICU treatment. Previous studies in other areas of medicine have used questions from the sexual communication subscale of the Sexual Function Scale (McCabe, 1998).

In the ICU follow-up clinic, where the role of the medical practitioner is to screen for the presence of sexual dysfunction and facilitate appropriate specialist referral, the use of a simple screening tool that broadly divides the dysfunction into an organic (have the desire but nothing works) or a psychological basis (everything works but have no desire) may be warranted (Quinlan et al, 2001; Griffiths et al, 2006). However, this may be over-simplistic as sexual dysfunctions vary in both their severity and frequency. The fact that 20% of men with erectile dysfunction have low sexual desire highlights that co-morbidity of sexual dysfunctions is common with it rarely being solely organic or solely psychological.

However, the use of such a screening tool may overcome the fact that at the current time patients recovering from critical illness are rarely questioned about their sexual function. This appears to parallel the historical, general reluctance among doctors to address a patient's sexual concerns, particularly in those with chronic diseases (Aschka et al, 2001).

> **'The genital activities of mankind are so natural, so necessary and so right: what have they done to make us never dare mention them without embarrassment and to exclude them from serious orderly conversation? We are not afraid to utter the words kill, thieve or betray; but those others we only dare mutter through our teeth'. (Michel de Montaigne, 1533–92)**

A patient of the authors, Mr BP, was 54 years old. He had a road traffic accident which caused a traumatic brain injury. He was in ICU for 2 days, and then transferred to neurosurgical ICU. His recovery was complicated by a perforated colon and sigmoid colectomy. He screened positive for sexual dysfunction. He was referred to andrology with partial erections and poor libido, and was subsequently found to have both an organic cause of sexual dysfunction (neurovascular disruption during surgery) and a psychological component (colostomy affecting body image).

The possibility that sexual dysfunction may be present should be taken seriously. It is understandable that patients and their partners find talking about sexual health after a period of critical illness very difficult. If their initial perception is that their problem is being dismissed then they may never volunteer further information or seek help. The physician's proactive leadership in initiating the discussion lets the patient know that sexuality is an important aspect of health-related quality of life following critical illness and that dysfunction is common and usually treatable. Many patients attending the ICU follow-up clinic have predictable organic causes for their sexual dysfunction (e.g. aortic aneurysm repair, colectomy, pelvic trauma), but few appear to be warned

of the risk of sexual dysfunction preoperatively or questioned about its presence subsequently.

Referral and treatment

As many of the causes of male and female sexual dysfunction are amenable to treatment it is important that the infrastructure is in place that allows appropriate referral, investigation and treatment. In treating sexual dysfunction a variety of pharmacological, medical and psychological techniques exist. The focus of medical treatments for the past 20 years has been primarily on male erectile disorder and there are now UK guidelines (Ralph and McNicholas, 2000). Treatments available include intracavernous or transureteral alprostadil or oral sildenafil (Viagra). Sildenafil is a potent and selective inhibitor of cGMP specific phosphodiesterase type 5 (PDE5) that is responsible for degradation of cGMP in the corpus cavernosum. Patients with cardiovascular dysfunction have to be carefully assessed before being given PDE5 inhibitors. Non-pharmacological therapies include the use of vacuum devices and inflatable penile prostheses. In females, approaches include psychotherapy and the use of various lubricating gels. The role of PDE5 inhibitors in the treatment of female sexual dysfunction has yet to be determined, but research is underway. Although the physical demands of sexual activity are high, few, if any, chronic illnesses require restriction of sexual activity. However, couples may have to alter their sexual activity to accommodate physiological or mechanical limitations.

Conclusions

Sexual function is a potential sensitive measure of recovery from critical illness. When a patient who has survived a period of critical illness is still sexually active, or wants to have a sexual relationship, it is important to openly acknowledge this is an integral part of the recovery process. It is also important to recognize how the period of illness has affected the individual's sexual function. At present medical practitioners rarely seek this. Recognition of sexual dysfunction as a result of both the tremendous physiological and psychological insult that critical illness imposes on an individual is an important goal for those involved with aiding recovery from intensive care treatment. **BJHM**

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KEY POINTS

- Adequate sexual functioning is associated with personal wellbeing.
- Sexual dysfunction following critical illness is common but current research is lacking.
- Sexual dysfunction in survivors of intensive care is amenable to treatment.
- There is a general unwillingness to raise the issues surrounding sexual dysfunction in the critical care setting despite the fact that it can dramatically affect a patient's health-related quality of life.
- The intensive care follow-up clinic provides a suitable forum for the identification, referral and treatment of patients in whom sexual dysfunction is present.