Letter to Editor

Open Access

CrossMark

Umbilical cord blood transplant- are we doing enough?

Keywords: stem cell transplant, umbilical cord blood banking, lymphoma, pediatric population, allogenic

Abbreviations: UCB, umbilical cord blood; UCBT, umbilical cord blood transplant; HLA, human leukocute antigen; BM, bone marrow; PB, peripheral blood; GVHD, graft versus host disease; GVL, graft versus leukemia

Introduction

Umbilical Cord Blood (UCB) Transplant (UCBT)-a treatment made popular in 1988 when the first successful pediatric transplant was performed in Paris with the cells procured from an allogeneic related source.[1] It is now established as a robust alternative when a Human leukocyte antigen (HLA) matched bone marrow (BM) or peripheral blood (PB) donor is unavailable.[2] The prime advantage offered by the biologically naïve cells of UCB is the ability to breach the HLA barrier-to be able to perform transplants with partially HLA-mismatched donors, with acceptable levels of Graft versus host disease (GVHD) and preserved Graft Versus Leukemia (GVL) effect.[1] It is as well postulated that UCB derived stem cells possess an extensive engrafting capacity which exceeds that of BM.[3] This advantage is now extended to adults with superior engraftment and survival owing to double unit UCBT,[3,4] improved patient selection, and better supportive care.[3]

As the field of UCBT expanded exponentially a parallel evolution was seen in the system of cord blood banking. There are at least 142 public and 25 private UCB banks the world over with 3 public and 7 private banks located in India.[4] The private banks store approximately 900,000 UCB units as compared to a mere 400,000 units available in the public banks,[5] highlighting a great divide. The futility of storage of UCB for autologous use is well recognized by the medical fraternity bringing it much obloquy. Currently, the indications for autologous UCBT in the pediatric populations are limited to recurrent lymphoma, solid tumors such as neuroblastoma and severe aplastic anemia.[6] The utility of autologous UCBT in the pediatric population is extremely low at 1-3 per million children as is the estimated risk of developing the few indications requiring autologous UCBT in children which is pegged at less than 1 in 50,000.[6]

The usage of UCB is limited, almost exclusively to allogeneic UCBT in the treatment of various malignant and non malignant hematological disorders.[6] Despite a large number of donors registered with various registries across the world[1,3] and many UCB units available in the public banks worldwide, potential transplant recipients in India are unable to find a suitable match in a timely fashion. UCBT in India have been scarce owing to limited availability of UCB units, approximately 5000;[4] in the public domain. The estimated requirement of this genetically diverse population is pegged at 30,000 units.[4] There is a large unmet requirement in India for UCBT despite a high and increasing burden of hematological disorders treatable by UCB. This gives rise to an exorbitant need to make available to the people in India, a large pool of UCB units for allogeneic use at affordable costs.

Volume 3 Issue 2 - 2016

Arora B,[1] Bhargava R,[2] Dua V,[2] Dayama A,[2] Pandey A[3]
[1]DGM for Medical Affairs, CelluGen Biotech Pvt. Limited, India
[2]Department of Hemato-oncology, Artemis Hospitals, India
[3]Medical Director, CelluGen Biotech Pvt. Limited, India

Correspondence: Anubhav Pandey, Medical Director, CelluGen Biotech Pvt. Limited, CelluGen House 62, Udyog Vihar Phase-1, Gurgaon, Haryana-122016, India, Tel +91-7838515178, 9871456699, Email dranubhav.pandey@cellugen.in

Received: September 28, 2016 | **Published:** December 22, 2016

Acknowledgements

Authors would like to express sincere gratitude to Dr. Firdosh Mahuvawala and Mr. Lalit Jaiswal, Directors for making it possible and funding the study and special thanks to Mr. Anand Bhushan, COO of Cellugen Biotech Private Limited for supporting throughout the study.

Conflict of interest

The author declares no conflict of interest.

References

1. Razek AA, Elhanbly S, Eldeak A. Transrectal ultrasound in patients with hematospermia. *J Ultrasound*. 2010;13(1):28–33.
2. Mulhall JP, Albertsen PC. Haemospermia: diagnosis and management. *Urology*. 1995;46(4):463–467.
3. Munkel witz R, Krasnokutsky S, Lie J, et al. Current perspectives on hematospermia: a review. *J Androl*. 1997;18(1):6–14.
4. Weidner W, Jantos C, Schumacher F, et al. Recurrent haemospermia. Underlying urogenital anomalies and efficacy of imaging procedures. *Br J Urol*. 1991;67(3):317–323.
5. Jones DJ. Haemospermia: a prospective study. *British Journal of Urology*. 1991;67(1):88–90.
6. Mundy AJ, Ryder TA, Edmonds DK. Asthenozoospermia and the human sperm mid-piece. *Hum Reprod*. 1995;10(1):116–119.
7. Singh Iqbal. The sanguineous sperm (hemospermia)-current appraisal and review. *Indian Journal of Surgery*. 2005;67(6):302–307.
8. Kumar P, Kapoor S, Nargund V. Haematospermia-a systemic review. *Ann R Coll Surg Engl*. 2006;88(4):339–342.
9. Akhter W, Khan F, Chinegwundoh F. Should every patient with hematospermia be investigated? A critical review. *Cent European J Urol*. 2013;66(1):79–82.
10. Papp GK, Hoznek A, Hegedüs M, et al. Hematospermia. *J Androl*. 1994;15:31S–33S.

11. Hamburger S, Styczynski M, O'Hearne J, et al. Hemospermia and hypertension-two case reports. *J Kans Med Soc*. 1980;81(10):459–460.

12. Iversen PS. Hemospermia and hypertension. *Ugeskr Laeger*. 1987;149(9):596.

13. Bhaduri S, Riley VC. Haematospermia associated with malignant hypertension. *Sex Transm Infect*. 1999;75(3):200.

14. Kochakarn W, Leenanupunth C, Olarn KR, et al. Hemospermia: review of the management with 5 years follow-up. *J Med Assoc Thai*. 2001;84(11):1518–1521.

15. Cho IR, Lee MS, Rha KH, et al. Magnetic resonance imaging in hemospermia. *J Urol*. 1997;157(1):258–262.

16. Yagci C, Kupeli S, Tok C, et al. Efficacy of transrectal ultrasonography in the evaluation of hematospermia. *Clin Imaging*. 2004;28(4):286–290.

17. Jianquan Z. Diagnosis and therapeutics of the causative diseases for hemospermia on transrectal ultrasound. *Ultrasound Med Biol*. 2006;32:S249.

18. Prando A. Endorectal magnetic resonance imaging in persistent hemospermia. *Int Braz J Urol*. 2008;34(2):171–177.

Citation: Arora B, Bhargava R, Dua V, et al. Umbilical cord blood transplant- are we doing enough? *Hematol Transfus Int J.* 2016;3(2):166–167.
DOI: 10.15406/htij.2016.03.00064