
THE CONTRIBUTION OF HYPNOSIS IN THE REHABILITATION OF YOUNG STROKE SURVIVORS

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ABSTRACT

The survival rate after stroke has increased during the last decades, resulting in a rise in the need for rehabilitation services. Stroke has serious consequences, not only for physical, communicative and cognitive capacities, but also for emotional, motivational and interpersonal abilities. In Sweden, rehabilitation clinics offer programmes to stroke survivors encompassing physical, communicative and cognitive rehabilitation. Although 30% of patients suffer emotional, motivational and interpersonal difficulties, standard rehabilitation programmes do not meet these needs.

In this article, aspects of clinical hypnosis that could have a potential for treating emotional, motivational and interpersonal deficits following stroke are reviewed.

The article reports a pilot study of a hypnotherapeutic approach as a complementary component of a standard rehabilitation programme for stroke survivors.

The report suggests that hypnosis is a cost-effective method for the rehabilitation of emotional, motivational and interpersonal deficits after stroke.

Key words: stroke rehabilitation, Hypnosis, emotional dysfunction, motivational problems

INTRODUCTION

Stroke is a serious health problem affecting numerous, mainly older, people every year (Lo Buono et al., 2015) although the number of strokes in young adults is increasing (Morris, 2011). Stroke is the second main cause of death and a common cause of physical and cognitive disability in patients in the developed countries. The number of people surviving stroke increases steadily. Stroke survivors are burdened by disabilities that jeopardize their capacity to live an independent life (Nakling et al., 2017), especially in low-income and middle-income countries (O'Donnell et al., 2016). At present, stroke rehabilitation is mostly concerned with physical, cognitive and language rehabilitation, whereas there are no systematic programmes for the rehabilitation of emotional, motivational or interpersonal deficits.

In this study, I will argue for the use of hypnosis in stroke rehabilitation as a suitable method for meeting the emotional needs of stroke survivors. There are indications that hypnosis may have an impact on physical and cognitive rehabilitation as well (Appel, 1990; Green et al., 2014).

First, some basic facts about stroke are presented, focusing on its emotional, motivational and interpersonal consequences. Then, the rationale behind the use of hypnosis in stroke rehabilitation is introduced and, finally, the adaptation and implementation of the

hypnotherapeutic component into a standard rehabilitation programme unit in Stockholm is described.

CONSEQUENCES OF STROKE

Stroke is defined as a focal (or at times global) neurological impairment of sudden onset and lasting more than 24 hours (or leading to death), and of presumed vascular origin (WHO Step Manual, 2006). Typical symptoms are sudden unilateral weakness, numbness, or visual loss; diplopia, altered speech, ataxia and vertigo.

Every year, about 30,000 people in Sweden suffer stroke and more than 80% survive the first month. The proportion of stroke among older people has decreased during the last decades but is increasing in the age range 35–44 years, especially for people with low education (Terént, 2014; Löfmark & Hammarström, 2007).

Physical, cognitive and language-related disabilities are most common after stroke, such as paralysis or problems controlling movement, using or understanding language, sensory disturbances including pain, and problems concerning thinking and memory (NINDS 2017). A stroke event can leave an individual with residual impairment compromising their capacity to carry out daily life activities. (Lo Buono et al., 2015). Neuropsychological assessment reveals that deficits in executive functioning, attention, mental processing speed, visual perception, and construction ability are common ailments both in subacute and chronic patients (Nakling et al., 2017).

The most common emotional complications after stroke are anxiety, depression, affect lability, fatigue, irritability and feelings of depersonalization. Many patients experience a sense of loss, disappointment of unmet recovery expectations and difficulty coping with dependency (Lo Buono et al., 2015).

Anxiety is a common complication with an estimated frequency between 20% and 25% among stroke survivors (Chun et al., 2018; Campbell Burton et al., 2012). Anxiety is defined as a state of high arousal, vigilance, apprehension and negative valence involving subjective negative experiences as well as physiological changes – sweating, dizziness, increases in blood pressure and heart rate (Calhoun and Tye, 2015) – resulting in specific patterns of defensive behaviours (Tovote et al., 2015). In spite of its high level of occurrence, anxiety treatment is not part of standard rehabilitation programmes and is often not even recognized by health care professionals (Menlove et al., 2015).

Depression occurs more frequently in stroke survivors than in the general population and is associated with stroke severity and cognitive impairment (Hackett et al., 2014). Its prevalence varies between 5% and 67% (Hackett et al., 2004). There is no evidence of the effectiveness of antidepressant drugs or of psychological therapies for post-stroke depression (Kim, 2016), or for effects of antidepressant drugs or psychological treatment (Hackett et al., 2004) but serotonin-reuptake inhibitors are now recommended (Hackett et al., 2014).

Affect lability is characterized by unstable emotional experiences and frequent mood changes, easily aroused emotions not proportional to events and circumstances. Affect lability is expressed by excessive crying or laughing, and affects stroke survivors between 6% and 34% in the acute stage and around 20% at a later phase (Hackett et al., 2014; Murray, 2014).

Fatigue is one of the most prominent symptoms after stroke with a frequency ranging from 29% to 77%. It is defined as 'a feeling of early exhaustion with weariness, lack of

energy and aversion to effort that develops during physical or mental activity and is usually not ameliorated by rest' (Staub and Bogousslavsky, 2001, p. 75). It is common to distinguish exertion fatigue, mental fatigue as well as psychological fatigue, the latter associated with lack of interest and related to poor motivation (Acciarresi et al., 2014). There are no effective or preventive treatment strategies for fatigue after stroke (Hackett et al., 2014; Brady, et al., 2016).

Between 15% and 30% of patients become more irritable, impulsive, and hostile after stroke (Choi-Kwon et al., 2013) and there is an association between post-stroke anger proneness and post-stroke depression (Kim, 2016).

A common consequence of stroke is a feeling of not recognizing one's body, known as depersonalization feelings. It is described as a profound disruption of self-awareness mainly characterized by feelings of disembodiment and subjective emotional numbing (Sierra and David, 2011). Its prevalence is unknown as there are no studies of depersonalization after stroke. The most common treatment offered is cognitive behavioural therapy. Also a few hypnotherapeutic approaches have been reported (Appel, 2017).

Apathy is the most common motivational disability after stroke (Murray, 2014) occurring in at least 30% of patients (Hackett et al., 2014). Apathy is a disturbance of motivation evidenced by diminished goal-directed overt behaviour affecting one in three patients. Apathetic patients are more frequently severely depressed and cognitively impaired and may be less aware of their disabilities, and they report fewer complaints about loss of functionality (Caeiro et al., 2013; Harris et al., 2014).

In stroke survivors, impaired emotion perception correlates with low social participation and quality of life (Cooper et al., 2014; Northcott et al., 2015; Kuluski et al., 2014). Fifteen per cent separated within three months after hospital discharge, 18% were not able to return to their previous place of residence, 5% required institutionalization, and only 20% were able to return to work (Teasel et al., 2000). Younger stroke survivors exhibit heightened risk of being socially isolated (Daniel et al., 2009) consecutive to the deterioration of marital relations or difficulties to return to work and being economically independent (Morris, 2011). Specialized services for young stroke survivors are often lacking (Lutz et al., 2011; Young et al., 2014).

The facts presented in this section suggest that the emotional state of stroke victims strongly influences the effectiveness of any rehabilitation programme (Manganiello, 1986), but often remains unrecognized by health care professionals. In the next section, we examine the rationale behind the use of hypnosis as a rehabilitation method.

CHARACTERISTICS OF HYPNOSIS

The use of hypnosis in stroke rehabilitation is not new. In 1983, a *JAMA* article discussed its potential use in stroke rehabilitation (Martin, 1983). Earlier contributions of hypnosis to rehabilitation after stroke have mainly concerned motor impairment (Holroyd and Hill, 1989), hemiplegia (Diamond et al., 2006), physical endurance (Morgan et al., 1983), feelings of depersonalization (Appel, 2017) and low motivation (Crasilneck & Hall, 1970).

Hypnosis, the oldest Western psychotherapy method (Jiang et al., 2016), is described as a state of altered consciousness producing a highly focused, absorbed attentional state alleviating competing thoughts and creating a willingness to follow suggestion, and expectancy of experiencing the suggested goals (Appel, 2003; Oakley and Halligan, 2013). It involves two

processes: induction and hypnotic suggestions. Induction consists of a series of instructions intended to help patients concentrate on a particular topic to reach the desired state of altered consciousness. Hypnotic suggestions consist of factual statements helping patients to change their behavior to reach a therapeutic goal (Terhune et al., 2017). For a successful hypnotic induction, the therapist should provide descriptions of the hypnotic phenomena that the patient is expected to experience, e.g. you will become more and more relaxed. Then, behaviours observed by the therapist are mentioned to the patient, thereby deepening the hypnotic state. Finally, rapport is established with the therapist, and the patient is able to experience true hypnotic phenomena (Barabasz and Barabasz, 2017) creating thereby a mental state of enhanced suggestibility (Oakley and Halligan, 2013).

According to Green and colleagues (2014), Milton Erickson was one of the first clinicians to use hypnotic suggestions to shape patients' associations, expectancies and experiences. Suggestions can be used to increase calmness, relaxation and well-being. They can be incorporated into established treatment such as cognitive behaviour therapy, psychodynamic therapy (Terhune et al., 2017), or imagery rescripting (Arntz, 2012). Suggestions can be designed to promote positive expectations and facilitate new approaches to life. Suggestions can be directed toward bodily movements or toward perceptions or memory phenomena (Kihlstrom et al., 2013). The goal of hypnotic suggestions is to generate behaviours with minimal conscious effort so that new behaviours seem to happen spontaneously and automatically (Godot, 2017).

There is a tradition within hypnotherapy to use suggestions to strengthen the patient's self-esteem as this has good therapeutic effects on the patient's mood. Other areas are suggestions increasing motivation, facilitation of acceptance of the patient's current situation, and inducing hope. A particular kind of suggestions are post-hypnotic suggestions that place their impact outside the hypnotic session and are an important factor of change by making predictions about the future and are, therefore, a necessary part of the hypnotherapeutic procedure (Alladin, 2017).

Breathing techniques, visualization techniques, meditation techniques, and self-hypnotic techniques are often added to the standard procedures.

Breathing techniques are included in the induction, generally as a variant of slow breathing (Kjellgren et al., 2007), beneficial to cardiovascular health by reducing sympathetic nerve activity and producing a mental state of calmness and well-being (Critchley et al., 2015).

Visualization techniques use the specific relation between mental images and emotions (Holmes and Mathews, 2010). The power of imagery can be enhanced in hypnotherapy with imagery rescripting, where a sequence of events is changed in a direction positive to the patient's needs (Arntz, 2012).

Hypnosis prepares the patient for using meditation techniques such as mindfulness, which has reported good results in the treatment of mood disturbances. Specific to mindfulness meditation is the use of focusing attention and the issue of acceptance of inevitable facts by holding a non-judgemental attitude (Yapko, 2016).

HYPNOSIS IN STROKE REHABILITATION

Despite extraordinary advances in the treatment and prevention of stroke, its burden remains substantial and is increasing with an ageing population. The importance of stroke management after discharge from the acute ward is increasingly recognized (Nakling et al., 2017), and

methods for improving physical, cognitive and language disabilities have been developed (Toby et al., 2012; Cicerone et al., 2011; Barker-Collo et al., 2009). But there is no standard of care for the emotional, motivational and interpersonal needs of stroke survivors.

The American National Center for Integrative and Complementary Health (2018) identifies mind–body practices that include a group of procedures administered by a trained practitioner. Among the most popular methods we find hypnotherapy, as well as yoga, chiropractic and osteopathic manipulation, meditation, and massage therapy. Research-based evidence for the complementary therapies varies from minimal to moderately positive, but the risk for adverse reactions is low, provided that the methods are used in combination with evidence-based medical and neuropsychological rehabilitation considered as standard of care (Shiflett, 2008).

The brain injury rehabilitation unit at Danderyd Hospital in Stockholm, offers specialized rehabilitation services to people after moderate to severe brain injury. The main inclusion criteria are (i) confirmed brain injury that has led to significant disability affecting the patient's quality of life and (ii) age between 18 and 67 years. The referral is made when the patient is discharged from the acute ward and the average waiting time is around three months. Before rehabilitation, patients are called for a two-week multi-professional assessment to determine rehabilitation needs including psychological needs. A rehabilitation programme is then designed in cooperation with patients and their families and is presented at the post-assessment meeting. The rehabilitation programme takes about 8–10 weeks with 3–4 days each week. The rehabilitation consists of sessions in groups or individually for physical, occupational, speech, and cognitive therapy. A hypnotherapeutic programme is offered to patients exhibiting or reporting emotional, motivational or interpersonal dysfunction. Contraindications to hypnosis are personality disorders and psychosis (Hickman et al., 2017). The hypnotherapeutic programme is continued throughout the rehabilitation programme, at a rate of one session per week with a total number of 5–6 sessions.

The aim of the first session is to prepare the patient for the treatment and the expected effects (Hickman et al., 2017). It is advisable to check whether the patient carries doubts or questions about the procedure and to check such things as whether they get anxious in elevators, if this method is used during the induction. Safe place visualization technique can also help patients relax. Asking patients about a favourite landscape (e.g. a forest, a beach, or a mountain), where they have felt safe, in the real world or in their imagination, permits the use of visualizations already positively conditioned, avoiding thereby the risk to activate resistance to treatment.

In the second session, the hypnotherapeutic treatment proper starts by carrying out the induction. The induction has two components that have an anxiolytic effect, the deep breath procedure and the suggestion to be calm. It seems that the exhalation of air when breathing out has an anxiolytic effect. The mechanism behind this is not known, but possibly it activates the parasympathetic autonomous nervous system in the brain stem, resulting in a lowering of activity in the hypothalamic–pituitary–adrenal (HPA) axis. Suggestions of calmness are known to operate through the positive conditioning in the basolateral amygdala so that the word 'CALM' gets associated with a lowering of activity level in the amygdala and the HPA axis. There is evidence that patients experiencing anxiety and panic can be treated by self-hypnotic recordings, with either progressive relaxation or breathing techniques (Laidlaw and Willet, 2002; Burkhard, 2017; Alladin, 2014).

The induction procedure used in this study is that suggested by Jensen and colleagues (2014), where a breathing technique is combined with a signal: take a deep breath, hold it and

then exhale slowly while saying to yourself the word 'CALM' as you breathe out. The induction lasts between 15 and 20 minutes accompanied by general and post-hypnotic suggestions reinforcing the feeling of getting relaxed. At the end of the induction, the patient generally feels very relaxed. The induction is sound-recorded and sent to the patient with the instruction to listen at least once a day if possible.

After the induction procedure, the treatment with hypnotic suggestions can begin based on the emotional difficulties identified during the assessment. The induction procedure is then minimized as it is assumed that the patient has learned to carry it out by themselves. If not, the therapist helps the patient come through the induction phase once again. The hypnotic procedure is now designed to meet problems that are manageable through a hypnotherapeutic approach directed toward anxiety (Laidlaw and Willet, 2002; Burkhard, 2017; Alladin, 2014), depression (Torem, 1992), fatigue (Hickman et al., 2017), feelings of depersonalization (Appel, 2017), or apathy (Appel, 2003), in accordance with the difficulties identified in the assessment. Against fatigue, Hickman and colleagues (2017) use natural imagery as a source of energy, in combination with post-hypnotic suggestions for decreased fatigue, increased energy, increased muscle strength, increased optimism, and increased vitality. An intervention for patients with feelings of depersonalization is reported by Appel (2017) creating a dissociation between the patient and their body ('I have a body, but I am not that body') that allows the patient to recover psychologically even when their body is not fully rehabilitated. Posthypnotic suggestions are used to increase the effectiveness of the induction. All hypnotherapeutic sessions are recorded and sent to the patient who is expected to listen daily to the sessions.

In order to increase the patient's participation in the rehabilitation process, self-hypnosis is introduced at this stage of the programme by instructing patients to carry out the induction procedure, give the suggestions and terminate the session by themselves. The use of self-hypnosis reduces the patient's dependency on the therapist thereby improving self-control, perception of self-efficacy and the probability of a positive outcome.

The hypnotherapeutic treatment ends when the rehabilitation period is terminated. At that time, patients have tools (recordings of sessions, self-hypnotic procedures) to continue their emotional recovery helping them maintain a satisfying level of emotional health during their journey back to ordinary life.

During the period 2016–2018, 40 patients have undergone the hypnotherapeutic treatment and reported a high level of satisfaction with the rehabilitation programme. No systematic evaluation of the hypnotherapeutic component could be made as it was not specified in the inquiry presented to the patient after the completion of the rehabilitation period. Nevertheless, hypnosis appears to be a promising and highly cost-effective clinical intervention. In addition to the effectiveness of hypnosis in emotional and motivational rehabilitation, hypnosis may also facilitate cognitive rehabilitation as well as the rehabilitation of motor functions (Appel, 2003). A problem may be the difficulty to recruit personnel with proper training in hypnosis.

CONCLUSION

Some of the major consequences of stroke are the emergence of emotional, motivational or interpersonal disturbances that affect one-third of all stroke survivors. In spite of this, emotional disabilities are often left unrecognized by professionals and are not systematically addressed in standard rehabilitation programmes.

This report has described the use of clinical hypnotherapy for meeting the emotional needs of stroke survivors in the context of a multi-professional rehabilitation treatment. The report suggests that hypnotherapy could provide a useful complement to standard rehabilitation programmes by increasing survivors' emotional engagement and their motivation to participate in the rehabilitation process.

This report indicates that patients are most often positive to the inclusion of a hypnotherapeutic programme and most of them are willing to fulfil the programme.

FUTURE DIRECTIONS

The next step should be to carry out controlled studies to confirm the impact and effect of hypnotherapy on the emotional, motivational and interpersonal needs of stroke survivors, following the procedure outlined in this report. When doing this, it is advisable to use the research methodology described by Jensen and colleagues (2017). We also expect that more knowledge will be gathered in a near future on methods from breathing techniques, meditation and imagery facilitating their incorporation in the programme.

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