

BEIKE BIOTECHNOLOGY

Patient Case Study

Cerebral Palsy

Male, 9 months, February 2022

Summary

Diagnosis	Sex	Age	Nationality
Cerebral Palsy	Male	9 months	Romania
Injections	Cell type	Admission date	Discharge date
8	UCMSC	February 5th 2022	February 27th 2022

Medical history

The patient, a male infant born in May 2020, has a complex medical history. He was diagnosed with ALCAPA heart malformation, which was surgically repaired in September 2020. However, he also suffered from a stroke around the same time, leading to symptomatic epilepsy and partial optic nerve atrophy suspicion. Following the surgical intervention, he experienced seizures and was treated with antiepileptic drugs, yet his condition remained drug-resistant, with daily seizures affecting his cardiac health. His heart function, currently at an ejection fraction of 20%, poses limitations on treatment options due to sedation contraindications. Medications for heart function, diuresis, and epilepsy have been ongoing since his diagnosis, with adjustments made to manage his symptoms.

Condition On Admission

The patient's current symptoms include daily seizures with varying intensity and duration, despite medication adjustments and hospitalization. The seizures, characterized by spasms, occur 3-5 times a day and last for 3-5 minutes each. His neurological condition presents challenges, with suspicions of partial optic nerve atrophy, moderate-severe brain atrophy, and diffuse lesions noted in MRI scans. While

his cardiac and pulmonary status are stable, his heart function remains compromised, affecting the choice of treatment strategies. Concerns about visual perception delay and the impact of medication on his optic nerve add complexity to his medical management. Despite ongoing evaluations and treatments, the family seeks interventions aimed at stopping seizures, improving neurological function, vision, and heart health.

Treatment Schedule

Patient received 8 packs of umbilical cord derived stem cell (UCMSC) by intravenous (IV) injection and intrathecal injection via lumbar puncture (LP), as per the schedule below:

Number	Date	Cell Type	Delivery Method	Side Effects
1	2022-02-10	UCMSC	Intrathecal Injection & Intravenous Injection	none reported
2	2022-02-14	UCMSC	Intrathecal Injection & Intravenous Injection	none reported
3	2022-02-17	UCMSC	Intrathecal Injection & Intravenous Injection	none reported
4	2022-02-21	UCMSC	Intrathecal Injection	none reported
5	2022-02-24	UCMSC	Intrathecal Injection	none reported

Condition at discharge

The patient's post-treatment assessment reveals several improvements, albeit mostly small in nature. Notably, there are significant improvements in appetite and small improvements in range of movement and head control. However, certain symptoms have shown no improvement, including balance, drooling, limb muscle strength, mood disorder, speech, swallowing, and trunk muscle strength. The treatment seems to have worsened involuntary movements. Regarding special functions, the patient has mostly retained the ability to control head movement and focus attention instantly. There is partial reflex voiding without control for bladder function, while bowel control remains unattainable. The patient is mostly able to recognize family members and has a memory of things, but struggles with language functions such as understanding expressions, forming sentences, and recognizing shapes. Overall, while some progress has been noted, there are areas where significant improvement is still needed.

Symptom

Parents' Assessment of Improvement

Appetite	Significant improvement
Head control	Small improvement
Range of movement	Small improvement

Condition 3 months after treatment

Three months after treatment, the patient's condition has seen significant setbacks. The general physical condition has not improved, and neither has the quality of life, according to the parents. Stem cell treatment did not yield confirmable improvements, leaving them dissatisfied with the outcome. Additionally, the patient required Depakine as an additional treatment due to a retriggering of epilepsy by the stem cells. Notably, certain symptoms have worsened since treatment, including head control, limb muscle strength, and range of movement.

Symptom	Parents' Assessment of Improvement
Head control	Worse than before treatment
Limb muscle strength	Worse than before treatment
Range of movement	Worse than before treatment
Bladder control	Normal function

Condition 12 months after treatment

After twelve months post-treatment, the patient's general physical condition has moderately improved, although the stem cell treatment did not enhance their quality of life as perceived by the parents. There were small improvements noted in balance, head control, involuntary movements, and range of movement. Certain symptoms remained unchanged, such as bladder control and crawling, while drooling showed no improvement and appetite and muscle strength showed moderate and significant improvements.

Symptom	Parents' Assessment of Improvement
Appetite	Moderate improvement
Balance	Small improvement
Head control	Small improvement
Involuntary movements	Small improvement
Limb muscle strength	Significant improvement

Babbling	Moderate improvement
Standing up	Moderate improvement
Swallowing	Moderate improvement
Trunk muscle strength	Moderate improvement

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