Psychological consequences of critical illness: aftercare or an afterthought?

As the physical care of individuals with critical illness has improved greater numbers have survived. However, until recently the psychological response to such critical illness has received comparatively little attention.

Few clinicians are left in doubt that suffering major burns or being involved in a major disaster constitutes a traumatic event and that such an experience may precipitate an acute psychological reaction and thereafter some individuals may subsequently develop long-term psychological sequelae. Recently researchers have highlighted a range of psychological disorders as a consequence of critical illness and thus emphasized the need to recognize and treat these disorders.

The experience of intensive care may typically include: a sudden onset of critical illness or a physical trauma necessitating surgery and admission to the intensive care unit (ICU), administration of a range of medications including sedatives, the requirement for ventilation and an unfamiliar, busy and noisy environment. Individuals' reactions can range from the normal (detailed below) to acute delirium, anxiety, depression or post-traumatic stress disorder (PTSD) among others.

What constitutes a traumatic event?

The definition of what constitutes a traumatic event has evolved so that, with the introduction of *Diagnostic and Statistical Manual of Mental Disorders 4th Edition* (DSM-IV) (American Psychiatric Association, 1994), to meet the criterion for a traumatic event the individual needs to have experienced, witnessed or have been confronted by an event which poses a threat of death or serious injury or physical integrity (to self or others). The person's response also needs to have involved feelings of intense fear, helplessness or horror. Given this definition it is readily apparent how an ICU experience can constitute a traumatic event. Discharge from ICU can also be a stressful event for both the patient and their family (Griffiths and Jones, 2005).

Normal reactions to critical illness

Community samples have shown that two-thirds of individuals exposed to a traumatic event will have a normal acute response and no subsequent psychological sequelae.

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Early normal reactions commonly include fear, anger, depression, guilt, helplessness, numbness and sleep problems. It is also normal and commonplace to experience hyperarousal, hypervigilance, perceptual changes and even flashbacks and nightmares. Early reactions may also include elation as a reaction to having survived (*Table 1*). Normal and pathological clinical reactions are distinguished by their severity and duration. Therefore, most individuals who experience these symptoms at a mild or moderate level for only a few days can be reassured that their reaction is normal. For example, sleep disturbance in an ICU is commonplace and if brief should not be 'pathologized'. Instead these reactions should be managed either through consideration of the environment in which they are treated, through behavioural modification if possible, or through sedatives if required.

Psychological consequences of critical illness

There is a range of psychological disorders that may occur after trauma events such as critical illness (*Table 2*). This article discusses four of these disorders in greater depth.

Delirium

Few patients have no memory of their stay in ICU, many will describe events non-sequentially and some will describe a delirium comprising unreal experiences, which may be persecutory delusions, misidentification of staff or visual and auditory hallucinations. Understandably, these experiences are often accompanied by intense emo-

Table 1. Normal reactions to trauma events including critical illness

Numbness, shock or denial
Fear
Depression or elation
Anger and irritability
Guilt
Impaired sleep
Hopelessness and helplessness
Cognitive and perceptual changes
Avoidance
Intrusive experiences (e.g. flashbacks)
Hyperarousal and hypervigilance

Table 2. Psychological reactions to trauma

Delirium	
Depression	
Grief reactions	
Alcohol/drug misuse or dependence	
Brief hypomania	
Post-traumatic stress disorder	
Anxiety disorders	Panic disorder
	Agoraphobia
	Specific phobias

tions such as fear or anger and a fluctuating level of awareness and consciousness. This has previously been described as ICU syndrome but is in fact an acute confusional state or delirium with evidence that the disturbance is caused by a medical condition, a withdrawal syndrome or the result of medication. Rates of delirium have been found to be from 20% to over 80% of patients in ICU. Reactions can range from severe reactions as described above, to mild delirium with mild disorientation, confusion and perhaps a distorted perception of time (Griffiths and Jones, 2005).

Depression and anxiety disorders

Research has shown prevalence rates of anxiety after discharge from ICU ranging from 12–45% with the figures for depression ranging from 10–30% (Rattray and Hull, 2007). Prevalence rates vary depending on the methodology of the study and the timing of the study after discharge from ICU. The trend with respect to rates of depression and anxiety has also varied with some showing rates that reduce over the first year while others have indicated an increase between years one and two after discharge. Depression has also been shown to be associated with poorer quality of life (Rattray et al, 2005). Jones et al (2003) found a 6-week rehabilitation programme was associated with better depression scores at 8 weeks. Depression or anxiety disorders before ICU admission also relate to higher rates after ICU discharge (Nelson et al, 2000).

Post-traumatic stress disorder

As described above pathological symptoms indicative of PTSD are discriminated from normal symptoms associated with critical illness and admission to ICU (*Table 3*). While individuals need a total of six of the 17 symptoms (one intrusive, three avoidant and numbing, and two hyperarousal symptoms), patients with so-called subsyndromal PTSD or partial PTSD exhibit levels of impairment that rival those of persons with full PTSD (Stein et al, 1997).

Research has so far suggested that 14–27% of intensive care patients may develop significant post-traumatic psychopathology or PTSD (Schelling et al, 1998; Cuthbertson et al, 2004). Of note, post-traumatic psychopathology may endure for a long time after intensive care experience, a finding consistent with epidemiological studies for PTSD in community samples (Rattray et al, 2005).

Summary

In reality there is great overlap among the above disorders with individuals having more than one disorder either during the course of their recovery or co-morbid occurrence of depression and PTSD. Individuals can experience early delirium and as a result of the intensity of these experiences have flashbacks to these psychotic experiences as part of the course of later developing PTSD. This can be compounded by the lack of memory of factual events during the ICU admission and longer-term psychological sequelae may be the result (Jones et al, 2000). As found in other traumatized populations the occurrence of PTSD does not appear to be related to illness (or injury) severity (Cuthbertson et al, 2004; Rattray et al, 2005). Factors associated with the occurrence of post-traumatic psychopathology include longer periods of sedation or neuromuscular blockade (Nelson et al, 2000), mechanical ventilation (Cuthbertson et al, 2004) and a longer stay in intensive care (Nelson et al,

Table 3. Core criteria for the diagnosis of post-traumatic stress disorder

Criterion A: traumatic event
The individual needs to have experienced, witnessed or have been confronted by an event which poses a threat of death or serious injury or physical integrity (to self or others)
The person's response needs to have involved feelings of intense fear, helplessness or horror
Criterion B: re-experiencing (intrusive) phenomena (one or more needed)
Recurrent distressing recollections of the event
Flashbacks (in any sensory modality)
Recurrent distressing dreams
Intense emotional distress associated with exposure to cues
Physiological reactivity on exposure to cues
Criterion C: avoidant and emotional numbing symptoms (three or more needed)
Efforts to avoid associated thoughts, feelings or conversations
Avoidance of activities, places or people who remind of the event
Amnesia for an important part of the event
Loss of interest in significant activities
Detachment or estrangement from others
Emotional numbing
Sense of foreshortened future
Criterion D: hyperarousal symptoms (two or more needed)
Hypervigilance
Irritability/anger
Sleep disturbance
Concentration difficulties
Exaggerated startle response
Criterion E: Symptoms for more than 1 month
Criterion F: Impairment of social and/or occupational functioning

2000; Rattray et al, 2005) although not a longer overall hospital stay (excluding intensive care stay) (Rattray et al, 2005). Of note, a previous history of having visited a GP or mental health professional for stress or psychological distress before the illness was associated with a diagnosis of PTSD (Cuthbertson et al, 2004).

Management

Mental health professionals have an obvious role in the response to individuals with psychiatric disorder or psychological problems but ICU staff must not underestimate their role in the initial and subsequent response to individuals during and after critical illness. ICU staff will have a vital role in assessing the impact of the critical illness upon not just the patient but other family members. This is important as they will be the main carers for the patient on their return home. The effects on relatives has been described elsewhere (Jones et al, 2004) and is often described as the 'ripple effect' of trauma.

Patients also require accurate and understandable information about, for example, the nature of their illness, the nature of their response to ICU admission, normal reactions and post-traumatic reactions. This needs to be given at the right time from someone who can explain things in detail but who can discriminate between giving enough information and overloading someone with still limited resources and a lot of demands upon them. Following the principle of 'sooner rather than later' ICU staff can help normalize reactions where appropriate and triage those who require input from mental health professionals. One important step for some individuals is to visit the ICU with appropriate support; for some with either PTSD or a specific phobia this may need to be avoided or seen as part of a graded exposure to feared situations. Where delirium is the problem, early recognition, accurate diagnosis and investigations are essential but so too are reassurance, good nursing care (e.g. same nurse, bright environment) and provision of medication for the delirium (the type will depend on the severity of the delirium and the causal factors for its occurrence).

A range of psychological and pharmacological treatment approaches exist for the disorders listed above and have been described elsewhere (Hull, 2004; Hull and Cuthbertson, 2005).

KEY POINTS

- Critical illness may cause acute and/or longer-term psychological sequelae.
- There is a range of reactions to critical illness and not all signify illness.
- The majority of individuals appear to be remarkably resilient in terms of psychological recovery after critical illness.
- Critical care experience may affect the relatives of patients.
- Intensive care unit staff are important in the response to psychological difficulties; the response is not restricted to mental health personnel.
- Effective treatments exist for the pathological psychological sequelae to critical illness.

A survey found that despite a lack of funding, up to 30% of intensive care units run a follow-up service (Griffiths et al, 2006). While the services offered vary, at least there is a possibility that psychological problems will be identified and it raises the hope that psychological aftercare will occur. If ongoing studies in this area show benefit for ICU follow-up services then such services should become more widespread.

Conclusions

A significant proportion of survivors of critical illness may develop psychological symptoms and disorders relating either to their ICU stay or the reasons they were admitted to ICU. Some risk factors are now known both from research on ICU populations and on other trauma populations. The identification of these individuals is essential to limit the illness burden they suffer and to improve their quality of life. ICU follow-up clinics are now more commonplace, but to be effective good and sustainable links need to be forged with mental health services. **BJHM**

Conflict of interest: Dr Hull has received honoraria for lectures and support from pharmaceutical companies for conference attendance. He has also received grants for research and the production of a CD-ROM from pharmaceutical companies.

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