

BEIKE BIOTECHNOLOGY

Patient Case Study

Spinal Cord Injury

Male, 53 years old, Oct - Nov 2011

Background

Age: 53 years old

Sex: Male

Nationality: American

Date of Admission: October 2, 2011

Date of Discharge: November 1, 2011

Treatment Center: Bethune International Peace Hospital, Shijiazhuang, China

Diagnosis on Admission: Spinal Cord Injury (C4 Incomplete)

Condition On Admission

The patient suffered a C4 incomplete spinal cord injury following a road traffic accident two years previously. His body on the right side below the level of injury had reduced light touch and pain sensation. Limb muscle strength of the right side was 3~3+ and on the left side was 1~2+. His right foot was swollen and the muscle tension of his limbs was moderately high.

Treatment Schedule

Patient received 5 umbilical cord derived mesenchymal stem cell packets (UCMSC) and 2 autologous bone marrow derived stem cell packets (BMSC) by intravenous (IV) and lumbar puncture (LP), as per schedule below:

| Number | Date | Cell Type | Delivery Method | Side Effects |
|--------|------------------|-----------|-----------------|---------------|
| 1 | October 5, 2011 | UCMSC | IV | none reported |
| 2 | October 10, 2011 | UCMSC | LP | none reported |
| 3 | October 14, 2011 | UCMSC | LP | none reported |
| 4 | October 19, 2011 | UCMSC | LP | none reported |
| 5 | October 24, 2011 | BMSC | LP | none reported |
| 6 | October 28, 2011 | UCMSC | IV | none reported |
| 7 | October 28, 2011 | BMSC | LP | none reported |

Condition On Discharge

The doctors noted that following the treatment the patient had a reduction in the swelling of his right foot and the light touch and pain sensation on the right side of his body had increased. He also displayed a small increase in muscle strength on the right side of his body.

Follow Up Information

Condition 1 month after treatment: At the one month follow up time point the patient reported he was happy with the current outcome of his treatment and had observed some significant improvements in some of his symptoms. Please see excerpt below from his follow up survey:

| Symptom | Parents' Assessment of Improvement |
|-----------------------------|------------------------------------|
| Lower limb sensation | Significant improvements |
| Lower limb muscle tone | No improvements |
| Lower limb strength | Significant improvements |
| Trunk sensation | Significant improvements |
| Trunk muscle tone | No improvements |
| Trunk muscle strength | No improvements |
| Upper limb sensation | Significant improvements |
| Upper limb muscle tone | No improvements |
| Fine motor control | No improvements |
| Sweating | No improvements |
| Control of body temperature | Significant improvements |
| Skin condition | Significant improvements |
| Bladder control | Significant improvements |
| Bowel control | Significant improvements |

Condition 6 months after treatment: The patient continues to report significant improvements in his condition, with many of the symptoms further improving since the one month time point after treatment. He has now gained some improvements in his sweat function and he continues to feel satisfied with the treatment outcome.

Please see an excerpt on the next page from the patient's six month assessment.

Below is an excerpt from the patient's six month assessment:

| Symptom | Parents' Assessment of Improvement |
|-----------------------------|------------------------------------|
| Trunk sensation | Significant improvements |
| Trunk muscle tone | Significant improvements |
| Trunk muscle strength | Significant improvements |
| Upper limb sensation | Significant improvements |
| Upper limb muscle tone | Significant improvements |
| Sweating | Small improvements |
| Control of body temperature | Small improvements |
| Skin condition | Moderate improvements |
| Bladder control | Significant improvements |
| Bowel control | Significant improvements |
| Fatigue | Small improvements |

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