BEIKE BIOTECHNOLOGY

Patient Case Study

Traumatic Brain Injury

Male, 22 years, August - September 2012

Summary

Diagnosis	Sex	Age	Nationality
Traumatic Brain Injury	Male	22 years	German
Injections	**Cell type**	**Admission date**	**Discharge date**
6	UCMSC	August 20th 2012	September 20th 2012

Condition On Admission

The patient suffered from a post-traumatic cerebral hemorrhage in 2002. A CT examination from 2009 showed a mid-cerebral artery infarction of the right basal ganglia. The patient's main presenting problems on his admission to the Guangzhou hospital were a weakness on the left sided limbs and some difficulty in walking. He had spasticity in the left hand, making it difficult to open and he was unable to move his palm. Fine motor skills with the left hand were not possible. Spasticity was present in the left foot, with an equinas deformity which made walking difficult.

Treatment Schedule

The patient received 6 umbilical cord-derived mesenchymal stem cell (UCMSC) packets by intravenous (IV) and intrathecal injections, as per schedule below:

Number	Date	Cell Type	Delivery Method	Side Effects
1	2012-08-22	UCMSC	Intravenous Injection	none reported

Number	Date	Cell Type	Delivery Method	Side Effects
2	2012-08-24	UCMSC	Intrathecal Injection	none reported
3	2012-08-29	UCMSC	Intrathecal Injection	none reported
4	2012-09-03	UCMSC	Intrathecal Injection	none reported
5	2012-09-07	UCMSC	Intrathecal Injection	none reported
6	2012-09-12	UCMSC	Intrathecal Injection	none reported

Condition at discharge

The patient's discharge summary explains that he had improvements in his physical condition and the doctors advised the patient to continue with his physical therapy to get the maximum benefit from the treatment.

Condition 1 month after treatment

The patient participated in Beike's follow-up program and reported significant improvements in his physical condition and quality of life. He felt improvements were continually being made and he was happy with the outcome of the treatment at this time.

Symptom	Patient's Own Assessment of Improvement
Balance	Significant improvement
Coordination of movement	Moderate improvement
Fine motor control	Moderate improvement
Paralysis	Significant improvement
Ability to walk	Significant improvement

In addition to indicating the general areas of improvement, the patient also detailed the more specific benefits he had gained from his treatment. He wrote the following:

- I can raise up better the left foot
- Walking is better (it is possible to touch the ground with the left foot heel), my body is more stable when I walk.
- My balance on the left side is better.
- Control of my knee is better

- My left foot and my left hand are more relaxed
- My left hand palm is more relaxed and the control is better
- I can grab things (but at the moment only with the help of the right side as the right side supports the left arm)
- I can open the left hand easier
- The left hand stays more relaxed when I move my left arm.

Condition at discharge

The patient completed a further follow-up form 7 months after his treatment. He reported significant improvements in his physical condition and quality of life and felt the improvements gained from the treatment were still increasing over time. He indicated on the follow-up form the following improvements:

- *Walking is more fluent*
- *It's easier to raise up my left foot*
- *The control of my knee is better*
- *My balance is better*
- *I can touch the ground with my left heel during walking*
- *My left foot and my left hand are more relaxed*
- *My left arm is more relaxed*
- *I can grab things and let them down and it is possible to let the hand angle straighten while doing this, and I can do this without the help of my right hand.*
- *My hand angle is more stable and moveable*

The patient also received general improvements in these areas as indicated on the follow-up form:

Symptom	Patient's Own Assessment of Improvement
Balance	Significant improvement
Coordination of movement	Significant improvement
Fine motor control	Significant improvement
Paralysis	Significant improvement