Double Umbilical Cord Blood Transplantation in a Pediatric Patient: A First for Nebraska

Grace Murray et al.

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**Table 1.**

Patient demographics and clinical characteristics.

<table>
<thead>
<tr>
<th></th>
<th>By Case (n=47)</th>
<th>By Patient (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17 (36.1)</td>
<td>5 (35.7)</td>
</tr>
<tr>
<td>Female</td>
<td>30 (63.8)</td>
<td>9 (64.6)</td>
</tr>
<tr>
<td>Age*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>19 (40.4)</td>
<td></td>
</tr>
<tr>
<td>6-10</td>
<td>6 (12.7)</td>
<td></td>
</tr>
<tr>
<td>11-15</td>
<td>11 (23.4)</td>
<td></td>
</tr>
<tr>
<td>16-20</td>
<td>8 (17)</td>
<td></td>
</tr>
<tr>
<td>21+</td>
<td>3 (6.4)</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>Mean 10y</td>
<td></td>
</tr>
</tbody>
</table>

Clinical Characteristics

- Seizure history²: 5 (35.7)
- Contractures: 14 (100)
- Photophobia: 6 (42.8)
- Able to ambulate: 10 (71.4)
- IQ³: 
  - ≤50: 7 (50)
  - >50: 6 (42.8)

**Double Umbilical Cord Blood Transplantation in a Pediatric Patient: A First for Nebraska**

Grace Murray¹, Sachit Patel¹

¹University of Nebraska Medical Center, Department of Pediatrics

**Mentor:** Sachit Patel

**Program:** Pediatrics

**Type:** Case Report

**Background:** Unrelated umbilical cord blood (UCB) transplantation has been used as a hematopoietic stem cell source for 30 years. Compared to adult bone marrow and peripheral blood stem cells, UCB has more rapid availability, absence of donor attrition, and reduced risk of GVHD despite HLA disparity. Unfortunately for larger patients, a single UCB unit has an insufficient amount of total nucleated cells to support engraftment. The use of two well-matched UCB units has been shown to overcome this barrier.

**Methods:** Chemotherapy, Graft, Cord Blood Transplant. Consent was obtained to utilize this case for educational purposes.

**Results:** A 12-year-old presented with bleeding and weight loss and was found to have anemia, thrombocytopenia and leukocytosis. Peripheral smear demonstrated auer rods. He was diagnosed with acute myeloid leukemia (AML-M4). He successfully completed therapy with protocol AAML 1031 but relapsed seven months later. He achieved a second complete remission with protocol AAML 0523. Given his high risk disease and poor prognosis with chemotherapy alone, the patient was offered transplant. No suitable sibling or adult unrelated donors were found. He underwent mismatched double umbilical cord transplant. Complications included grade III aGVHD involving the skin and GI system, and CMV reactivation. Engraftment was achieved on day +27. He is now 16 years-old with full donor chimerism and complete immune reconstruction, no findings of chronic GVHD and no disease relapse.

**Conclusion:** This was the first pediatric patient in Nebraska to have a successful double UCB transplant. Double cord transplant is an acceptable alternative when there is no sibling or unrelated donor match and when a single cord unit total nucleated dose is insufficient. [https://doi.org/10.32873/unmc.dc.gmerj.2.1.069](https://doi.org/10.32873/unmc.dc.gmerj.2.1.069)

**Shwachman-Diamond Syndrome: First Successful Hematopoietic Stem Cell Transplant in Nebraska**

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¹University of Nebraska Medical Center, Department of Pediatrics

**Mentor:** Sachit Patel

**Program:** Pediatrics

**Type:** Case Report

**Background:** Shwachman-Diamond syndrome (SDS) is an autosomal recessive condition characterized by bone marrow dysfunction, pancreatic insufficiency, and skeletal abnormalities. Ninety percent of patients with SDS have a mutation in the SBDS gene on chromosome 7, while the other ten percent are diagnosed clinically.