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Hematopoietic stem cell transplant in peru: experience and challenges of the largest transplant center in Perú

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HEMATOPOIETIC STEM CELL TRANSPLANTATION IN PERU: EXPERIENCE AND CHALLENGES OF THE LARGEST TRANSPLANTATION CENTER IN PERU

TRASPLANTE DE CÉLULAS MADRE HEMATOPOYÉTICAS EN EL PERÚ: EXPERIENCIA Y DESAFÍOS DEL CENTRO DE TRASPLANTE MÁS GRANDE DEL PERÚ

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Bone marrow transplantation, currently known as hematopoietic stem cell transplant (HSCT), involves the infusion of stem cells healthy hematopoietic cells to patients with dysfunctional bone marrow, diminished or compromised by hematological neoplasms⁽¹⁾. Since its first exploration in humans in the 1950s based on the results obtained in animal models, more than one million procedures have now been performed in Europe and collaborating countries. Early detection of complications and histocompatibility typing (HLA) with which potential donors can be better-selected thanks to an international donor registry network of bone marrow and the advancement of technology in terms of support treatment⁽²⁻⁴⁾.

HEMATOPOIETIC STEM TRANSPLANTATION IN LATIN AMERICA AND PERU

The first transplants performed in Latin America began in the 1980s, and the number has been increasing continuously since⁽⁵⁾. In Peru, starting in 1994, the first transplants began to be performed. Since that date, the bone marrow transplant unit (UTMO) of the "Edgardo Rebagliati Martins" National Hospital (HNERM) as well as a few other Peruvians centers, has been carrying out HPT in its different modalities: Autologous transplants in which the same patient is the donor of their cells, Compatible Allogeneic Transplantation in which a consanguineous sibling donates the cells as they are 100% compatible according to their HLA and finally from the 2015 a new unique methodology in the country that allows transplants with direct relatives of the same family nucleus (Parents and Siblings) who only present 50% of the compatibility also known as Haploidentical^(1,6). This experience is demonstrated with more than 1500 transplants performed.

Currently, by the year 2022, at the national level, there were only seven health establishments accredited by the Ministry of Health to carry out TPH7. Only 4 of these centers are authorized to perform allogeneic transplants, which are the priority in pediatric patients with leukemia⁽⁷⁾. The HNERM UTMO service has contributed to more than half of all transplants performed nationwide, which by 2020 were 155 procedures.

PROFILE OF THE PATIENTS UNDERGOING HSCT

Among the characteristics of the patients undergoing HSCT in our unit, the most frequent gender in general for all transplants was male, aged between 18 and 51 years. Table 1 summarizes the profiles of patients undergoing HSCT at the UTMO of the HNERM.

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SURVIVAL OF TRANSPLANTED PATIENTS IN THE UTMO

It has been possible to achieve an overall survival at 60 months (5 years) in our patients of 75% for allogeneic TPH and up to 55% for haploidentical TPH. Figures 1 and 2 show the survival curves estimated by Kaplan-Meier. On the other hand, the overall survival for patients undergoing autologous HPCT at 5 years is only 50%.

IMPACT OF THE COVID-19 PANDEMIC ON THE TPH PROGRAM

The pandemic caused by coronavirus disease 2019, better known as COVID-19, which was declared in March 2020, has generated a global health crisis, with a significant impact on bone marrow transplant units around the world⁽⁸⁾.

The UTMO of the HNERM had a negative impact, reducing by 40% the number of transplants performed during the year 2020 compared to the previous year. It found an incidence of 13.5%, with mild cases being the most frequent group (83%) followed by severe cases (17%) and lethality of 8%, three times above the average Peruvian population. It was also found that only 25% required specific treatment for symptoms.

PERSPECTIVES FOR THE FUTURE

Since its creation in 1994, the UTMO of the HNERM has been making continuous efforts to provide a warm service with the highest quality standards to patients with diseases that compromise the functioning of the bone marrow, offering an opportunity for treatment and in some cases, even the cure of highly aggressive pathologies⁽¹⁾.

Despite the progressive increase in procedures performed at the national level, access to bone marrow transplantation is still insufficient, so greater efforts are required to close this infrastructure gap.

In this year, after the ravages caused by the pandemic, we want to be able to continue growing as a unit and implementing new technologies and transplant platforms such as the unrelated, the promotion and implementation of a scientific research unit that allows specific analyzes of our population, such as the evaluation of the quality of life after transplantation, as well as the development of cell therapy that allows us to improve our transplant processes and obtain the best possible results for the sake of patient health. For this reason, we thank all our patients for the trust placed in the HNERM UTMO to treat their diseases.

Table 1. Profile of patients undergoing HSCT in the UTMO of the HNERM

	Allogeneic	Haploidentical	Autologous
Age	30 years	18,5 years	51 years
gender	Man	Man	Man
Diagnosis	B-ALL	B-ALL	Multiple myeloma
Donor	Brother	Father	Doesn't apply / Does not apply
Blood group	O+	O+	O+

*Leucemia linfoblástica aguda B



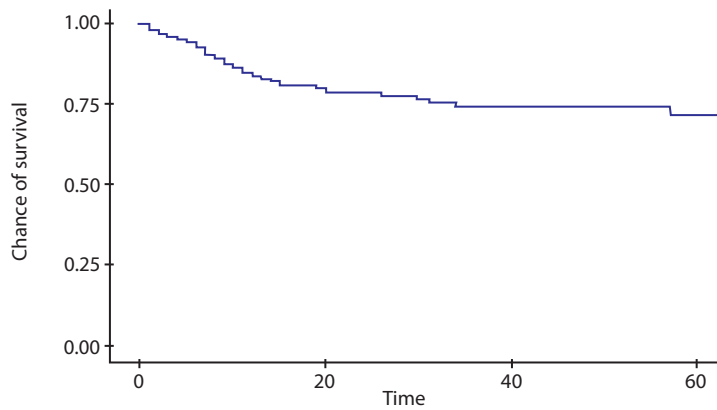


Figure 1. Survival in patients undergoing transplantation at the UTMO of the HNERM

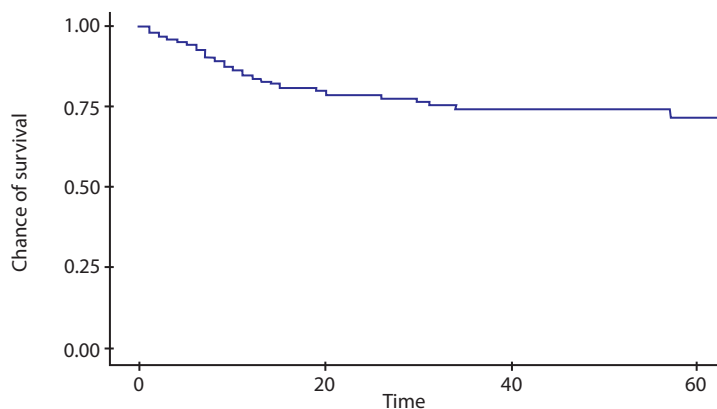


Figure 2. Survival in patients undergoing haploidentical transplantation at the UTMO of the HNERM

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