Cutting the Cord on UCBT?

By Ruben Mesa, MD

Despite many advances in medical therapies, allogeneic hematopoietic stem cell transplant (HSCT) remains the only treatment with curative potential in several hematologic malignancies and congenital marrow failure disorders such as Dyskeratosis Congenita (DC). Indeed, the origin of DC (and the need for HSCT) is highlighted by the late-breaking abstract (#LB3) from Dr. Geraldine Aubert and colleagues, titled "Loss of Primitive Hematopoietic Cells in Patients with Dyskeratosis Congenita," a disorder which arises from a loss of stem cells due to defective telomeres.

Regardless of indication, according to the National Marrow Donor Program, only 30 percent of those currently needing an HSCT have a matched sibling donor. With aging populations (and smaller families), this challenge will grow worse. Umbilical cord blood (UCB) has been of great interest in HSCT due to the greater tolerance by recipients for HLA mismatch and the potential to expand the donor pool.

In today's Simultaneous Session on Clinical Results: Alternative Donor Transplantation: Umbilical Cord Blood and Comparative Studies (11:00 a.m. – 12:30 p.m.), Dr. Navneet Majhail (University of Minnesota) will present the abstract titled "Reduced Intensity Allogeneic Transplant in Patients Older Than 55 Years: Unrelated Umbilical Cord Blood is Safe and Effective for Patients without a Matched Related Donor." In this talk, he will describe a population of patients over age 55 who received reduced intensity conditioning and either a matched related donor (n=47) or UCB (n=43) as their stem cell source. The two groups had similar baseline demographics and disease types. Although the UCB group did receive a smaller cell "dose," the vast majority received cells from two UCB units (1 unit per cord banked), which may account for longer engraftment times for UCB. Despite these differences, both groups fared similarly with relatively equivalent progression-free and overall survival, and acute graft-versus-host disease (GVHD). Although the majority of those receiving UCB had a 1-2 antigen mismatch (while all matched-related-donor recipients received fully matched cells) the UCB group experienced a lower incidence of chronic GVHD at one year. The source of stem cells was found to have no impact on transplant-related mortality.

So, is UCB transplantation ready for prime time and broad applicability? "In our study, which included patients older than 55 years, unrelated umbilical cord blood transplant recipients had similar outcomes compared to recipients of grafts from matched sibling donors. Hence, for older patients who do not have a matched sibling donor, umbilical cord blood transplantation could be offered as an alternative," stated Dr. Majhail. Indeed, UCB could also help meet the need of the young patient, such as those with DC, whose only option is an HSCT. Future UCB Research will focus on the optimal degree of HLA matching and overcoming delayed engraftment for UCB transplants. Despite the challenges, Dr. Majhail is optimistic about the future. "The increasing repertoire of unrelated umbilical cord blood will make allogeneic HCT more widely available for older patients."