Reflection Lecture 10 Applied Motor Control

The readings/lecture focused on post-stroke rehab therapies (e.g. exercise, electrical stimulation and drugs), how to measure muscle activity (EMG) and what proteins to measure to understand why muscles are weakened post-stroke at a cellular level (TNF-α levels). This can be related to endoscopic ear surgery in terms of the treatment plan. The healthcare team of the stroke patient has to decide upon the treatment plan based on post-stroke symptoms (e.g. lower limb impairment, hemiplegia, etc.) and the MRI scan which shows the affected areas of the brain. Based on this, the healthcare team would develop a rehab strategy including which drugs to administer, the dosage, electrical stimulation and the type of physical therapy exercises. Similarly, for ear surgery, the surgeon is presented with the patient’s ear-related symptoms and a CT scan. This is used for diagnosis and based on the extent of the disease and patient anatomy, the surgeon decides whether to operate endoscopically through the ear canal or to do traditional open microscopic based surgery. This entails the ‘treatment plan’ of the patient with a middle ear disease.

Futhermore, cochlear implantation is a therapy to help restore hearing in a deaf or partially deaf patient. After implantation, an audiologist records brain activity as the patient hears specific sounds and tones. This is similar to using EMG to measure a post stroke patient’s recovery before, during, and after physical rehab therapy. The cochlear implant patients are seen by the audiologist to diagnose what kind of implant they should receive, and the surgeon implants it. Afterwards, the patient just sees the audiologist to monitor and track recovery of hearing loss. Similarly, the post stroke patient sees the neurosurgeon if they will undergo surgery after their stroke and the rest of the time during recovery they will visit their physiotherapist, a clinician. This describes the similarity in the healthcare team that treats these types of patients. Usually, a surgeon will not be the one to administer rehab, rather a rehab specialist (physiotherapist, occupational therapist and an audiologist) will follow through and guide the patient’s recovery process.