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Psychological treatment of neurotraumatic injuries – crisis intervention in acute care

Theoretical and practical summary

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ABSTRACT

Patients who have suffered a neurotraumatic injury undergo severe physical and psychological trauma, which in many cases also traumatizes their relatives. Severe physical trauma and its long-term consequences have a significant impact on the lives of the people affected and their relatives. Acute health care, as well as the various periods of prolonged hospitalization, are a major physical and psychological challenge for both patients and their relatives. Patients who have suffered severe physical trauma are cared for by a multidisciplinary trauma team, which includes psychological support, too, in line with international professional guidelines. The involvement of psychologists and psychiatrists should be an integral part of acute care in the case of acute stress disorder and early-onset depression. The acute onset of psychological symptoms and the potential for long-term psychological disturbances warrant crisis intervention as close as possible in time and space to the critical event following the traumatic event. In the case of severe somatic trauma, combined therapy (pharmacotherapy and psychotherapy) can be used to relieve these symptoms and timely crisis intervention can reduce psychological symptoms and prevent the development of more serious psychopathologies (post-traumatic stress syndrome, depressive symptoms, anxiety disorders, sleep disorders), which in the long term can significantly impair quality of life and the risk of suicide. Providing regular psychological support helps the patient to adapt to the hospital environment and treatment, improves compliance, supports cooperation with physiotherapists and prepares the patient for rehabilitation. Basic psychotherapeutic care, using a variety of methods related to medical treatments and bodily processes, ranges from crisis intervention through supportive therapy to rehabilitation. It is essential that professional psychological support should be provided for the patient who has suffered a serious physical trauma as well as their relatives.

Keywords: ***Traumatic brain injury; Spinal cord injury; Intensive care units; Stress disorders, post-traumatic; Crisis intervention***

INTRODUCTION

Care of patients with severe neurotraumatic and/or polytraumatic injuries is provided by a multidisciplinary trauma care team, including psychological care. The paradigm shift towards the realization that needs to heal the injured person and reintegrate them into society underlines the importance of psychological interventions. In this paper, the psychological management of neurotraumatologically injured patients will be described, and in order to narrow down what is otherwise a rather broad topic, the focus will be on acute care.

In neurotraumatological injuries, severe trauma affects the patient's body with inevitable consequences. They cause sudden radical changes in the lives of the affected individuals and their relatives.

Suffering a traumatic brain injury (TBI) is one of the most traumatic experiences for patients and their loved ones, often with lifelong consequences. Due to the specificities of the TBI patient (initial disorientation, difficulty cooperating, rejection, communication difficulties, etc.), treatment departments must have a specially trained team and practice, from acute care to rehabilitation (6).

Spinal trauma resulting from accidents (perhaps one of the most difficult injuries to endure on a human level) is followed in nearly 40% of cases by a complex disability – dysfunction of locomotor system, sensory and autonomic organs, deficit symptoms (loss of control of bowel movements and urination) that lasts for a shorter or longer period of time, which fundamentally alters their relationship with their environment, reduces their scope for self-expression and, even with the most careful rehabilitation, does not restore their pre-injury integrity (inability to work, reduced living space, sexual dysfunction, development of psychological disorders). Severe spinal cord injury is a major social, social and economic problem, affecting the patient, relatives and health care institutions (10).

The affected patients go through severe physical and psychological trauma, which in many cases traumatizes their relatives too. In the case of neurotraumatological injury, acute psychological support plays an important role in both the care of the patient and the support of the family.

PSYCHOLOGICAL CARE AT THE DR. MANNINGER JENŐ TRAUMA CENTER

The Dr. Manninger Jenő Trauma Centre is a level III trauma centre that performs hospital activities on a national level. It provides patient care in twelve wards with 299 active beds and 30 rehabilitation beds. Patient admission and traumatology care are provided 24 hours a day, 7 days a week.

Over the last few years, a team of clinical psychologists with a background in psychiatry has gradually been built at the Dr. Manninger Jenő Trauma Centre, in line with international guidelines, to provide neurotrauma care. The psychologists working at the Institute (two adult and one pediatric clinical psychologist) are involved in daily patient care regularly attend morning briefings and morning ward rounds, thus gaining a more comprehensive picture of the anamneses of newly admitted patients, the somatic and psychological status of patients treated in the ward, which makes continuous follow-up and integration into the care team more effective. Acute psychological care for neurotrauma patients requires a customized and multidisciplinary approach. Collaboration between physicians, psychologists, physiotherapists, nurses and other health professionals is essential to restore optimal psychological balance in patients. Patient centered care requires the skilled collaboration of professionals from different health disciplines. Motivated, dynamic collaboration is a key to better outcomes, as shared goals are facilitated by the sharing of tasks and optimal allocation of resources (8). We learn from each other through multidisciplinary teamwork, where we develop a common language to connect with each other, bringing disciplines closer together.

The role of the psychology team is diverse. The activities includes conducting a structured initial clinical interview, taking a psychiatric/psychological medical history tailored to the patient's condition, psychological assessment, psycho-diagnosis, crisis intervention, focused interview, providing

ongoing emotional support, conducting basic neuropsychological assessments, psycho-education for patients and relatives, support for relatives, academic teaching and research, and working through patient-related difficulties for trauma team members. Psychological intervention may be needed by patients, relatives as well as professionals caring for the injured. Professionals working in the Institute are expsosed to increased physical and psychological demands, and encounter horrendous injuries and human tragedies on a daily basis (*Table 1*). Emergency care professionals are at increased risk of burnout.

Our psychologists visit patients at the request of the attending physician or psychiatric specialist, assessing the patient's need for psychiatric support beforehand, and regular attendance at morning rounds allows our psychologists to identify the need for psychiatric support, to start the necessary intervention as soon as possible and to act as gatekeepers to the attending physician, indicating the need for a psychiatric consultation. A significant proportion of patients with severe somatic disorders receive combined psychotherapy, which uses pharmacotherapy and psychological intervention together. The use of psychological methods is usually complementary to, rather than a substitute for, pharmacotherapy.

Table 1 Diverse role of psychology team members in trauma care

PSYCHOLOGICAL TASKS
• *Crisis intervention*
• *Supportive therapy (positive suggestions, cognitive approach)*
• *Delivering bad news*
• *Motivation improvement*
• *Preparation for rehabilitation*
• *Close cooperation with psychiatrists (assessment of the patient mental state, follow-up, gatekeeper role)*
• *Conducting basic neuropsychological assessments (ACE, MMSE)*
• *Supporting relatives*
• *Educating psychology students*
• *Research*

PSYCHOLOGICAL TREATMENT OF NEUROTRAUMA PATIENTS

In neurotrauma care, patients who have suffered a serious physical trauma include those who have been involved in a serious road traffic accident, those who have fallen from a height (due to work or extreme sports), those who have attempted violent suicide, those who have suffered a street assault and those who have suffered serious domestic violence, victims and perpetrators alike. Serious somatic trauma always has psychological consequences (both short and long term); it is fair to say that serious physical trauma can also be regarded as psychological trauma (*Figure 1*). Psychotrauma is a complex emotional experience, accompanied by physiological reactions to a serious life event, with which the person is unable to cope emotionally. In the case of severe somatic trauma, a major trauma occurs to the patient's body that has inevitable consequences. Body image and functionality are permanently changed. The patients as well as their relatives are confronted with the consequences of a process that fundamentally and drastically changes their whole life. Injuries that threaten bodily integrity and life are an experience of loss and a task to be overcome for both parties. The immediate reaction to psychological trauma can be an emotional crisis, where the basic sense of security is lost and everything becomes unpredictable and uncontrollable. Without proper treatment,

psychological trauma can cause severe disturbances in the emotional balance of the person and trigger the functioning of psychological defence mechanisms, even over a long period of time (9).

SEVERE PHYSICAL TRAUMA – PSYCHOLOGICAL TRAUMA	
• *Threat to physical integrity*	
• *Confronting violence and death*	
• *Intense fear /anxiety*	
• *Dread*	
• *Vulnerability*	
• *Loss of control*	
• *Fear of annihilation*	
• *Inevitable consequences*	
• *Permanent change of body image and body functionality*	

Figure 1
Serious somatic trauma always has psychological consequences

The individual reacts to traumatic events with severe physical and psychological reactions, which have different phases. An anxiety-ridden state of readiness develops and is most typically dominated by symptoms of acute stress disorder, which appear almost immediately after the critical event (*Table 2*). The degree of this varies from individual to individual, and in more severe cases may lead to suicidal ideation and/or psychotic decompenzation (4).

Table 2 Symptoms of acute stress disorder based on the ICD–10 diagnosis code system
SYMPTOMS OF ACUTE STRESS DISORDER
• *Hyperarousal*
• *Hypervigilance*
• *More intense emotional response*
• *Irritability*
• *Sleep disorder*
• *Motor restlessness*
• *Decrease in conscious orientation*
• *Increase in psychological dependence*
• *Occurrence of regressive behavior*
• *Increased search for safety*
• *Desire for attention*

The level of acute stress disorder is determined by individual vulnerability, which is significantly dependent on the expected outcome, psychotrauma in the medical history, underlying psychiatric illness, coping mechanisms, quick and flexible adaptation skills, and adequate compliance. The symptoms of acute stress disorder resolve spontaneously in 2-3 days in a proportion of patients and may resolve during crisis intervention (25). The long-term effects of traumatic distress are post-traumatic stress reactions, which can range from symptoms of anxiety and depression to post-traumatic stress disorder (PTSD). If the individual remains helpless and vulnerable in the face of severe trauma, the emergency response does not resolve. In the long term, this type of response causes serious disturbances in psychological functioning, becomes a barrier to adjustment and significantly impairs quality of life. Trauma suffered in adulthood destroys the already established personality structure (13).

Patients who have suffered neurotraumatic injury are at increased risk of developing PTSD due to the experience of uncontrolled physical and psychological pain, as well as physical and psychological exhaustion. Patients fear pain, loss of function, and death. The experience of loss, uncertainty and loss of control caused by various conditions requiring rehabilitation (head injury, musculoskeletal injuries, etc.) leads to a negative mood, and real physical helplessness often turns into hopelessness, which inevitably leads to the development of symptoms of depression, anxiety or post-traumatic stress syndrome (24). Receiving the diagnosis, the bad news also acts as psychotrauma, triggering an intense emotional response from the patient and their relatives. Communication of bad news also warrants the involvement of a psychologist.

For a person who has suffered a serious physical trauma, the injury itself is „only" the beginning, and patients suffer psychologically cumulative trauma during hospitalization (*Table 3*). Many traumatic experiences may occur, such as the mechanism of the injury, the experience of diagnosis (especially if the disease and the consequences of the physical trauma are associated with highly threatening mental representations), painful invasive interventions, and the experience of treatment, possible consequent disability and/or other loss of function, amputation of a limb for vital indications (mainly because of damage to body image and partial or total loss of function), and the experience of loss of control. Worry, loss and guilt for family members can also seriously cloud the picture (e.g., it is not uncommon for several family members to be seriously injured or killed at the same time in a serious car accident, with both perpetrator and victim requiring care).

Table 3 Cumulative psychological trauma during hospitalization

TRAUMA SUFFERED DURING TREATMENT
• *Facing the diagnosis*
• *ICU treatment*
• *Invasive interventions*
• *Limb amputation*
• *Prolonged immobility*
• *Cognitive damage*
• *Severe somatic complications*
CUMULATIVE TRAUMATIC EXPERIENCES

Severe somatic trauma can completely override a person's previous roles for a long period of time (weeks, months, years or even permanently), and adjustment can be particularly stressful, as it can affect different aspects of self-image at the same time. The traumatized person may experience a serious loss of roles in key areas of their life (physical, relational, family, work, economic, etc.), which may also lead to a psychological crisis (19).

Following neurotraumatic injury, psychological interventions vary at different stages of the recovery process. The period immediately following the trauma is characterized by medical care and general care to ensure biological existence. Psychological treatment of the injured person can only begin later, after a certain period of consolidation. However, this is a crucial issue, since severe trauma and its consequences, which are not yet known at the time, can lead to radical personality changes and severe psychological symptoms. It has been scientifically proven that irreversible damage, whether morphological or functional, can break down the integration of the individual's personality as was known before. It is clinical experience that the focus of the traumatized person's attention after the injury is exclusively on the damaged body part or, in the event of its loss, on the sensation of its replacement (7).

For patients with spinal cord transection regulating emotional ups and downs, rationally acknowledging their somatic state, and developing new value and goal systems amount to a serious psychological crisis, sometimes an insurmountable task. Thus, the psychologist must begin, as soon as the patient is consciously available, to treat? The patient psychologically, taking into account the premorbid personality structure and its degree of differentiation, simultaneously with making the patient gradually and partially aware of the consequences of the trauma. The aim of nuanced individual psychotherapies is to bring the injured person out of the psychological deadlock, through crisis resolution, symptom reduction and then preparation for rehabilitation. It is therefore necessary to develop a motivation for rehabilitation by overcoming, the temporary lack of motivation, which will ensure a high level of spontaneous activity of the during the treatment procedures, which often take months or even years, and at the same time allow harmonious cooperation with professionals to achieve the jointly set rehabilitation goal.

Psychotherapies during crisis intervention and trauma processing must avoid any excessive, direct interference, because this may cause oppositional behavior in the injured person; moreover, an aggressive intervention may even result in iatrogenic psychological damage, so only individualized, responsible psychological work can bring the expected effective result. In the recovery process, often very modest results are not spectacular in their manifestation; often long weeks or months of struggle are necessary for the recovery of neurologically injured patients (14). In this long recovery process, psychological support is needed from the beginning, with increased attention to the patient's psychological needs and inner struggles, to mobilize their inner resources, to strengthen possible ways of psychological coping, which, unless evoked by the patient, cannot successfully cooperate with somatic treatment. As the patient's emotional state improves, we can expect better cooperation, which will affect both acute treatment and preparation for rehabilitation. Coping is a conscious process and aims to confront external threats and protect the psychological balance of the individual (*Table 4*). The role of the psychologist is to support adaptive coping mechanisms (17).

Table 4 Psychological imbalance is a consequence of the experienced trauma

PSYCHOLOGICAL CONSEQUENCES OF EXPERIENCED TRAUMA
• *Crisis response*
• *Fear*
• *Vulnerability*
• *Loss of control*
• *Re-experiencing trauma*
• *Fear of the future*
• *Anxiety symptoms (anxiety, panic, sleep disorder)*
PSYCHOLOGICAL BALANCE IS DISRUPTED

PSYCHOLOGICAL TREATMENT AT THE INTENSIVE CARE UNIT

More than 500 patients are treated in the intensive care unit of the Dr. Jenő Manninger Trauma Centre every year. Average treatment time is 7 or 8 days, which also indicates that many patients with serious conditions are treated in the unit. A significant proportion of these patients are craniocerebral trauma patients with severe disturbance of consciousness or coma, or patients with multiple traumas (multi- and polytrauma). Among these patients, those with severe head injuries, extensive chest injuries or cervical spinal cord injuries sometimes require mechanical ventilation for weeks at a time. A minority of patients are admitted for post-operative stabilization and observation, and for acute internal illness resulting in a serious condition (2). Severe neurotrauma patients are first admitted to the intensive care unit. Patients with severe spinal cord injury can only be treated safely in the intensive care unit for the first 7-14 days, as cardiovascular and pulmonary complications are most likely to develop during this period (20).

Intensive therapeutic care requires coordinated teamwork among professionals, with psychological care as part of the treatment team. ICU staff is very open to collaboration with the psychologist. They regularly ask for assessment of the patient's psychological state, suicide risk assessment, psychological treatment of the patient, or support of relatives. The longer-term psychological consequences of ICU treatment (PTSD, anxiety disorders, depressive symptomatology and sleep disturbance) are well known. These place a strain on patients with already severe somatic conditions, who are confronted with an unfamiliar and often unpredictable material environment and painful interventions that are far beyond their usual frame of reference (28). In this intense emotional state, patients are forced to confront their deepest fears, the threat to their existence, during which they experience the power of the disease, their own limitations and their changed relationship to their former self, challenging fundamental beliefs about themselves (e.g, this can't be happening to me, I'm healthy, I'm strong, I'm athletic, I can overcome any difficulty, etc.), and thus also experiences a loss of role, exacerbated by the experience of vulnerability and loss of control.

In addition to providing psychosocial support in the ICU, the aim is to avoid learned helplessness and possible psychological traumatization due to loss of control, which can cause long-term psychological disturbances, significantly impairing quality of life, impeding the rehabilitation process and increasing the risk of suicidal behavior (11). For patients, the distress caused by a severe somatic injury is compounded by the psychological distress caused by intensive care unit treatment and, not infrequently, by multiple experiences of loss, generating a cumulative crisis situation. During this period, the patient experiences a loss of normal coping mechanisms, disorganization, emotional maladjustment, fear, and anxiety. Negative emotional states and regressive functioning may interfere with effective coping with the disease and its side effects, and may impair cooperation with medical treatments (26).

The stabilization of vital functions in critically ill patients, the need for ventilators, patient monitors and special medication, and the often unpredictable time and outcome of the recovery process place enormous physical and emotional strain on both the patient and their relatives (15). In these cases, the involvement of an interdisciplinary care team is particularly necessary. The importance of interdisciplinary therapeutic work in somatic medicine is being increasingly recognized in Hungary. In the intensive care unit, our psychology team is responsible for individual case management and family consultation. Clinical psychological care in the intensive care unit places particular emphasis on stabilizing the psychological state of the patients treated there, thus supporting somatic recovery. Intensive care units are usually staffed by a well-connected team of professionals and can thus provide a safer psychological framework for themselves and for patients in serious or critical condition, who often experience very high levels of anxiety and, in some cases, fear of death. The tight-knit team providing a safe and secure framework and the patient interact with each other (26).

Owing to the development of acute stress disorder and early depression, the involvement of a psychologist or psychiatrist should be an integral part of intensive care. The acute onset of psychological symptoms and the potential for long-term psychological disturbances justify crisis intervention as close as possible in time and space to the critical event following the traumatic experience. Pain, sometimes even to the point of delirium, anxiety, tension, frequent sleep apnoe and sleep disturbance can be controlled by psychotherapy, empathy, appropriate medication and equipment (20).

Anxiety is a perfectly natural part of a disease, but when it is excessive, it can impair the somatic state, future prospects and the healing process as a whole. This is particularly true for patients who have undergone surgery. In the case of severe trauma, the most common symptoms are emotional maladjustment and increased anxiety levels, with symptoms typical of panic disorder. Overall, the personal approach initiates a positive process between patient and therapist, resulting in a facilitating relationship space. The key in this situation is relational focus, since one of the dominant elements of our patients' coping is a lack of a sense of security, and an integral part of healing is precisely the creation of a sense of security, which can be provided by a predictable relationship that offers a secure framework. In many cases, the gradual withdrawal over time, the constant provision of information, or the achievement of psychological equilibrium can provide an internal sense of security, or the establishment of control can be of paramount importance. One of the challenges of psychological treatment in neurotrauma care is that a sense of danger and constant anxiety are inherent in the acute phase of recovery. This is why, as psychologists working in the somatic ward, we must strive for the well-being of the body and the harmony of body and mind (18). A patient is always in a vulnerable, dependent situation, and the professionals who care for them should not lose sight of this.

In the ICU, psychological interventions have a limited time frame, it is essential to be effective in a short time and carefully select the interventions according to the somatic condition and psychological resilience of the patient (33). In the case of a severe somatic and psychological condition, we can talk of setting partial goals, and achieving partial outcomes, aimed at relieving the patient's anxiety and suffering in the given situation. Short, time-limited therapy allows the use of targeted psychotherapeutic interventions. The primary focus of crisis intervention sessions is to support the patient's sense of safety, stabilize their psychological state, and alleviate their cognitive distortions and anxiety symptoms; using cognitive behavioral therapy elements with a "here and now" focus (*Table 5*). In a hospital setting, a clock on the wall, the patient's own phone, photographs of relatives can help to bring the person back to the present. These are objects that, when the patient looks at them, they can feel themselves in the „here and now" again, distanced in time and space from the traumatic event. Working on the patient's mental map, creating an internal safe, reassuring space is one effective and safe method of anxiety relief and self-soothing, along with proper breath control and the use of carefully chosen brief relaxation techniques. Creating a space for ventilation has a tension-reducing, anxiety-relieving effect (25).

Table 5 Scope of crisis intervention

CRISIS INTERVENTION
• *Psychological "hemostasis"- fast assistance*
• *Stabilization of psychological state*
• *Reduction of psychopathological symptoms (relieving narrowed state of mind and anxiety)*
• *Developing coping strategies*
• *Reorientation into the present (focus on "here and now")*
• *Promoting adaptation*
• *Step-by-step focusing on the future (e.g. preparation for rehabilitation)*

Patients treated in intensive care have limited mental resilience, and it is not possible to maintain their attention for long periods of time, so it is worth planning therapy with rest periods and multiple sessions per day. The daily schedule should take into account the patient's workload (7). Before starting the intervention, it is necessary to consult the patient's doctor, assess their psychological resilience and openness to psychological support. The patient may initially be reluctant, mainly due to the situation, their unacceptable and incomprehensible somatic condition, the multiple losses suffered, and traumatic experience.

During ICU treatment, the fear of uncertain outcomes and stressful states narrow the perspective, there is a narrowing of thinking, whereby multidimensional thinking is lost and everything seems final, leading to the development of a sense of hopelessness associated with recovery (1), which may inhibit the patient's coping strategies, learned helplessness may develop - all these factors are associated with an increased risk of suicidality. Experiencing the diagnosis as a psychotrauma, long-term injuries, loss of a close relative (e.g., in the same accident) also predispose patients to an increased risk of suicidality.

During ICU treatment, patients' psychological dependency increases and their need to connect become heightened (28). This dynamic is most evident in the patient's attempts to keep a member of the treatment staff near with questions or requests or to produce symptoms in order to be listened to and cared for.

In a psychological crisis, the individual is characterized by a high degree of regression, a defense mechanism through which the patient tries to avoid anxiety, and displace the threatening consciousness that overwhelms them (21). A narrowing of the personality is observed at all levels, including attention, thinking, emotions and behavior. The individual returns to an earlier phase of self-development, but with a deepening of vulnerability, a reduction in compliance and a greater risk of learned helplessness, which is considered the least adaptive and most dangerous response to loss of control in terms of recovery outcome. In patients with poor compliance, authority conflict and aggressive, hostile behavior may also be forms of anxiety avoidance, in an attempt to avoid loss of control, feelings of helplessness and vulnerability (16).

Patients in ICUs are characterized by a sense of isolation (27). All (psycho)therapy is based on rapport building, which is key for ICU patients in order to empathize with the patient's experience. Psychological support for neurotraumatologically injured patients requires a great deal of empathy, increased attention and patience. The patient may have a speech impediment (e.g., tracheostomy, aphasia, dysarthria), which prevents them from saying what they want to say, which can be frustrating, so it is important to find a common channel of communication, for example, a whiteboard or sign system can be of significant help. ICU patients are also characterized by being overwhelmed by stimuli, flowing which also increases psychological stress associated with treatment and contributes to psychological exhaustion (26) (*Table S1*).

Table S1 Ventilated patients' experiences after leaving ICU. Ref.: Varga, Diószeghy (2004) (29)

Patients' experiences in Intensive Care Unit (ICU) treatment after leaving ICU, which later predispose them to PTSD
Loneliness (74%)
Inability to speak (65%)
Anxiety (59%)
Pain (56%)
Noise (51%)
Lack of control (46%)
Tension (46%)
Fear (44%)
Thirst (44%)
Fear (32%)
Lack of sleep (35%)
Nightmares (17%)

METHODS FOR EARLY INTERVENTION

Acute care primarily allows for short, time-limited, low-intensity psychological interventions, which are flexible to both the person and the situation, and aim to achieve a high therapeutic effect in a short time. Low-intensity interventions are well adapted to the specificities of acute severe somatic trauma (e.g. unpredictability, fluctuating symptom picture, sudden changes of state, etc.) and can therefore be effectively applied in conjunction with medical therapies (e.g. crisis intervention, use of positive suggestions, psychoeducation, carefully chosen brief relaxation, imagination technique, psychologically preparing patients for surgery, etc.). The acute onset of psychological symptoms and the prevention of potentially long-term psychological disturbances justify to providing the patients crisis intervention as close as possible to the critical event in time and space following the traumatic event (25). The therapeutic space is created at the bedside, where verbal and non-verbal communications are of paramount importance. It is important that the patient feels that the professional working with them is with them, at their side in all circumstances.

During hospital treatment, in vain do we professionals „know what to expect, what would be best", if the patient is not ready. Even with therapeutic help, psychological coping shows individual patterns which cannot be rushed. We have to accept that although we may want the best for our patient, recovery of the soul can be a slower process and not necessarily in line with recovery of the body. We need to pay particular attention to how the symptoms and residual symptoms, affect the self-esteem and mood of those affected. Their future should not be determined by loss, but by realistic goals. Patients can cope with what they are personally motivated to do. Their ability to cope can be impaired if they are confronted with activities that they are not motivated to do (24).

In the choice of therapeutic interventions, the consideration of evidence, although important, is only one component of professional psychological decision-making. The patient's individual characteristics (psychosocial status, psychopathology, emotional and intellectual intelligence, premorbid psychopathology, other comorbidities, age and sex, life expectancy, educational level, socioeconomic status, mobility limitations, nutritional and dietary characteristics, individual needs, preferences, addictions, specific characteristics and mechanisms of psychological functioning,

social support, etc.) in the assessment of the patient's individual needs and preferences.) are factors that should be taken into account and integrated in an expert manner in all cases when applying treatment evidence and therapeutic strategies set out in the guidelines. Studying a single arbitrarily selected element of psychosocial factors is uninformative, since in neurotraumatology it is not merely individual traits that determine mental/psychopathological and behavioral outcomes, but rather the complex and intricate totality of emotional life, premorbid personality, unconscious motivations/anxieties and many other factors that dynamize the psychological unit. For this reason, the application of the principles of evidence-based practice, the use of therapeutic assistance, crisis intervention and any other psychosocial intervention, and the scientific research in this field in neurotraumatology work represent a process and a challenge requiring specialized expertise and a careful integrative approach. The individual characteristics of the patient must always be taken into account (9).

Basic psychotherapy interventions

Crisis intervention

In crisis intervention, we aim to support and empower the client in crisis, to protect them from negative outcomes and to restore their functionality and adaptive capacities. It is a kind of „fire-fighting", „psychological first aid", a professional intervention that involves 1 or 2 supportive meetings in a narrow time window. Relieving current psychopathological symptoms by using the tools of psychology and, if necessary, complementing them with pharmacotherapy, crisis resolution, anxiety relief, AND coping skills. Develop active coping, and adaptive control strategies. In addition to resolving the current situation, we also address the future, preparing the person for the near future (e.g. the rehabilitation process in acute care) (5). The effectiveness of rehabilitation greatly depends on the psychological adjustment of the individual. The most important elements of bedside crisis therapy are stabilization of the patient's psychological state, promotion of psychological safety, reduction of psychopathological symptoms (typically anxiety disorders); the therapist teaches techniques that ultimately enable the patient to control and alleviate their symptoms (25) (*Figure 2*).

CRISIS THERAPY	
• *Short, time-limited therapy*	
• *Focused talk*	
• *Ensuring continuous emotional support*	
• *Activating possible psychological coping modes*	
• *Taking an active role in the healing process*	
• *Motivation*	
• *The patient can cope with what they feel personally motivated by*	
• *Providing information, emotional psychoeducation, counseling => indirect help for the patient's cooperation*	
• *Psychological coping shows individual patterns*	

Figure 2
Elements of crisis therapy

Psycho-education

Psycho-education is a professional information transfer method aimed at increasing patients' knowledge of their illness and how to cope with it, and at helping them deal emotionally with the problems associated with the illness. Clinical impact studies have shown that patient who feel competent in their own recovery process after surgery experience less pain, become self-sufficient sooner and have fewer days of hospitalization (23). Psycho-education of relatives is important, as is the continuous transfer of information to patients, which increases their sense of control and thus their sense of safety.

Psychological support based on positive suggestions

It is important that patients in intensive care receive appropriate psychological support, in their case the anxiety-relieving therapeutic techniques that we know are often not applicable at all (e.g. relaxation) or can only be applied with great care and caution (e.g. breathing control), bearing in mind the somatic and psychological safety of the patient. In the intensive care unit, we use crisis intervention mainly based on the use of positive suggestion techniques, complemented by cognitive techniques, with a view to increasing the patient's sense of safety, developing coping mechanisms, strengthening their internal resources and reserves, reducing the psychological stress associated with the treatment and preserving the patient's dignity. Psychological treatment based on positive suggestions can be safely applied to patients with severe somatic conditions (26).

Any message that has an involuntary effect on the recipient counts as a suggestion. A suggestive message can be a sign, a picture, an arrangement of objects, a word, a tone of voice, in fact anything. We may not always be aware of it, but we are constantly being hit by suggestive messages and we are also conveying suggestive messages in our communication (29).

Critically ill patients are in an altered state of consciousness, susceptible to suggestions. Altered states of consciousness (induced or spontaneous trance states), fear, vulnerability, heightened emotional demands, crisis states, lack of familiar safe frames (unusual, novel situations) increase suggestibility. In critically ill patients, several of these factors are present simultaneously (3, 30).

Negative suggestions can hinder healing, even with the right treatment. Owing to their negative emotional state, a person in an altered state of consciousness will usually interpret neutral or ambiguous comments negatively, or may perceive communication that is not intended for them as directed towards them. During treatment, ambiguous messages and all communication not related to the patient should be avoided, as the person in a state of uncertainty may have a narrowed consciousness, may refer to themselves and misinterpret everything (29).

Positive suggestions can trigger a positive physiological response, supporting the psychological and emotional side of healing. The use of positive suggestions in fear-induced negative trance states, in critical life situations, is the most effective method because it has an indirect effect on the individual: it can trigger activity and, in the case of an agitated patient, it can easily create an atmosphere in which the patient can find calm. The method is to use a text with positive content that is received as an indirect „message", which then stimulates the recipient to take action and helps to trigger self-healing processes. Positive suggestions can also be used for any action that allows the patient to experience freedom, creativity and innovation. Anything that is linked to self-determination can greatly increase the patient's self-confidence, taking him out of the daily routine of an anxiety-inducing hospital life (27).

For intubated ventilated patients, psychological management based on positive suggestions and the playback of audio materials delivered by relatives on the phone or MP3 provide psychological support for critically ill patients (22).

Supporting relatives

Serious physical injuries are a crisis not only for the patient, but also for their relatives. Care for neurotrauma patients cannot be provided

without the involvement of all members of the therapy team. All members of the staff treating the patient (medical and non-medical team members) play a crucial role in the therapeutic process, from acute care to the end of rehabilitation, of which the family is an integral part. Failure to engage family members from the outset may lead to secondary psychological damage in the injured person, which may hinder the healing process (24).

In a strong emotional response to bad news, the initial denial is replaced by anger and sadness. The resolution of the crisis is marked by a gradual acceptance of the immutable and the accompanying restructuring and adaptation to the new task. The end of the crisis is confrontation with an accurate diagnosis, acceptance and adaptation to the new condition, and giving new meaning to life. It is necessary to make sense of a future that often seems hopeless. There appears a fear of the future and a mourning of the ‚desired future', often a long and difficult process. It is important to support families and help them through crisis situations, as failure to find solutions to a situation can mean the disintegration of the family, which in turn means the loss of the greatest help in the long healing process, the family itself (24).

In the first period, the greatest need is to help the patient to cope, to relieve helplessness, to mobilize the tools of the struggle, to increase motivation and to help the family member how to support the patient in the most stable and effective way. Serious somatic trauma is a crisis not only for the individual but for the whole family. The immediate environment not only supports the patient emotionally and physically, but also has to face the reallocation of efforts, the reordering of priorities and the possibility of imminent loss. The illness changes family roles, control is rearranged, needs and tasks change, and the family is disrupted from its normal functioning. The seriously injured patient does not recover as quickly as the extra energy of the environment can be exhausted. Relatives, while empathizing and cooperating with the patient, also have to carry on with their own lives (12). It is important that relatives have access to professional emotional support during this sensitive period. Ongoing information and education about the patient's condition and setting small daily goals can help to alleviate anxiety. Our team of psychologists also provides regular professional psychological support to relatives, in addition to psychological counseling for the patients with serious somatic injury (*Table 6*).

Table 6 The elements of a crisis of relatives

CRISIS OF RELATIVES
• *Increased emotional load*
• *Future that looks hopeless*
• *Fear of the future*
• *Mourning of „desired future"*
• *Danger of the family falling apart*
• *Risk of developing secondary psychiatric impairment of the patient*

SUMMARY

In psychological literature, there is a serious gap in acute care and crisis intervention specifically for neurotraumatologically injured and polytraumatized patients. Most of the available literature focuses on the principles of general psychological crisis intervention and the process of rehabilitation. Neurotraumatic injuries can bring about sudden radical changes in the lives of the affected people and their relatives, representing a severe trauma to the patient's body with inevitable consequences that affect the whole family structure. It is essential that both the patient and the relatives receive professional psychological support during the acute care process. Neurotrauma patients and their relatives are assisted by our specialized psychologists, psychiatrists and support professionals in the acute crisis, in the prevention of the psychological consequences of serious injuries and in the management of emotional difficulties already present.

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