BEIKE BIOTECHNOLOGY

Patient Case Study
Sensorineural Hearing Loss
Male, 4 years old, August - September 2009

Background

Age: 4 years old
Sex: Male
Nationality: American
Date of Admission: August 4, 2009
Treatment Center: Guangzhou Provincial Hospital of Chinese Medicine, Guangzhou, China
Diagnosis on Admission: Sensorineural Hearing Loss

Condition On Admission

Patient's hearing had been seriously impaired by meningitis. Parents reported that their son (the patient) would often not respond to sounds, especially those at a high frequency level.

Treatment Schedule

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

Number	Date	Cell Type	Delivery Method	Side Effects
1	August 8, 2009	UCBSC	IV	none reported
2	August 14, 2009	UCBSC	LP	none reported
3	August 19, 2009	UCBSC	LP	none reported
4	August 24, 2009	UCBSC	LP	none reported
5	August 28, 2009	UCBSC	LP	none reported
6	September 2, 2009	UCBSC	IV	none reported

Condition On Discharge

The center's nurses observed that the patient had become better coordinated and faster responding when presented with sound stimuli, especially those in the low frequency sounds and human voices. His mother was very satisfied and also observed these same changes. She expressed her

hope that she might be able to bring back her son for more treatment in the future in order to improve upon these observed changes.

Below are the results of the ASSR (Auditory Steady State Response) tests completed before and after treatment. This is a standard test provided to young children with hearing loss. Sounds of varying frequencies are transmitted through each ear canal and electrodes measure the brain's responses. The results estimate the lowest level of each frequency, in decibles (dB), that will elicit a response.

The test results show the patient's brain was able to respond to much higher frequency sounds than in the same test before treatment, when at many frequencies a non-response was represented as N/A. The patient's range of hearing increased and the lowest level in which there was a response also improved.

Overall, the hearing in the right ear increased by an average of 10dB. The left ear's low frequency hearing (250Hz) increased by 30dB, and the mid-high frequency (4000Hz) hearing increased by 2dB.

	Pre-Treatment August 2009	Post-Treatment September 2009
Right Ear	**Frequency (Hz) / Response (dB)**	**Frequency (Hz) / Response (dB)**
	250 / 70	250 / 60
	500 / 91	500 / 84
	1000 / 106	1000 / 74
	2000 / N/A	2000 / 92
	4000 / N/A	4000 / 101
Left Ear	**Frequency (Hz) / Response (dB)**	**Frequency (Hz) / Response (dB)**
	250 / 70	250 / 40
	500 / N/A	500 / 84
	1000 / N/A	1000 / 109
	2000 / N/A	2000 / 107
	4000 / N/A	4000 / 96

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