

BEIKE BIOTECHNOLOGY

Patient Case Study

Optic Nerve Hypoplasia (ONH) / Septo-optic Dysplasia (SOD)

Male, 1 years, February 2022

Summary

Diagnosis	Sex	Age	Nationality
Optic Nerve Hypoplasia (ONH) / Septo-optic Dysplasia (SOD)	Male	1 years	USA
Injections	Cell type	Admission date	Discharge date
8	UCMSC	February 6th 2022	February 23rd 2022

Medical history

The patient, born in 2020, with a primary diagnosis of optic nerve hypoplasia with septo-optic dysplasia (ONH-SOD), experiences delays in mobility and visual impairments, hindering his ability to track toys. His treatment history includes desmopressin acetate injection for diabetes insipidus and daily synthroid medication. Additionally, the patient suffers from constipation since birth. He has reported an allergy to Netflux medication. There is uncertainty regarding the patient's vision beyond light perception.

Condition On Admission

The patient, despite light perception, remains uncertain about the extent of his vision. He experiences constipation from birth but does not have other digestive issues or communicable diseases. There is no history of tumors, breathing problems, cardiovascular issues, or the need for specialized medical equipment. The primary

medical goal is to improve vision, particularly in perceiving large objects. The patient seeks treatment as soon as possible to address his condition.

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 & Intravenous Injection	none reported

Condition 1 month after treatment

After undergoing stem cell treatment, the patient has experienced some improvements in mobility, strength, balance, and feeding. There have been general physical condition enhancements, albeit small, with better spatial awareness and navigation abilities noted. Although the patient's vision has improved, particularly in terms of nystagmus and blindness, other visual aspects like the ability to see at close distances and visual fields have seen only small improvements. The patient's ability to focus eyes quickly, keep eyes focused for a long time, and count fingers has shown no improvement. Despite these varying outcomes, the overall quality of life has slightly improved according to the parents' assessment.

Symptom	Parents' Assessment of Improvement
Ability to see things at a close distance	Small improvement
Blindness	Small improvement
Nystagmus (uncontrolled eye movement)	Small improvement
Visual field	Small improvement

Condition 3 months after treatment

Following the stem cell treatment, the patient's general physical condition has shown small improvements, particularly in strength. While there's an overall slight enhancement in the quality of life, the doctor has not confirmed these improvements, leaving some uncertainty. The patient's ability to focus eyes quickly, keep eyes focused for a long time, and see things clearly has not improved. However, there have been small improvements in seeing hand movements and objects at a close distance. Notably, there's a significant improvement in nystagmus, while other visual aspects like blindness, color vision, and night vision have shown no improvement. The patient's vision in both eyes, as well as the ability to see objects at a far distance, remains unchanged despite the treatment.

Symptom	Parents' Assessment of Improvement
Ability to see hand movement	Small improvement
Ability to see things at a close distance	Small improvement
Nystagmus (uncontrolled eye movement)	Significant improvement
Visual field	Small improvement

Condition 6 months after treatment

The patient's general physical condition has shown moderate improvements, particularly in strength, indicating ongoing progress in his overall health. However, the doctor has not confirmed these advancements, leaving some uncertainty about their extent. Despite the improvements in general physical condition, there hasn't been a notable enhancement in the patient's quality of life, which wasn't applicable for assessment previously. The patient's ability to focus eyes quickly, keep eyes focused for a long time, and see objects at both close and far distances has not improved. However, there have been small improvements in seeing hand movements, color vision, light perception, and the visual field. The patient's nystagmus has also shown a small improvement, while other symptoms like blindness, pain in the eyes, and strabismus remain unchanged despite the treatment adjustments.

Symptom	Parents' Assessment of Improvement
Ability to see hand movement	Small improvement
Colour vision	Small improvement
Light perception	Small improvement
Nystagmus (uncontrolled eye movement)	Small improvement

Visual field	Small improvement
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Condition 12 months after treatment

The patient's general physical condition has shown moderate improvements, particularly in physical strength, indicating ongoing progress in his overall health. Additionally, there has been a moderate improvement in the patient's quality of life, signifying a positive response to the treatment. While the doctor has not confirmed these advancements, the patient's parents remain somewhat satisfied with the treatment outcome. The patient's ability to see hand movements and objects at a close distance has shown small improvements, whereas there has been a significant improvement in nystagmus. Moreover, there has been a moderate improvement in astigmatism and small improvements in blindness and the visual field. However, the patient's ability to count fingers remains unchanged, and there have been no improvements in other visual aspects like the ability to see objects at a far distance, clear vision, and light perception.

Symptom	Parents' Assessment of Improvement
Ability to see hand movement	Small improvement
Ability to see things at a close distance	Small improvement
Astigmatism	Moderate improvement
Blindness	Small improvement
Nystagmus (uncontrolled eye movement)	Significant improvement
Visual field	Small improvement

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