Neural rehabilitation article review sample

Technology, Development

Functional recovery after a stroke is not easy to comprehend. Individuals show variations in their response to treatment and natural recovery process. The process of rehabilitation requires the optimization of recovery changes. Responsiveness is, therefore, important because it allows for the detection of change as it occurs. Detecting change is important for the selection of the best instrument for research and sample for clinical studies.

Responsiveness is influenced by treatment, specific sample and the type of change captured. Researchers have identified three types of change in the taxonomy of their responsiveness, i. e. observed change, important change and detectable change. Observed change refers to the amount of change in a population where change is expected to occur. Important change refers to the observed change estimated to be meaningful. Detectable change considers the error of measurement associated with a specific tool. It is expressed as minimal detectable change score (MDC).

The article critically reviewed evidence in research, which responsiveness according to the three types of changes. The outcome measures were used in stroke research-upper extremity functional recovery. The articles used in the review were identified electronic databases like MEDLINE and EMBASE. The reviewed articles had to meet the following criteria: provide a responsiveness index, sample from patients with stroke and use an outcome, which assessed the ability of the affected upper extremity. The responsiveness indices were either calculated or taken from the articles. 68 out of 1770 articles were selected for the study. 14 functional outcome measures were retrieved from the articles selected. The most commonly used measures included Stroke Impact Scale, Motor Activity Log and Wolf

Motor Function.

Observed change was calculated from 25 studies. In 14 studies, patients were observed up to three months post stroke, ten studies observed patients up to six months post stroke and one study observed patients up to one month post stroke. 28 randomized control trials were used to determine the effect of treatment on observed change. Important change was established from functional measure. Change after robotic therapy was also investigated. Other studies used patients with chronic and acute stroke. True functional change was extracted from 16 studies. 9 of the studies used patients with subacute stroke while 7 studies used patients with chronic stroke.

The natural recovery effects calculated from one to three months post stroke were larger than those calculated at three months or later. This reflected the high degree of neuroplasticity. The results from the randomized control trials at > 6 months post stroke indicated that change could still occur post stroke while a patient was still receiving treatment. Important change values that were obtained through anchor-based methods were higher than the values from distribution methods. From the results, it was indicated that distribution methods resulted into smaller MCID. The Minimal Detectable Change highlighted the contrast between lab based and participant perceived functional measures. Lab based measures required a smaller values to exceed their measurement errors compared to participant perceived measures.

The article failed to give one standard approach for determining responsiveness. A broad taxonomy, which was described by Beaton et al. was used. A narrower method was described by COSMIN. It used a

longitudinal validity approach like linking change to external criteria. Beaton taxonomy outlined the stroke literature state in regard to the measurement of functional change.

Works Cited