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Rehab Across the Lifespan

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Case Study

Peripheral Neuropathy

During my first clinical experience I had the opportunity to work with a patient with a complex diagnosis. The patient was a 29 year old male with peripheral neuropathy. The reason for his peripheral neuropathy is unknown as he is young and is not diabetic. It was assumed to be due to excessive use of alcohol but was not proven or confirmed. The numbness and tingling started approximately a year ago and progressively got worse. Leaving him wheelchair bound with limited feeling in his feet. Since being in a wheelchair he is living with his mother as she is now his caregiver. This brings him to physical therapy.

In his physical therapy evaluation it proved that he had minimal to no feeling in his feet. He was unable to walk with decreased balance and needed, maximum assistant of two people to stand. Upon range of motion measurement he had decreased range of motion with his hip extension and hip external rotation. He also had decreased dorsiflexion giving him drop foot. He had overall weakness of the legs and core when manual muscle tested. His mother cares for him and assists in daily activities and transfers. Proper education on transfers and ADL's were needed for the patient and his mother. His upper extremities strength and range of motion were within normal limits.

When I started working with this patient he had already been in therapy for some time. Upon starting with him he was walking with the use of 2 single point canes. The patient's plan of

care was to increase ROM and strength to improve balance and standing tolerance. With a goal to increase standing and walking distance along with building his tolerance. Helping with increasing self care and ADL's. Also helping in the slowing and controlling of the pain from the peripheral neuropathy. This approach was chosen for the patient and prior to this the patient was very active. He came to therapy with a goal set he wanted to walk and improve his independant and self care. This approach was focused on controlling pain but also improving balance and strength. This all is the start in the progression of walking. Getting him strong and able to balance in sitting and standing before taking steps and safety self transfering. With manual muscle testing of ⅝ or better and range of motion measurements within normal limits. Using gait training, neuromuscular re-education and therapeutic exercises. The approach was always being re-evaluated because of his diagnosis and situation. There were a lot of unknowns making for uncertain outcomes. However, some outcomes that were expected were improving self care, ADL's and self transfers with hopes of the possibility of walking.

Treatments with him started out with a 5 minute warm up on a tall upright bike. This was a good warm up while also improving endurance. After he was warmed up we would work on the leg press working bilaterally and single leg press doing 10 reps each increasing weight as tolerated. This improves lower extremity strength. Working on gait drills of marching, lunges, side stepping and walking backward. Starting with mini lunges, 2 reps, using both canes and mod assistance from 1 person. As he improved and assistance decreased progression was made with increase of reps and hold time, mini to full lunges, only using one cane and then finally without use of canes. Without canes the patient needed mod assistance from 2 people. When working on balance romberg's exercises were performed and narrowing his base of support and playing catch

to progress. Another balance and core strengthening exercise used was bridging. To progress by having him bridge with a single leg placing a bosu ball under his feet. With working on strengthening, balance and coordination I created an obstacle course to challenge him. The obstacle course consisted of stepping over objects, tapping, side stepping on foam, stepping on uneven foam markers and weaving cones. Through the time I worked with him I got the opportunity to see the progress from the first day I worked with him walking in with 2 canes to him down to 1 cane to the last week I was there seeing him walking in and out of therapy without any assisted devices or assistance from us or his mother.

I loved the opportunity to work with this patient as he was a complex case that really gave me a chance to really use what I learned as there was a lot of brainstorming as many things were unknown. Also he was a patient that worked very hard making me stay on my toes and I had to progress, change exercises and activities often to adapt to his consistent changes. With the unknowns it left us trying many different things until we found things that worked for him. I loved being able to see his progress from being in a wheelchair to walking on his own. It gave me a great look at what it takes to work with a supervising PT in brainstorming to figure out the best plans for complex patients.