Using eye movement therapy to reduce trauma after intensive care

People treated in the intensive care unit (ICU) have usually sustained serious injury or have come close to death, which means they are at risk of post-traumatic stress disorder (PTSD). At University Hospitals Bristol Foundation Trust, a pilot study was conducted with ICU patients suspected of having PTSD, who received eye movement desensitisation and reprocessing (EMDR) therapy.

PTSD and intensive care

Increasing numbers of patients treated in the ICU survive their critical illnesses or injuries due to advances in medical treatments (Warlan and Howland, 2015). This has led to an increased awareness of the psychological sequelae of traumatic events that warrant care in the ICU or happen during a stay in the ICU – particularly PTSD.

Post-traumatic stress disorder is a severe anxiety disorder that occurs when a person is exposed to death, serious injury or sexual violence, or threat thereof. The exposure can be experienced directly, witnessed, or experienced indirectly – for example, through hearing about a relative or friend’s traumatic experience. A diagnosis of PTSD can only be made if the person continues to experience pervasive symptoms for at least one month after the traumatic event. Symptoms of PTSD are listed in Box 1.

Patients with PTSD are more likely to have worse physical and mental health outcomes than those without it (American Psychiatric Association, 2013; Jackson et al, 2011; Sareen et al, 2005). The condition affects 8–27% of ICU patients (Wade et al, 2013) compared with 6-8% of the general population (American Psychiatric Association, 2013; Pietrzak et al, 2011). It is estimated that one in three patients experience PTSD symptoms after an ICU admission, and that every year in the UK, up to 50,000 patients experience symptoms of depression and/or PTSD following a stay in an ICU (Warlan and Howland, 2015).

Risk factors for ICU-related PTSD include delirium (Jones et al, 2007), mechanical ventilation (Wade et al, 2013; Davydow et al, 2008), sedation (Barr et al, 2013; Wade et al, 2013) and agitation (Wade et...
al, 2013; Davydow et al, 2008). The psychological scars can be such that patients’ physical recovery and quality of life are severely impaired. Early assessment and treatment could help many patients who experience anxiety, panic attacks or hallucinations during and after their stay in an ICU.

Origins of EMDR

Eye movement desensitisation and reprocessing therapy was developed by the American clinical psychologist Francine Shapiro in 1987 (Shapiro, 2001). While out walking one day, she noticed that some mildly disturbing thoughts she was having suddenly disappeared. She also noticed that when she brought those thoughts back to her mind, they were not as upsetting as before. This appeared to happen as her eyes were spontaneously moving rapidly up and down diagonally. She then intentionally performed these eye movements and noticed that the disturbing thoughts continued to lose their emotional resonance.

Shapiro practised the nascent technique with friends and colleagues, obtaining similar results. The first controlled study of what was to become EMDR was conducted later that year. The therapy is now recognised by the World Health Organization (2013) and the National Institute for Health and Care Excellence (2005) as an effective treatment for PTSD, along with trauma-focused cognitive behavioural therapy (CBT).

Mechanisms of EMDR

The mechanism behind EMDR is adaptive information processing (AIP), through which new experiences are assimilated into existing memory networks. These networks are the basis of our perceptions, attitudes and behaviours. Our perceptions of current situations are automatically linked with existing adaptive memory networks, which helps us ‘metabolise’ or ‘digest’ new experiences and make sense of them.

Problems arise when an experience is inadequately processed, which is often the case with traumatic experiences because of the associated overwhelming feelings of fear, helplessness and loss of control. This can result in the distressing experience becoming frozen in its own neural network, unable to connect with memory networks holding adaptive information (Shapiro, 2001). The trauma memory is ‘encoded’ in its original distressing form, with all the original perceptions. Reminders of the original trauma trigger the memory and associated thoughts, images, feelings and sensations, which leads to further emotional, cognitive, behavioural and physical symptoms. The traumatic event retains its power because it is not assimilated into existing adaptive memory networks.

EMDR therapy, which uses eye movements or other forms of bilateral brain stimulation such as taps on the person’s hands or knees, brings on a brain state similar to that seen in rapid eye movement (REM) sleep. This could give scientific validity to the adage ‘sleep on it’: a good night’s sleep, during which AIP takes place, helps to process the day’s experiences.

Treatment protocol

In EMDR, changes are made via the processing of memories. This is different from CBT (where the agents of change are behavioural manipulation) and the restructuring of beliefs, and trauma-focused CBT (where changes are achieved through lengthy imaginal exposure and cognitive restructuring). EMDR therapy is much briefer and works by asking the patient to ‘just notice’ what comes up during the processing of trauma memories.

There are eight phases in EMDR therapy: history taking, preparation, assessment, desensitisation, installation of the positive cognition, body scan, closure, and re-evaluation.

Phase 1: history taking

Phase 1 is a standard trauma assessment exploring the patient’s readiness for therapy, checking suitability for EMDR therapy, planning treatment, and taking a full trauma and a longitudinal patient history.

Phase 2: preparation

Phase 2 includes developing a therapeutic alliance with the patient, explaining the theory behind EMDR, demonstrating the eye movements, agreeing on expectations, addressing potential concerns and, most importantly, developing a ‘safe place’ with the patient.

Developing a safe place is an affect regulation exercise whereby the patient is helped to create a safe place in their imagination, which can then be used as a calming influence during therapy. It can also be used as an aid to stop emotional disturbance at the end of a session and/or deal with any distressing material emerging between sessions.

Phase 3: assessment

The aim of the third phase is to assess the trauma memory and its associated beliefs and sensations. When there are several trauma memories, the clinician and patient identify which to work on first; they are normally targeted in order of first, worst and most recent memory. The patient is then asked to:

1. Identify the vivid visual image related to the memory;
2. Identify what negative cognition the patient has about themself at present; this often takes the form of statements such as “I’m not good enough”, “I’m worthless”, “I’m in danger” or “I’m not in control”;
3. Identify a positive cognition – that is, what the patient would like to believe about themself at present; this could be “I did my best”, “I am good enough”, “I’m safe” or “I’m in control”;
4. Rate the validity of this positive cognition on a scale of 1–7 – 1 being totally untrue and 7 being totally true;
5. Focus on the traumatic event along with the negative cognition, and identify the emotions and sensations that arise;
6. Rate these emotions and sensations on a scale of 0–10 – 0 being neutral or no disturbance and 10 being the highest
disturbance;
7. Determine where the patient feels the sensations in their body.

**Phase 4: desensitisation**

In the desensitisation phase, eye movements are used to produce bilateral brain stimulation and help process the memory. Each set of eye movements or taps lasts for 20-30 seconds, after which the patient is asked to notice ‘what comes up now’ – that is, any new thoughts, feelings, emotions, images or physical sensations. This continues for as long as necessary during the session until the patient is no longer distressed by the traumatic memory and until no new material arises.

**Phase 5: installation of the positive cognition**

In phase 5, the therapist checks with the patient whether the positive cognition identified in phase 3 is still appropriate or whether a new one has materialised. The patient rates the validity of their current positive cognition from 1-7. If the rating is <7, the patient performs as many fast eye movement sequences as needed for it to reach 7.

**Phase 6: body scan**

In phase 6, the patient is asked to close their eyes, concentrate on the traumatic event and the positive cognition, and then mentally scan their body. If any sensation is felt, whether positive or negative, further eye movement sequences are performed to either process the negative sensations or strengthen the positive sensations.

**Phase 7: closure**

At the end of a therapy session, phase 7 serves as a debrief and an opportunity to explain to the patient that the processing may continue between now and the next session. If the patient notices any new insights, thoughts, memories or dreams coming up after the session, they need to make a note so these can be worked on in the next session.

**Phase 8: re-evaluation**

Re-evaluation takes place at the start of the next session, when the original trauma memory is reviewed to assess whether there is any new or unresolved material. If so, this is processed using the protocol described above.

**Pilot study**

In early 2016, a senior ICU nurse and the consultant intensivist at the Bristol Royal Infirmary approached the liaison psychiatry team. The ICU team had received £11,000 from a drug company towards improving the pathway of patients with delirium, and wanted to offer a psychological intervention to these patients and more widely to patients presenting with symptoms indicative of PTSD.

Coincidentally, I was due to start an EMDR training course in April 2016. We agreed on the idea of a pilot study of EMDR therapy delivered via a specialist clinic one day a week. The aim was to assess, support and treat patients, but also to provide ICU staff with education and training on how to identify patients at risk of PTSD and care for them.

**Identifying high-risk patients**

The weekly clinic started on 1 June 2016 and ran for 11 months. One of the liaison psychiatrists visited the ICU every week to identify patients at high risk of PTSD, particularly those who had experienced delirium. The psychiatrist offered these patients support, validation and normalising of their symptoms.

To screen patients after the one-month period during which PTSD cannot be formally diagnosed, we sent all patients discharged from ICU, and their GPs, a letter containing an Impact of Event Scale – Revised form (Box 2) and explaining that if they were still experiencing symptoms, they could contact the clinic directly to be offered an assessment.

**Participation and outcomes**

The number of responses was low. We had sent out 817 letters and, based on evidence that PTSD affects between 8% and 27% of ICU patients (Wade et al, 2013), we could have expected to hear from 65-220 patients.

In fact, we only received responses from 29 patients. Of these:
- Eight did not return the IES-R form after making initial contact;
- Two decided that they lived too far from the hospital to undergo therapy;
- Five did not meet the diagnostic criteria for PTSD based on their IES-R scores;
- 14 met the diagnostic criteria for PTSD based on their IES-R scores.

These 14 patients were invited to participate in the pilot and undergo EMDR therapy. Three dropped out before the end and one decided not to proceed after the initial history taking, so only 10 completed therapy.

After a mean of five sessions, the 10 participants showed significant improvements. Their mean IES-R score had decreased from 62 (severe PTSD) to 16 (minimal symptomology) and their mean Beck Depression Inventory II score (Beck et al, 1996) had dropped from 25 (moderate depression) to 9 (normal symptomology).

Box 3 features an account of one participant’s journey.

**Considerations for the future**

In our pilot study of EMDR therapy for ex-ICU patients with significant PTSD, we obtained excellent outcomes, albeit in a small group of participants. One reason for the low participation may have been patients’ fear that returning to the scene of their trauma (the hospital where they had received intensive care) would trigger distressing symptoms.

Future initiatives should look at how participation in such studies could be increased; one possible solution would be to offer therapy on a different site than where the ICU is located, possibly in patients’ homes.
Box 3. A participant’s experience of EMDR

John Walker* is a 59-year-old man who worked for the Home Office as a dog trainer. Previously fit and well, he was a keen cyclist and would often cycle over 100 miles on the weekend. In May 2016, Mr Walker was 85 miles into a 120-mile ride with a friend when he felt some chest pain; he thought it was indigestion, so ignored it and carried on. A few miles later he experienced intense chest pain and fell off his bike, realising that he was having a cardiac arrest. His friend performed cardiopulmonary resuscitation (CPR). At that point, Mr Walker thought he was going to die. He was transferred by air ambulance to the Bristol Heart Institute, where he had a stint fitted.

Mr Walker was discharged home after five days, but two days later he had a second cardiac arrest in his sleep. His wife performed CPR on him and he awoke three days later in intensive care.

After these two events, Mr Walker was constantly worried about death and had feelings of impending doom. He was angry and irritable, and had flashbacks to the first heart attack brought about by a range of triggers such as cycling, seeing or hearing helicopters, the smell of fuel (which evoked the air ambulance), coming back to the Bristol Heart Institute for follow-up, and watching medical programmes on TV. He experienced sleep disturbances and showed signs of hypervigilance to any signs of bodily threat. He required constant reassurance from wife, and also felt guilty that she had had to perform CPR on him.

Mr Walker had five EMDR therapy sessions. Sessions 1 and 2 were dedicated to history taking, preparation and assessment. During the assessment phase, his negative cognition was “I’m still vulnerable and this could happen again”, despite medical evidence to the contrary. His BDI-II score was 20, indicating moderate depression. His IES-R score was 53, indicating significant PTSD symptoms.

Session 3 was used to process the most distressing memory, that of the first cardiac arrest. Mr Walker’s negative cognition was “I’m going to die”. His positive cognition was “I am safe and well”, with a validity of 2 out of 7. His emotional response was fear and anxiety, which he scored 8 out of 10. He felt this most in his chest. The memory was processed in 50 minutes, after which Mr Walker’s emotional distress decreased to 0.5 out of 10 and the validity of his positive cognition increased to 7 out of 7.

Session 4 was used to process Mr Walker’s second trauma memory, that of waking up in intensive care. His negative cognition was “I am vulnerable”. His positive cognition was “I’m strong and I survived this”, with a validity of 1 out of 7. Again, his emotional response was fear and anxiety, this time scored 9.5 out of 10, and again he felt this most in his chest. This second memory was processed in 30 minutes. His distress decreased to 0 out of 10 and the validity of his positive cognition increased to 7 out of 7.

The last session focused on installing a ‘future template’. The EMDR protocol was used to process distressing symptoms or anticipatory anxiety around a future scenario that may trigger flashbacks. This future scenario was the anniversary of the initial cycle ride, when Mr Walker and his friend were planning to cycle the same route. The future template was installed in 30 minutes.

Within five sessions, Mr Walker’s IES-R score decreased from 53 to 9 and his BDI-II score from 20 to 5. After completing EMDR therapy, he returned to his baseline level of functioning and no longer experienced distressing symptoms. According to his wife he was “back to his old self”. This progress was maintained at nine-month follow-up. Mr Walker has since given a talk on his experience to trainee paramedics at the University of the West of England, which he says he would not have been able to do before EMDR therapy.

* The patient’s name has been changed to maintain confidentiality. BDI-II = Beck Depression Inventory II; EMDR = eye movement desensitisation and reprocessing; IES-R = Impact of Event Scale – Revised; PTSD = post-traumatic stress disorder

References