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# Effects of Aquatic Therapy in Ankylosing Spondylitis: A Case Study

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INTRODUCTION

Ankylosing spondylitis (AS) is a systemic inflammatory rheumatic disease, progressive, whose main feature is the bone fusion of the spine, affecting mainly the joints in the region of the axial skeleton and sacroiliac joints, resulting in immobility and rigidity. It can also affect other joints such as shoulder, wrist, hip, knee and ankle. The patient with AS suffers some structural changes in the spine that begin early and are progressive, leading the patient to adopt a posture called "skier's stance" may be associated with significant functional limitation and impaired quality of life.

OBJECTIVE

The objective of this study was to assess the benefits of an aquatic therapy program developed for a patient with AS, assessing pain, muscle strength, range of motion, and gait of a patient with 28 years old, males and sedentary.

CLINICAL CASE

The individual studied was diagnosed with AS for 2 years, performing drug treatment since shown stiffness accompanied by pain, and occasionally inflammation of the insertions of ligaments, joint capsules and tendons, hindering their mobility. Displays commitment in the joints of the cervical and sacroiliac joints, lumbar lordosis, thoracic kyphosis accentuated and the head forward.

These changes have established beyond compromise their quality of life, leading to abnormal gait, which occurred in relation to the ankle, the progression angle of the foot in medial rotation bilaterally, inadequate pre-positioning of the feet in the initial contact, excessive dorsiflexion at initial contact to the right, reduced plantar flexion in pre-swing bilaterally, and excessive dorsiflexion during the swing phase, in relation to the knee, there was a slight increase in flexion during stance phase, inadequate hip abduction during the whole cycle and increased antevertion throughout the cycle.

The treatments were included 2 months and 2 weeks, totaling 20 sessions, 2 times a week for 50 minutes. The patient underwent a physical examination, it was stated range of motion by goniometry, a physical assessment by testing muscle strength, visual analogue scale (VAS) for his pain, and ultimately was checked by running a three-dimensional analysis beyond comparative Gait Deviation Index (GDI). All instruments were applied at the beginning and end of the treatment of aquatic therapy.

This treatment was chosen because studies show that the aquatic environment seems to be the best alternative for rehabilitation of the AS, because it promotes greater relaxation, reduced impact of the exercises and joint overload, and increase range of motion and assist in the maintenance or reduction of the table painful, thus promoting the adequacy of the march.

The three-dimensional gait analysis was collected using 8 Falcon Motion Analysis cameras in São Camilo/INSTRUCOM laboratory and complements the use of assessment tools to be considered a way of highlighting the effects of aquatic therapy on mobility and movement of the patient evaluated. Because their results are presented in a specific and detailed three-dimensional kinematics of the joints of the pelvis, hip, knee and ankle, by obtaining three-dimensional images due to a set of cameras that capture the situation of marked placed on anatomical points already selected, which estimates the position of joint centers and calculates the three-dimensional kinematics.

Data from the instruments of the initial evaluation were analyzed and it was developed a protocol for aquatic therapy which involves therapeutic measures that would reflect the involvement observed in our patient.

The specific treatment consisted of stretching global assets and liabilities, gait training with changes of direction, against the turbulence (front, back, side, and decoupling-girdle), active exercises with the repetition of movements for 10 joint groups defined, some positions of Water Pilates method, muscle strengthening with the use of water floats and weights, and ending with the therapy method Watsu.

We obtained results in improved muscle strength in the plantar flexors, there was increased range of motion in all joints and the most significant improvement in the hip, knee, ankle, spine and neck and shoulder on the VAS scale patient reported decreased pain in the lumbar spine, cervical spine and shoulder region, and the gait analysis was observed in Gait Deviation Index (Pre/Post treatment Left Side = 72.8/80.81 and Right Side = 60.58/77.72) an improvement in the ankle range of motion, a reduction of the medial progression angle greater on the right, increasing the plantarflexion during pre-swing bilaterally and dorsiflexion during the swing bilaterally. No changes on knee joint were noted. The right hip abduction and pelvis anteversion decreased in gait cicle.

We conclude that the aquatic therapy program was beneficial for the patient with AS, improving muscle strength, with a reduction of pain, and therefore taking the adequacy of the gait, showing that aquatic therapy is a valuable resource to reduce symptoms of ankylosing spondylitis in this patient.

Keyword: Ankylosing Spondylitis, Aquatic Therapy, Gait analysis, Rehabilitaton.