

# BEIKE BIOTECHNOLOGY

## Patient Case Study

### Cerebral Palsy

Male, 3 years old, May - June 2019

#### Background

Age: 3 years old

Sex: Male

Nationality: Romanian

Date of Admission: May 26, 2019

Date of Discharge: June 16, 2019

Treatment Location: Bangkok, Thailand

Diagnosis on Admission: Cerebral Palsy

#### Medical History

The patient was born at a normal gestational age. His condition was stable and he was discharged from the hospital 2 days after birth. Once back home the patient showed some sign of jaundice and the family went back to the hospital. The doctors diagnosed the patient with low blood sugar which was treated by medication. Four to five months later, the family observed a delayed development and requested a doctor consultation. After examination, the patient was diagnosed with cerebral palsy when he was 7 months old.

The condition left the patient with motor disorder, global development delay, epilepsy, inconsistent visual and auditory behaviour and microcephaly.

Brain MRI scan from 2016 reported bilateral parieto-occipital gliosis and delayed myelination.

#### Condition On Admission

During initial assessment at our facility, it was established that the patient was able to express feelings and make some sounds, but could not speak. Muscle tone in his 4 limbs was fluctuating including in his extremities. His neck control was rated as fair and his trunk control was poor. There was joint instability in his shoulders, elbows, wrists, hips, knees and ankles. The movements in his 4 limbs were poor and the patient was unable to sit, crawl or stand. Bed mobility was impaired and standard daily activities needed maximum assistance.

#### Treatment Schedule

Patient received 6 umbilical cord blood-derived stem cell (UCBSC) packets by intravenous (IV) injection and intrathecal injection through lumbar puncture (LP), as per the schedule below:

Number	Date	Cell Type	Delivery Method	Side Effects
1	May 27, 2019	UCBSC	IV	none reported
2	May 31, 2019	UCBSC	Intrathecal	none reported
3	June 3, 2019	UCBSC	Intrathecal	none reported
4	June 6, 2019	UCBSC	Intrathecal	none reported
5	June 11, 2019	UCBSC	Intrathecal	none reported
6	June 14, 2019	UCBSC	IV	none reported

## Condition On Discharge

It was noticed that the patient has shown some improvements are as follows:

- **Neck control:** He can control his head up in neutral position for 30-40 seconds while sitting and watching videos. He can turn his head to follow a song that he is interested in.
- **Sitting balance:** He is able to control his trunk, but his back muscle and abdominal muscles are not strong enough and also he has fluctuated tone of muscles. So, he needs the maximal support. Now, he learns how to move and how to inhibit his tone and also his muscle power of trunk has been slightly increased so that he can sit with lesser support (moderate support).
- **Joint instability:** He has shoulder, elbow, wrist, hip, knee and ankle joint instabilities so during transferring or therapy session one must be very careful to not cause joint dislocation. His parents need to protect his joints by keep doing therapy and always being aware of positioning.
- **Hand movements:** The patient can grasp and release objects with assistance and when he is cooperating well, he can now grasp and release objects with his right hand with less assistance. For the left hand, he still needs full assistance. Moreover, the patient can now sit independently for 2-3 minutes by using his hands to support himself.

## Follow Up Information

**Condition 6 months after treatment:** At the 6 month follow up point the patient's family reported that they were satisfied with the outcome and that the treatment had slightly improved the patient's quality of life. Improvements were still progressively being made.

Please see an excerpt from the patient's 6 month assessment below:

Symptom	Parents' Assessment of Improvement
Appetite	Moderate improvement
Balance	Small improvement
Drooling	Small improvement
Drooling	Small improvement
Head Control	Moderate improvement

Involuntary movements	Small improvement
Limb muscle strength	Small improvement
Range of movement	Moderate improvement
Spasticity	Small improvement
Speech	Small improvement
Swallowing	Small improvement
Trunk muscle strength	Small improvement

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