PS-11

Effect of Umbilical Cord Blood Cell Therapy on Functional Recovery in Chronic Stroke: A Case Report

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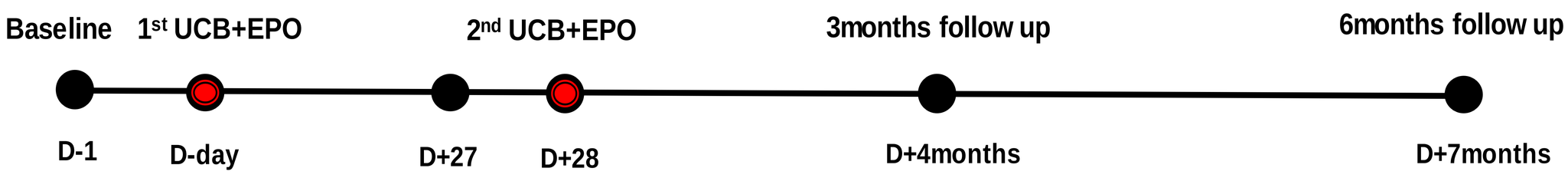
Background and Purpose

- In previous animal studies, the administration of stem cells to brain regions damaged by stroke demonstrated neuroregenerative effects through the replacement and activation of injured neurons, leading to improvements in behavioral outcomes.
- This case report is aimed to present the efficacy of umbilical cord blood (UCB) and erythropoietin (EPO) combination therapy in chronic stroke patient.

Methods

Study Design

- This case was conducted as part of a study investigating the safety and efficacy of cell therapy in chronic stroke patients.
- This study is an open clinical trial approved by the Korean Ministry of Food and Drug Safety, targeting adult patients with chronic stroke who meet the inclusion and exclusion criteria.
- Participants receive allogeneic UCB infusions intravenously twice at four-week intervals.
- Additionally, they are administered subcutaneous EPO injections a total of six times-on the day of each UCB infusion, four days after, and one week after each infusion.



- Diffusion Tensor Imaging was performed at T0 and T2. Safety evaluations, including adverse event reporting, are carried out at every visit throughout the study period.

Case Report

- The patient was a 62-year-old male who was 31 months post-stroke and was diagnosed with an infarction in the right corona radiata, resulting in left handed hemiparesis.
- He had been receiving outpatient rehabilitation regularly from prior to the study, and has continued up to the present.
- During the study period, no severe adverse events were reported.

Figure 1. Baseline Brain MRI and DTI Image

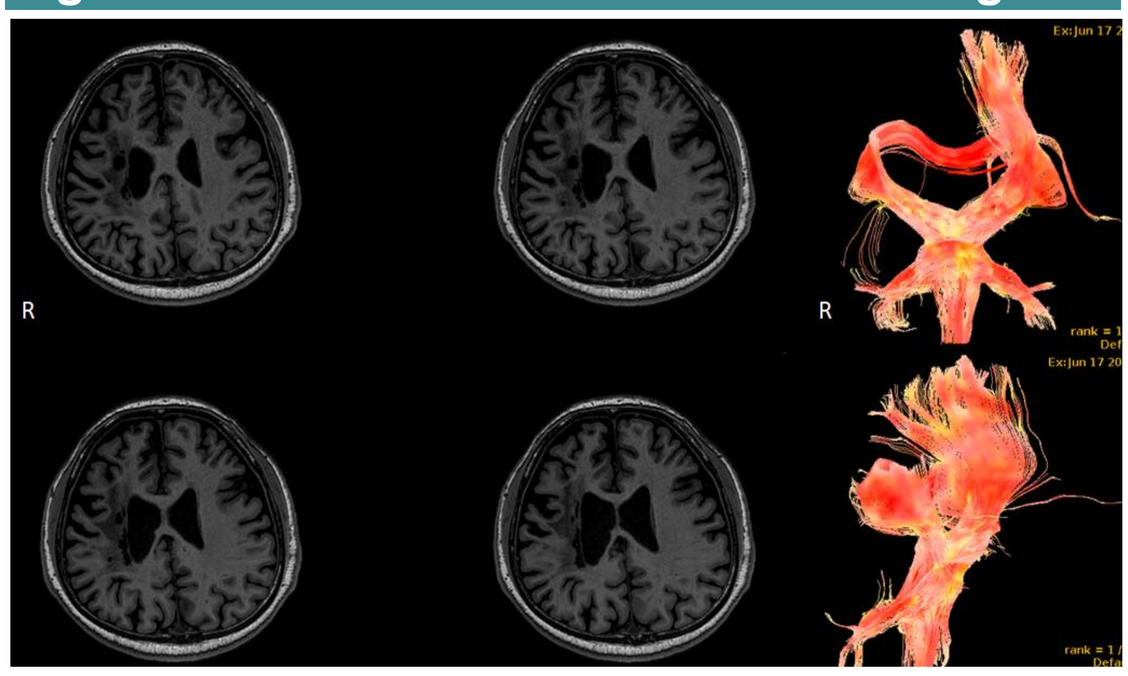
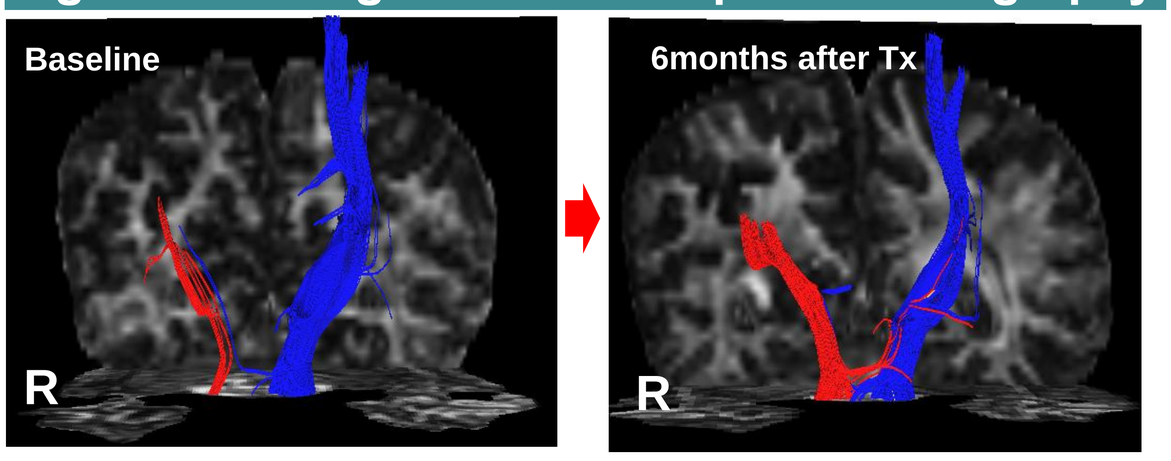


Figure 2. Changes in Corticospinal Tractography



DTI parameters	Baseline	6 month fu
CST volume (Rt:Lt)	37:2924	1256:2474
CST FA	0.48:0.51	0.49:0.46
CST MD	0.75:0.78	0.78:1.05

Table. Functional Assessments of the Patient

Functional Assessments	Baseline	3 month fu	6 month fu
Affected side FMA upper score	16	19▲	19 -
BBS score	48	49▲	50▲
FAC score	4	4 -	4 -
MMSE score	29	30▲	28▼
MoCA score	26	26 -	27▲
MBI score	78	84▲	84 -

FMA, Fugl-Meyer Assessment; MAS, Berg Balance Score; FAC, Functional Ambulatory Category; MMSE, Mini-Mental State Examination; MoCA ,Montreal Cognitive Assessment; MBI, Modified Barthel Index

Conclusion

- This case report demonstrates the potential safety and efficacy of allogeneic UCB cell therapy combined with EPO in promoting functional recovery in a chronic stroke patient. Larger-scale studies are necessary to validate these findings and further explore its therapeutic efficacy.

Acknowledgement

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