Evaluating the Efficacy of Plasma Exchange for treatment of ALS

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Introduction

Amyotrophic Lateral Sclerosis (ALS) is a progressively debilitating neurodegenerative disease that affects both the upper and lower motor neurons. Its estimated annual incidence rate is around 200,000 with around 5-10% being familial. The cause for the remaining 90% of cases is unknown but among the risk factors identified age,

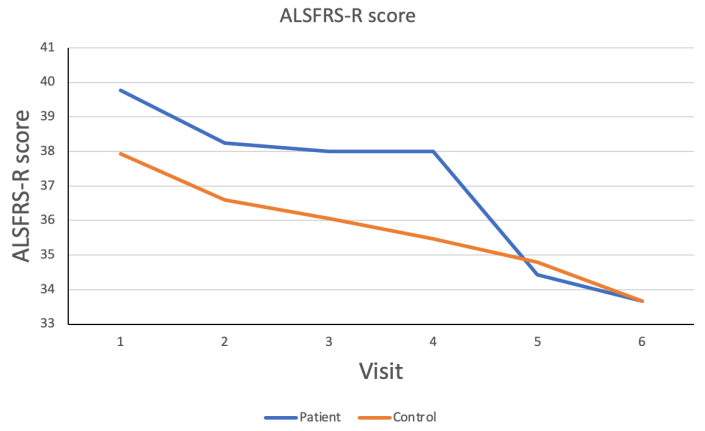
Background

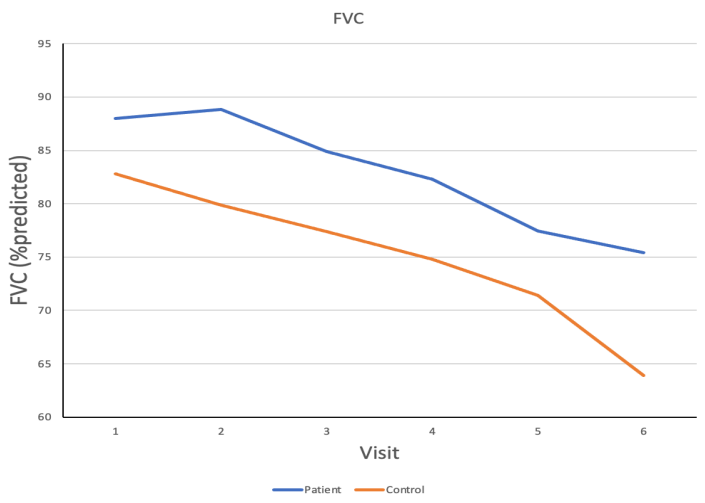
Current therapies focus on managing the symptoms and slowing the functional decline.
Plasma exchange (PLEX) has been posited as a therapy but previous research on the topic has been inconclusive. This project's goal was to assess whether there was a benefit to using PLEX to slow the decline.

Methods

Results

Fig. 1: ALS progression over time





Results

Table 1: Slope of decline

ALSFRS-R

	Patient	Control	p-value
Full study	-1.983	-0.7822	0.0987
Treatment	-0.5557	-0.7933	0.0486

FVC decline

	Patient	Control	p-value
Full study	-2.850	-3.494	0.3834
Treatment	-2.104	-2.646	0.2854

Conclusion

Compared to the control patients, the PLEX did not show any benefit when it comes to slowing the functional decline related to ALS over the 12-month period. This is consistent with previous work done by other teams. ALSFRS-R scores did, however, decline at a slower rate during the treatment period. Further research needs to be done to probe this relationship.

References and A

1. Rowland, Lewis. *NEJM. 2001; 344: 1688-1700*
2. Silani V, Scarlato et. al *Arch Neurol. 1980;37(8): 511-513*
3. Wijesekera, Lokesh. *Orphan J Rare Diseases. 2009; 4. 3*

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