

BEIKE BIOTECHNOLOGY

Patient Case Study

Ataxia

Male, 11 years, July - August 2023

Summary

Diagnosis	Sex	Age	Nationality
Ataxia	Male	11 years	Australia
Injections	Cell type	Admission date	Discharge date
8	UCMSC	July 29th 2023	August 20th 2023

Medical history

The patient, a young male born in 2012, in Australia, has been diagnosed with Friedreich's Ataxia (FRDA), a type of ataxia. The patient's medical journey began when he exhibited signs of clumsiness at the age of six, which progressively worsened over time. His initial diagnosis revealed visible ataxia, characterized by foot drop, decreased heel strike bilaterally, high arches in his feet, and scoliosis. As the condition advanced, the patient experienced weakness in the lower limbs, requiring assistance for balancing activities and tandem walking. He now relies on a walker for mobility due to increasing leg pain and fatigue. Additionally, he faces challenges in speech articulation, handwriting, and everyday tasks, impacting his social interactions and academic performance. Despite ongoing therapies and assistive aids, the patient's condition has continued to deteriorate, prompting involvement with the National Disability Insurance Scheme for support.

Condition On Admission

he patient struggles with walking without support and experiences weakness in his legs, necessitating the use of a walker for mobility. His speech is gradually deteriorating, affecting his ability to engage in conversations coherently. The patient's handwriting

skills are significantly below average for his age group, and he encounters difficulties in holding pencils and cutlery for extended periods. Moreover, he exhibits mild nystagmus, intention tremor, and dysmetria in his upper limbs. His condition has led to limitations in daily activities, school tasks, and social interactions. Despite interventions such as physiotherapy, occupational therapy, and regular medical consultations, his functional capacity continues to decline, emphasizing the need for ongoing support and management to enhance his quality of life.

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	2023-08-01	UCMSC	Intrathecal Injection & Intravenous Injection	none reported
2	2023-08-07	UCMSC	Intrathecal Injection	none reported
3	2023-08-10	UCMSC	Intrathecal Injection & Intravenous Injection	none reported
4	2023-08-14	UCMSC	Intrathecal Injection	none reported
5	2023-08-17	UCMSC	Intrathecal Injection & Intravenous Injection	none reported

Condition at discharge

After treatment, there have been general physical condition improvements, with small improvements in balance to stand noted. The patient experiences moderate chest pain, and improvements in balance, control of movement, and coordination have been observed. Significant improvement is seen in fatigue, low mood or anxiety, and muscle stiffness, while small improvements are noted in fine hand movements and swallowing. Moderate improvement is observed in walking ability. The patient continues to make improvements, although the doctor hasn't confirmed them. The parents are satisfied with the treatment outcome and no additional treatment has been administered post-stem cell treatment.

Symptom	Parents' Assessment of Improvement
Balance	Small improvement

Control of movement	Moderate improvement
Coordination	Small improvement
Fatigue	Significant improvement
Low mood or anxiety	Significant improvement
Muscle stiffness	Significant improvement
Swallowing	Moderate improvement
Walking	Moderate improvement
Fine hand movements	Small improvement

Condition 1 month after treatment

The patient's overall physical condition has notably improved, with increased strength and appetite. There has been a significant improvement in the patient's quality of life, although the doctor hasn't confirmed these improvements. Despite no additional treatment post-stem cell therapy, the patient's general symptoms have seen positive changes. Specifically, there has been a remarkable improvement in balance, coordination, control of movement, fine hand movements, low mood or anxiety, swallowing, and walking ability. The patient now exhibits better balance, can walk unaided for short distances, and can stand from a sitting position unaided, indicating a substantial enhancement in mobility and independence.

Symptom	Parents' Assessment of Improvement
Balance	Significant improvement
Control of movement	Significant improvement
Coordination	Significant improvement
Fatigue	Significant improvement
Fine hand movements	Significant improvement
Low mood or anxiety	Significant improvement
Swallowing	Significant improvement
Walking	Significant improvement

Condition 3 months after treatment

Three months after the treatment the patient has experienced significant improvements in his overall physical condition, with notable reductions in fatigue levels. Regular exercise has helped maintain muscle tone and strengthen the core, contributing to the patient's improved quality of life. Despite the absence of confirmation from the doctor, the patient and his caregivers are satisfied with the treatment outcome and continue to observe ongoing improvements. Three months post-treatment, the patient's balance and coordination have seen moderate to significant improvements, along with significant enhancements in control of movement, fine hand movements, low mood or anxiety, and muscle stiffness. Walking ability has also significantly improved, allowing the patient to stand up and transfer with increased independence, although some assistance is still required.

Symptom	Parents' Assessment of Improvement
Balance	Moderate improvement
Control of movement	Moderate improvement
Coordination	Significant improvement
Fatigue	Significant improvement
Fine hand movements	Significant improvement
Low mood or anxiety	Significant improvement
Muscle stiffness	Significant improvement
Walking	Significant improvement