Summary of Results and Procedures of NET Study of Cancer-related Distress

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The ONE Research Foundation, in partnership with Thomas Jefferson University, explored the impact of Neuro Emotional Technique (NET) in patients presenting with a history of traumatic stress from a cancer-related experience. The psychophysiologic "memory" of these events is what is referred to in NET terminology as the Neuro Emotional Complex (NEC). Below is a modified abstract of the study incorporating NET terminology, followed by a deeper explanation of procedures used, particularly the use of scripts. The primary purpose of this paper is not to dwell on the methodology or groundbreaking results achieved in the joint research study. Rather it is to share with NET practitioners the protocol utilized to obtain these significant results, including the development of scripts to help draw out the underlying Neuro Emotional Complexes (NECs).

Abstract

Introduction: It is well documented that up to one third of cancer survivors experience symptoms of distressing recollections of cancer-related events, often years after their occurrence, which also is in keeping with what we know about the NEC. The most common distressing events are receiving the diagnosis of cancer or some aspect of the treatment process.

Methods: Everyone in the study had a prior cancer diagnosis and expressed a distressing cancer-related memory that was objectively, physiologically reactive (i.e., increased heart rate and/or increased galvanic skin response in relation to recalling the event) and subjectively distressing (at least a '7' on a 0-10 distress scale) in response to recalling the event. The NEC/ distressing recollection occurred at least six months prior to participation in the study. Participants were randomized to either the NET intervention (3-5 sessions) or a waitlist control condition. To evaluate the effectiveness of NET, psychological assessments (the Impact of Events Scale (IES), State Trait Anxiety Index (STAI), Brief Symptom Inventory (BSI)-18, and Posttraumatic Cognitions Inventory (PTCI)), and importantly, functional magnetic resonance imaging (fMRI) with arterial spin labeling (ASL) while listening to both a neutral stimulus and a description of the specific traumatic event, were administered, pre and post NET treatment. A script emphasizing the patient's own words (POW) was used as a cue to the distressing event (NEC). This same script was also used as a guide during the NET treatment sessions; in fact, it was the entry step of the NET procedure. Hence, using mind entry, each session began with a reading of the script and then the steps of NET were initiated on whatever aspect of the script that was most distressing (similar to the dream protocol in NET Advanced).

Results: The initial ASL fMRI scans in both groups showed significant increases in the bilateral parahippocampus, bilateral inferior frontal gyrus, brainstem, right superior temporal gyrus, and left amygdala, during the traumatic stimulus compared to the neutral one. Prior to treatment both the control group and the NET group listened to a reading of their script. Both groups experienced the same level of high distress in multiple areas of the brain associated with stress. However, they showed normal activity when listening to the neutral script. The activated structures correspond with distress, emotional activation, and emotional memories. After NET these structures were significantly less active when those receiving treatment listened to their traumatic script, whereas the control group was relatively unchanged. Time alone was not enough to account for this change. NET proved to be the decisive variable accounting for significantly changing the way the brain responded to stressful memories.

It was also important to study how participants actually felt. Do they describe feeling less distressed after treatment? The study found that participants experienced significant changes in their self-

reported distress. Participants receiving the NET intervention had significant reductions compared to the control group in distress, as measured by the BSI-18 global severity index ($p<0.01$), which measures overall psychological distress; anxiety, as measured by the STAI ($p<0.05$); and traumatic stress, as measured by the IES ($p<0.01$) and PTCI ($p<0.05$). More specifically, those in the NET intervention group in comparison to the waitlist control group experienced significant improvements in BSI scores for somatization, depression, anxiety, and global severity, as well as significant improvements in state/trait anxiety scores. In addition, there were significant improvements in the IES and PTCI scores in the subjects undergoing the NET intervention. These findings suggest trauma-specific improvements. There were no significant intragroup changes in the waitlist group. When comparing the two groups, the participants undergoing the NET intervention had significant improvements compared to the waitlist control group.

Discussion: The results from the current study suggest that a number of brain regions involved in the response to the presentation of a traumatic stimulus are altered by the NET intervention. Specifically, areas that were initially increased during the trauma-induction state and subsequently showed no response or reduced reactivity after the NET intervention were the right middle temporal gyrus, right inferior temporal gyrus, right medial frontal gyrus, right and left anterior cingulate, right and left parahippocampus, and left putamen. This has important implications for understanding the neurophysiological effects of the NET intervention. The areas observed to have reduced reactivity to the traumatic stimulus have already been implicated in studies of the brain's response to exposure to traumatic stimuli or memories. For example, several studies have indicated that the parahippocampal gyrus is activated in patients with traumatic memories. The parahippocampal gyrus is known to play an important role in the storage and retrieval of emotional memories.

Conclusion: These results are profound and strongly support the use and continued investigation of NET.

The Power of Scripts

Creating the scripts was a collaborative effort with the participants. The study's participants talked about the most distressing aspects of their experience; their "story" became the script that guided treatment. The scripts presented here come from the joint research study. Some details were modified to protect participant confidentiality.

It's late in September 2012 and you are in the doctor's office. On either side of you sit your sister and teenage daughter. The doctor enters; you sense his concern as he begins reading the results of your recent biopsy. Most of the words fly past you, except the ones that land with grim finality: "malignancy," "widespread over the abdomen," "stage 3C ovarian cancer." Envision yourself listening to the doctor. You see him reading his report, his words reverberating again and again; they cut deeply.

We know when trauma occurs, a snapshot of the occurrence often remains lodged in memory. These snapshots, capture the original thoughts, feelings, images, smells, and sounds associated with the scene. Snapshots might also include elements that never happened "in reality," though they "feel real" to the patient. For example, in the following script, the participant was never unable to help his wife, neither was he ever in a room unable to reach his family. The scene was so vivid in his mind that his body was reacting as if it were true.

Here is a second script, from a participant's recounting of an imaginary situation: *With your eyes closed picture yourself in a room that is separate from another room that has your family in it. You see your loved ones but you can't get to them….See them clearly in your mind's eye….In that room,*

wanting to be there for them but not able to….See their stress and see yourself worried about their stress. And the thoughts that come up: thoughts of not seeing them grow up; thoughts of not knowing your grandchildren; thoughts of your wife handling everything without your help; worried about the stress of this for her; not enough time to get things in shape.

Snapshots or scripts were the foundation for treatment in this study. They enabled the practitioner and patient to forge a common appraisal of the situation and to establish a mutual contract that says, in effect, "We are agreeing to treat this specific issue." In so doing, the practitioner becomes crystal clear in his/her purpose for treatment — and so does the patient. The more detail that is included in the snapshot, the easier it is for the patient to access the underlying emotion — and the more effective the practitioner can be in helping the patient identify the NEC.

Building a Script

There are several questions that can be helpful in eliciting a meaningful script. You can start with broad questions and become more focused as necessary. For example: What bothers you most about this problem or experience? If there was one thing I could make better for you, what would it be? What was the worst part or moment of having been sick? What is the troubling memory or thought that keeps you up at night? Describe in as much detail as possible what upsets you about having gone through that. Describe the scene as if I was watching a movie of you getting the news. Where are you? Who is with you? Tell me about what you hear, see, smell and feel.

I found that an important part of the process for snapshot or script development was to precisely gauge the patient's level of distress. Here, the Subjective Units of Distress Scale (SUD) was crucial. The scale ranges from 0 to 10, where 0 registers no distress and 10 is the highest level. Participants in the research study were asked to rate distress levels evoked by having them hear their memory or script read to them in the present moment. This is different from the distress felt "back then." In our study, I focused on treating distress at levels of seven or higher. At higher levels, changes in distress were more noticeable. Going from a 4 to a 2 level of distress does not feel as dramatic as going from, say, 7 to a 5.

I checked in on distress levels frequently, and I looked for signs that their physiology was activated. For example: flushed face; damp eyes; changes in respiration; and shifting in their seat. I would draw their attention or cue them in to those changes in order to help intensify the reaction. For example, I might point out, "Notice how your breathing has just changed." "Do you notice that your face is flushing, or how you keep shifting in your chair, as we talk about this?" "Do you feel those hot tears pricking your eyes?" And even more vaguely: "Have you noticed how, once we started talking about this, you have become less comfortable in the chair?"

In the process of zeroing-in on and resolving an NEC, I consistently used 'MODE Feeling', until the end of the treatment, when I would sometimes use Surround the Dragon. As the NET Basic Manual states, MODE Feeling is often considered to be one of the most powerful forms of entry when doing NET. My experience in this study and in over a decade of using NET in a clinical setting confirms this observation.

I have found that MODE Feeling consistently produces deep healing for emotional trauma. One caveat: If a patient is too emotionally reactive and cannot manage the surge in emotion from 'MODE Feeling', then a Personal Declarative (PD) may help them feel less overwhelmed.

The Treatment Process

Study participants received between 3 to 5 treatments, with each session lasting approximately 45 minutes. There was no contact between sessions, unless a scheduling change needed to be made. Some participants completed all treatment within 2 days; others completed treatment over 2 months.

I often began the treatment with the first line of the script and moved, line by line, through the script, muscle testing 'the feeling' associated with each line. I remained with each line until 'the feeling' tested strong. I would then move on to the second line. Once 'the feeling' associated with the second line tested strong, I would retest it in combination with the first line. I generally proceeded this way for each of the sentences. However, there were times when I would simply ask the patient to go to the most distressing part of the story/script and start there.

I would also ask for a SUD rating before starting treatment and again after making corrections. Most of the time the rating would decrease by the session's end, but occasionally it would increase by a point or two. This was not a cause for concern. I simply reassured participants that they had just worked on an extremely difficult situation, in some cases something that they had never admitted or spoken about, and had carried this with them for many years. I let participants know that they would most likely be feeling better within a few hours. I might also end a session by showing a patient how to use the First Aid Stress Tool (FAST) — see FirstAidStressTool.com.

Post Treatment Results

Every study participant reported feeling significantly better at the conclusion of the treatment, with most feeling modest improvement at the end of the first session, as measured by a positive change of 1 or 2 points on the SUD scale. Every participant started treatment with a self-reported distress level of anywhere from 8 to 10. All ended at 0, 1, or 2. Most participants describe significant improvements in other areas of their lives during the course of treatment. One participant was a heavy drinker; he stopped drinking. Others reported improved workplace satisfaction, better relationships with their spouses, parents, and children. Still others found it easier to exercise or discovered they were getting more pleasure from life.

Distressing Scripts and Pathways to Treatment

The following are some of the distressing scripts drawn from the joint research study and recounted as accurately as possible. These were the starting point for treatment. Also included are several examples of the treatment issues. I include this section in the spirit of sharing and in the hope that others will learn from my experience.

John's Script

You are in the doctor's office in the cancer center. Harold is sitting to your right. The doctor is standing, along with two of her team members. And she says: "I have the results of your PET scan….You have Stage IV Non-Hodgkin's Lymphoma….It's aggressive and very fast moving" See yourself sitting in that room and hearing her words: "You have tumors in 2 places on your spine…..You have tumors on the lymph nodes on your chest….You have tumors on the lymph nodes under your arms…You have tumors on your pancreas and spleen." Tumors, tumors, tumors.

Pathway to Treatment: John experienced this script at a distress level of 9. He felt Muddled Instability, believing he would not be able to prevent or control his suffering. As a child, John's father was diagnosed with schizophrenia and sent to a hospital where he remained for an extended

period. John felt that the cancer diagnosis was taking him back to that prior feeling of Lack of Control that stemmed from early in life. His father had been a source of protection from his physically and verbally abusive mother, who would lock him in his bedroom and unexpectedly hit him. He had a severe stutter, and when his mother heard it, she would lock him in the bathroom, sometimes for as long as four hours. John would refuse to speak for weeks. Interestingly, he had a period during cancer treatment when his vocal cord was burned, and it was difficult for him to speak. He also recalled an incident of drowning as a child and being resuscitated. At the outset of the second session, his SUD went from 9 to 7, and declined to 3 by the session's end. He felt Lost at the surprise of his Non-Hodgkin's Lymphoma diagnosis. He initially thought he just had lower back pain, and he felt he had no support. In early adolescence his mother divorced his father. John felt he had to survive on his own and experienced a deep Fear. He had been feeling that there was no time to enjoy life and that his tumors would return. At the start of the final session, with his distress down to 2, he described his feeling: "It's kinda in my past now. I feel much differently about this." He said, "My cancer is behind me, and I'm ready to close the door on the experience."

Juva's Script

See yourself sitting in the room across the hall from your mammogram examination. You have been waiting for 10 minutes. It seemed like an eternity. Finally the radiologist enters. He is tall and speaks with an accent. You are sitting. He is standing, looming over you. He says "Does anyone in your family have breast cancer?" Continue to see yourself sitting in that chair with the tall radiologist above you. He says "I'm concerned about the test results. We're going to have to perform a breast biopsy."

Pathway to Treatment: At the outset of NET treatment, distress was at a 10, and she felt Vulnerable that she would be unable to protect those she loved from the pain of her death. When she was 12, her great grandmother died; it was her first funeral. She vividly remembered kissing her grandmother's cold, hard face. She again tested for Vulnerability and Anger at age 11, when she was molested. Her attacker stood over her in a similar way to the doctor. She never told her mother because she did not want to upset her. She stated that her heart "turned off;" she never spoke of the experience. At this point in the NET process, her distress was reduced to a 4. In early childhood, her parents divorced and her father did not provide financial support. She tested for Fear, Anger, and Lack of Control. Her father had been physically abusive before he abandoned the family. At the conclusion of the NET treatment, Juva's SUD score was 0.

One interesting aspect of doing this study is how the script changes for the participant as treatment progresses. In the script just cited, Juva was angry at the outset of treatment. Her anger was directed at the doctor who kept her waiting, towering over her. As she progressed in treatment, she realized that the 10-minute wait for the doctor was really about her anxiety over waiting for the test results. By the end of the treatment Juva achieved a transformation. She now viewed the 10-minute wait with gratitude, reasoning that the doctor took time to carefully analyze her scan. Before when she would pass the doctor in the hall, she would feel a surge of anger at how cold and indifferent and uncaring he was. Toward the end of treatment, she felt waves of gratitude and positive feelings.

Betty's Script

Close your eyes, go back to February and see yourself in the recovery room after your hysterectomy. Dr. S is standing by you, holding your right hand. She looks straight at you and says "it was a good thing we did the surgery. We discovered it was cancer." See yourself in the recovery room as you ask, "Am I going to die?" Dr. S's response: "We are all going to die" You ask a follow-up question: "Am I going to die now?" You think about your husband. Does he know? Your

mind turns to your girls. What do they know? You think about your mother, your children and relatives, and your best friend. The thoughts flood over you as you absorb the news that the doctor found cancer.

Pathway to Treatment: In the first session Betty's distress was a 10; after 45 minutes, it was down to an 8. She felt a sense of Impending Doom about who would take care of her loved ones. This related to her childhood in which she experienced seemingly endless air raid drills, causing her intense fear and nightmares. During this time, her older brother was dealing with severe behavioral problems; she felt she had to make her mother proud and do everything right. Betty also tested for Paralyzed Will relating to her pre-teen years when her maternal grandmother died. Her mother became depressed and withdrawn, which was a double loss. She went through a protracted period of feeling lonely and isolated, while trying to be perfect for her mother. The patient felt that cancer was a personal failure that she was now letting down the people that relied on her most—her disabled husband and two adult children. By the end of this NEC, Betty described wanting to get back to taking pictures and her favorite hobby, making calendars. The final piece for Betty related to early childhood, when her brother almost died from a childhood illness. Betty's mother felt indebted to the doctor and worked for him for years, taking care of his family and home, often at the expense of spending quality time with Betty. Moreover, Betty had never felt as though she was a priority for her very busy father. By the end of the final session Betty's SUD was a 0.

Maria's Script

With eyes closed and in your mind's eye, see yourself at home, while your nurse gets ready to change the dressing on the big, wound in your chest. You see the nurse kneeling to the left of you, her hands protected with latex gloves. You are naked from the waist up. She sets everything up, squeezing saline onto the wound. And then she starts to pull out the long strip of gauze from the wound. You're watching her. It's bloody. She is pulling the gauze slowly off, as it sticks to the wound. And then you look, hesitantly, at the deep, big hole in your chest. You notice the yellow granular crust around the edges. And you look further. Its red and brown, and you want to turn away, but you look further. It's like you're looking inside your body. You see the pink, the red, the yellow. As the nurse starts to clean your wound, you feel the sting of the medicated cotton swap, and you continue looking at that big ugly wound…the hole…the inside of your body.

Pathway to Treatment: When I initiated treatment, Maria rated her distress as a 7-8. She felt a sense of Impending Doom, believing she was going to die from cancer. This related to childhood and being molested by her uncle. She never told her family. Additionally, her neighbor fondled her breasts, and her mother blamed her for his behavior. She felt Anguish as a preteen when her alcoholic and abusive mother made her choose which of her siblings should be beaten. During the NET treatment, Maria remembered that she had fallen as a child and developed a large infected wound. To Maria, it looked similar to her cancer wound. The second session, which lasted 120 minutes, ended with Maria's distress at a six. When she returned for the next session, her distress had decreased to a four. Maria experienced Vulnerability, as she looked at the scar from cancer surgery; it was a sign that the cancer could still be present. She could not allow herself to believe it was gone. This related back to the time in elementary school age, when she earned an A and was excited to bring it home. Her mother told her not to say anything because her brother did not do well in school. A related experience occurred when she spilled paint; her mother chided Maria, telling her that she wished she had never been born. Maria ran away from home for a few days and stayed with a friend. When she returned, she discovered that her mother had destroyed her most precious possession. Her distress was now down to 3. Maria was able to address the final line of her script: the hole in her body, which she associated with being exposed and having no protection. By the end of treatment, Maria's SUD was 1.

Pre & Post fMRI showing the effectiveness of NET —

Figure 1. Shows parametric map of areas, particularly the bilateral parahippocampus and brainstem of significantly increased reactivity to the trauma stimulus, compared to the neutral stimulus in all patients on their initial fMRI scans.

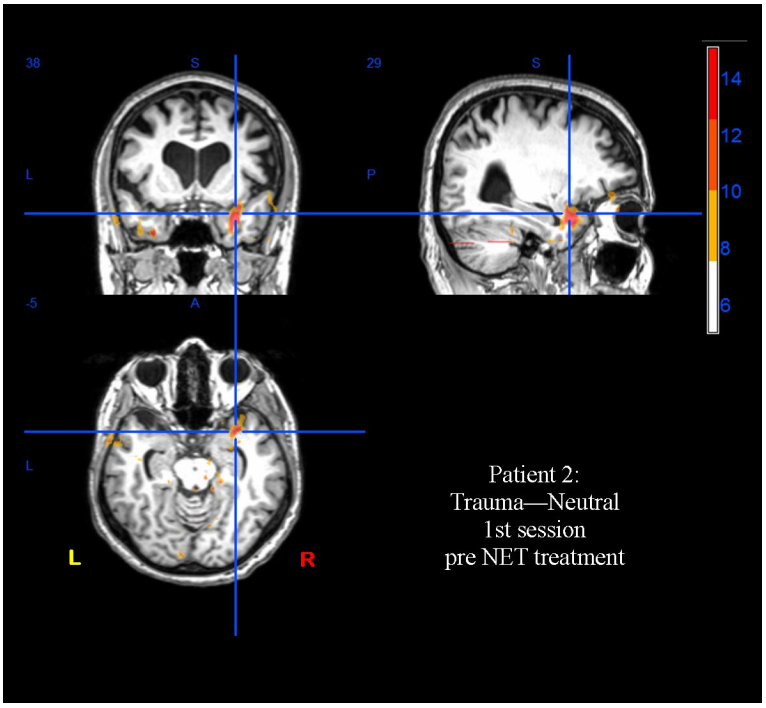

Figure 2. Shows parametric map of areas, particularly the right parahippocampus, right middle and inferior temporal gyrus, and anterior cingulate gyrus. It illustrates the significantly decreased reactivity to the trauma stimulus, compared to the neutral stimulus in NET patients compared to controls.