INTRODUCTION

Multiple sclerosis (MS) is an autoimmune, chronic, inflammatory, demyelinating disease affecting the central nervous system (Manoz-Lasa, 2011). Its development has several different forms - cerebral, spinal, and cerebrospinal; and each may have a different course and development - benign, relapsing remitting, primary and secondary progressive and malignant form. The symptoms are strictly individual in each individual, which makes it extremely difficult for differential diagnosis and timely treatment. The severity of the disease depends on the number of lesions, areas which have neuroglia, their rate of multiplication, and the number and rate of relapse. To insert such a diagnosis is monitored for the appearance of multiple attributes, as well as at least 3 plates – MRI.

The most common symptoms are retro-bulbar neuritis - visual impairment; violation of speech; gait disturbance, which in turn was inspired by a number of other symptom such as the appearance of spasmodic muscles of the lower limbs, change in sense – proprio-reception, damage to the vestibular system, changes in psycho-emotional state, and more (Porosinska, Pierzcha, Mentel, & Karpe, 2010). So far it is believed that MS is incurable. Of course there are many therapeutic approaches to suppress and limit the development of the disease by drug therapy in traditional and non-traditional medicine, but they are fully symptomatic.

Kinesiotherapeutic approaches are diverse and very effective in people with MS. Use of natural factors combined with healing gymnastics is well suited to facilitate and support the way of life of these patients. Treatment through movement and specialized methods, in combination with medicaments has beneficial effects on muscle tone, range of motion in joints, correct posture, improve coordination, improve gait and balance, psycho-emotional health, and many others. A suitable method is the hippotherapy (HT), interference by therapeutic riding combined with specialized exercises with a different therapeutic approach (Borges de Araújo., Oliveira, Martins, Pereira, Copetti, & Safons, 2013; Gencheva (Генчева), 2007; Long, 2013; Scott, 2005). The 3 dimensional movement of the horse’s back is the main component of hippotherapy. The name “hippotherapy” comes from the Greek “hipos” – horse and “terapie” - treatment in direct translation would mean “treatment with the help of the horses.” The rehabilitation with animals is used worldwide. The most effective and replicable remains the therapeutic riding and HT. Furthermore except the good impact over the psychics, there are very good effect on the biomechanics of the human body, which in turn makes it an excellent rehabilitation approach of the healing gymnastics (Long, 2013). At the end of 50 years of the 20th century the HT has been used as a treatment for psychiatric and neurological diseases. In Europe has a number of centers involved in the treatment of problems in the musculoskeletal system - scoliosis, atherosclerosis, cranial trauma, poliomyeli-
tis, diseases of the gastrointestinal tract diseases in children adults Dawn, autism and many others, as and total body strengthening (Ajzenman, Standeven, & Shurtleff, 2013).

Using this method reaches a physical and psychological independence, due to the fact that even some of the time on horseback, patients had complete independence from the surrounding environment, reducing their depressive states. One of the main effects of HT is the design, building, reinforcing the need for body movement patterns. In trying to keep the rider’s balance on the horse’s back which supports the extension and the alignment of the spine column, respectively corrects the muscle imbalance and the position of the head. This re-flex plays an important role in the fitness level of the vestibular system. Analysis of movements while riding show that motor pattern generated by swinging the horse - transmitted to the rider, the motor model resemble the body of a man - while walking (Cattaneo, Jonsdottir, Zocchi, & Regola, 2007; Hallberg, 2008; Long, 2013; Menezes, Copetti, Wiest, Trevisan, & Silveira, 2013). The rationale for therapeutic riding is that the horse’s movement imparts a precise, smooth, rhythmical pattern of movement to the rider. As the horse walks, its center of gravity is displaced three-dimensionally with a movement very similar to the action of the human pelvis during gait (Bertoti, 1988). In Hippotherapy, the rider does not control the movement of the horse, but to a certain extent, experiences the natural movement of the horse (Gencheva (Генчева), 2007). HT is a method combining riding with specialized methods necessary to unlock certain models of movement or serving particular needs of patients (Bronson, Brewerton, Ong, Palanca, Sullivan, 2010; Menezes, Copetti, Wiest, Trevisan, Silveira, 2013).

Proven impact of horseback riding to relieve stress there is another side - improving cognitive, intellectual and communication skills in the very contact with the horse. This makes activities with these animals important to re-socialization of all those in need.

(Jenkins & Florence, 2013).

Like all treatments HT has also contraindications: fragility of bones, hemophilia, kidney, Acute herniated nucleus pulposis; Atlanto-occipital instability (children with - Downs syndrome should not ride before the age of 3);Scoliosis greater than 30 degrees.

Contraindication in patients with MS is reaching fatigue.

The aim of this pilot study was to evaluate the effect of hippotherapy as a treatment intervention of postural control, balance, chronic fatigue and emotional tension in patients with multiple sclerosis (PwMS).

METHODOS

The study was held on the territory of Sofia in the Sports Riding center “Han Asparouh”, with the help of coaches and students from National Sports Academy. Ten patients with multiple sclerosis (4 males, 6 females, Age: 44,1±8,88years) received weekly hippotherapy intervention. Altogether 16 sessions, each 20 minutes that every patient was indebtedness to fulfill in order to achieve results. The tests were taken in regular intervals, aiming to trace the development of the three stages and the results - first (initial) and 16th (final) visit.

Patients were asked and invited by the association “MS Society Bulgaria.” Each matched our requirements - clinically proven diagnosis - MS, cerebral spinal form of the disease.

Test battery included:

1. Berg Balance Scale (BBS), The BBS was developed to measure balance among older people with impairment in balance function by assessing the performance of functional tasks. The BBS evaluated the possibilities of the studied patients to maintain the balance while performing tasks with a gradual reduction in the support surface, with weight transfer of the body in the space.

2. Fatigue in Multiple Sclerosis. Fatigue Severity Scale (FSS) measures the impact of fatigue on the respondent’s daily life, rather than its overall severity (Dittner, Wessely, & Brown, 2004; Schwid, Covington, Segal, & Goodman, 2002).

3. Bertoti Posture Assessment Scale (PAS) –1988, measures postural changes in patients with after participation in a therapeutic riding program. One score (0-3) is given for each of the five sections on the scale- Head and Neck, Shoulder and scapula, Trunk; Spine and Pelvis.

4. Test for emotionality (TE), (Ivanov (Иванов), 1999) Emotional Intensity is characterized by temporary stability reduction of the psychiatric and psychomotor processes, reduction of the professional and study effectiveness in the conditions of strong emotions. It is accompanied by different strongly expressed vegetative reactions and external manifestation of the emotions.

Methodology of the hippotherapy

The horses were led only at a walking pace. At the session’s beginning we teach the patients how to use the correct horseback riding position and good seat. The exercises on the horseback are in a prone, side-lying or sitting position. In the seat position the patient rotate to reach for the horse tail, try to raise his own arms into different positions to increase trunk extension, rotation, stretch to reach for the horse’s ears, then include exercises for coordination of the upper limbs - gradually include exercises for the spine and hip.

Therapeutic sessions consist of preparatory, primary and final part for the program included more complex coordination exercise - during the main part, each one with a specific purpose.

Common methodology aims to lower stress, create positive emotions, stimulate proper function of muscle corset body to reduce the muscle tone, releasing movements of the hip and unlock the correct mechanism of movement, both in the lower and upper limb to improve
Multiple sclerosis (MS) leads to changes in balance due to the breakdown of a number of neurological processes. Postural control is the ability to retain the center of gravity of the body on the support surface while sitting and in standing position. Impaired balance reduces the ability of independence in daily life (Stefanova, 2012). Hippotherapy utilizes the movement of the horse to provide sensory feedback and has been used as a therapeutic intervention for different neurological conditions. (Bronson, Brewerton, Ong, Pala- nca, & Sullivan, 2010). Hippotherapy and exercises on horseback normalize control of the trunk and the upper limbs, improve the balance reactions, improve dynamic control and facilitate movement.

A change of 8 points is required to reveal a genuine change in function between 2 assessments. Our study shows significant improvements in BBS scores From 34.7 in the beginning to 43.3 points. The scores are mean increase 8.6 points (p=,009) that is mean medium fall risk (Table 3).

Each of the patients showed significant improvement in both the bleached units - from Bertoti Posture Assessment Scale and overall score. Their posture while riding significantly improved, as the position of the head. There is significant improvement (p=,000) in the seat while riding on the second assessment. After, the end of the 16 sessions were observed minimal or retention of previous results, which we believe can be an excellent result from 7.7 points (SD ± 3.27) to 11.1 points (SD ±2.96) (Tabl.3). Fitness level of the body during horseback riding is important for the extension of the spine, improving the position of the head relative to the body and the space and the inclination of the pelvis. Strengthening the muscles of the spine, trying to keep the center of gravity improves the position of the hips. The position on the horse in combination with the body temperature of the animal decreased muscle tone in the lower limbs, allowing proper occupation of the desired item. This combination helps the motor stereotype in PwMS, supporting walking. When the patient rides the movement of body resembles its movement during walking, which makes the method suitable for exercise and endurance training in people with gait disturbance, alleviating their daily needs. The improvement of postural control during the riding corrects the position of the patient and prevent from fall.

Fatigue is the most common symptom of multiple sclerosis (MS). It occurs in 75 percent to 95 percent of patients with MS. There is some evidence that fatigue correlates more highly with depression, cognitive impairment, social functioning, and feelings of wellbeing than physical performance. (Morris, Cantwell, Vowels, & Dodd 2002). Chronic fatigue test (FSS) showed a drop in grades, which means that HT, reduces the levels of fatigue, which in turn will give more effective time (Table 2).
At the end of the 16-th session we see that they have 6.5 points less than the first testing (p=0.009).

Lowering chronic fatigue, it can be said that this would affect on psycho-emotional state of each of them.

The emotional sphere in patients with MS is characterized by rather dynamic processes, since it is influenced by various factors, which make its assessment difficult. In our study emotional tension is lowered As a general conclusion we can say that the HT has a positive emotional effect at PwMS. Speaking for the whole group the results have been decreased, which tells us that the emotional state has significantly improved with 4.5 at the end of the study (p= .031)

CONCLUSIONS

The small number of studied patients did not give us reason to make definite conclusions. The results of this pilot study show that the application of Hippotherapy in patients with Multiple sclerosis has a very beneficial effect on some physical and psycho-emotional symptoms - lower levels of fatigue and tension, improving coordination, balance and muscle strength. We support their socialization and utility, both for society and for themselves. Further studies are necessary to evaluate other positive effects of hippotherapy in MS patients on range of motion, muscle tone, strength and stamina, as well quality of life.

REFERENCES


EVALUATION OF HIPPOThERAPY IN THE COURSE OF ...


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