



Letter to the Editor

Changes within the care of hematopoietic cell transplantation patients after the shift of a Mexican institution to a COVID-19-only center



Dear Editor,

The COVID-19 pandemic in Mexico initiated the last week of February 2020.^{1,2} On March 17th,^{3,4} some public referral hospitals, including the National Institute of Medical Sciences and Nutrition “Salvador Zubiran” (INCMNSZ, for its acronym in Spanish), were shifted to “COVID-19-only centers” (“COVID-19-OC”). The objective of this study was to evaluate the modifications within the medical attention of hematopoietic cell transplantation (HCT) patients as a result of this pandemic-associated shift.

This study included and retrospectively analyzed 80 consecutive patients with scheduled HCT outpatient consultations, from March 17th to May 13th. Dates of appointments and patients’ data were obtained from the institutional electronic scheduling system and medical records (SoTeci). Categorical variables were described by frequencies and percentiles and continuous variables were described by the median and ranges. SPSS v.21 (IBM, Chicago, IL) was used to collect and analyze the data.

Fifty-seven patients had already received an HCT (recipients) and 23 were undergoing the pre-HCT screening (candidates). Overall demographics and characteristics are shown in Table 1. The most common underlying diseases among both, recipients and candidates were acute leukemias (51% and 48%, respectively). Table 2 shows the characteristics and modifications of the consultations of the recipients. Thirty-five (61%) recipients were under long-term surveillance without treatment and 22 (39%) were under active treatment. Overall, from the total 125 scheduled appointments, 46% were given remotely by telephone and only 20% were physical consultations. Forty-three (34%) appointments were cancelled, until further notice, as these recipients had received an HCT more than 2 years ago and did not have any complications during the last visits. None of the recipients undergoing consultations referred symptoms of COVID-19. On the other hand, from the 23 candidates, 65% were initiating the process ($n = 15$) and 35%

($n = 8$) had completed their screening. Outcomes as a result of treatment delay are also described in Table 2. All HCT had to be cancelled: 12 allogeneic, 10 autologous, and 1 haploidentical. During the 2-months period, only 2 candidates with acute leukemia required hospitalization; one due to relapse and COVID-19 diagnosis (admitted to the INCMNSZ), and the other had neutropenic fever (admitted to another center).

Pandemics, in this case as a consequence of the coronavirus SARS-CoV-2, involuntarily lead to changes within the healthcare systems.⁵ As the HCT ward at the INCMNSZ has four rooms, accounting the last 5 years, the mean number of HCT performed annually is 29. Nonetheless, our institution is one of the few public centers actively performing this procedure in adults from all the Mexican states.^{6,7} This year, only 6 HCT had been performed at our institution. Our 2-months results showed that from the recipients receiving consultations, most were by telephone under the circumstances of the benefit-risk equation to potentially develop COVID-19. More importantly, 23 candidates were not able to undergo an HCT, and from these, one relapsed. Those candidates could not be referred to other institutions, because even private hospitals, at least in Mexico City, the city where most centers performing this procedure are located, also cancelled this procedure since March. Only 2 centers performed urgent HCT among their patients. Nevertheless, at most centers, admissions were possible if required, contrary to our situation, were recipients could not be hospitalized but rather referred to another center, for which, thus far, there is a paucity of formal agreements. Fortunately, during the 2-months period, no post-transplant complications have been observed. In conclusion, we do not acknowledge until when, the shift at the INCMNSZ will prolong, but it is clear, that in the HCT scenario, the Mexican health system must be strengthened to meet the needs of all the HCT patients in the panorama of the current and future pandemics, as it has been reported that 6 HCT are performed per million inhabitants in our country⁷ due to paucity of centers performing this procedure (approximately 12), and

Table 1 – Demographics and characteristics of the HCT recipients and candidates (n = 80).

Characteristics	HCT recipients (n = 57) n (%)	Pre-HCT screening candidates (n = 23) n (%)
Median age (range)	28 (10–64)	43 (18–66)
Gender		
Female	29 (51)	7 (30)
Male	28 (49)	16 (70)
Diagnosis		
Acute leukemia	29 (51)	11 (48)
Aplastic anemia	5 (9)	2 (9)
Chronic leukemia	2 (3.5)	–
Germ cell tumor	1 (1.5)	1 (0.5)
Lymphoma	12 (21.5)	6 (27)
Multiple myeloma	3 (5)	1 (0.5)
Myelodysplastic syndrome	3 (5)	2 (9)
Other	2 (3.5)	–
Type of HCT		
Allogeneic	33 (58)	10 (47.5)
Autologous	18 (32)	12 (52)
Haploidentical	6 (10)	1 (0.5)
Site of HCT		
INCMNSZ	50 (88)	–
NPH ^a	7 (12)	–

INCMNSZ: National Institute of Medical Sciences and Nutrition “Salvador Zubiran”; NPH: National Pediatric Institute.

^a HCT recipients > 17 years that have undergone an HCT at the National Pediatric Hospital are referred to the INCMNSZ for further follow-up.

Table 2 – Characteristics of the HCT outpatient follow-up appointments and treatment delay outcomes (n = 80).

Characteristics	n (%)
Status of recipients (n = 57)	
Active treatment	22 (39)
Under surveillance	35 (61)
Number of consultations per patient (n = 57)	
One	34 (60)
More than one	23 (40)
Total consultations (n = 57)	125 (100)
Status of consultations (n = 57)	
Cancelled	43 (34)
Physical	25 (20)
Remote (by telephone)	57 (46)
Outcomes related to treatment delay (n = 80)	
Cancelled HCT	23 (40)
Relapse ^a	1 (1)

^a One HCT candidate.

consequently, although patient access is always considered, referrals are almost impossible.

Conflicts of interest

The authors declare no conflicts of interest.

Acknowledgements

We thank Dr. Alberto Olaya-Vargas, Dr. Andres Gomez-de-Leon, Dr. Brenda Acosta-Maldonado, Dr. Guadalupe

Rodriguez-Gonzalez, Dr. Martha Alvarado-Ibarra, Dr. Martha Gonzalez-Bautista, Dr. Myrna Pequeño-Luevano, Dr. Uendy Perez-Lozano, Dr. Yanet Ventura-Enriquez for their input regarding the status of HCT at their institutions.

REFERENCES

1. Worldometers.info. Reported cases and deaths by country, territory, or conveyance; March 16th, 2020. Available from <https://www.worldometers.info/coronavirus/>
2. Secretaría de Salud, Dirección General de Epidemiología. COVID19 México. Información General; April 19th, 2020. Available from <https://coronavirus.gob.mx/datos/>
3. Ornelas-Aguirre JM. The new coronavirus that came from the East: analysis of the initial epidemic in Mexico. *Gac Med Mex.* 2020;156(3):208–16.
4. Acuña-Zegar MA, Santana-Cibrian M, Velasco-Hernandez JX. Modeling behavioral change and COVID-19 containment in Mexico: a trade-off between lockdown and compliance. *Math Biosci.* 2020;108370 [Epub 2020 May 6].
5. Shamasunder S, Holmes SM, Goronga T, Carrasco H, Katz E, Frankfurter R. COVID-19 reveals weak health systems by design: why we must re-make global health in this historic moment. *Glob Public Health.* 2020;15(7):1083–9.
6. Rivera Franco MM, Leon Rodriguez E, Gomez-Almaguer D, Gutierrez-Aguirre CH, Valero-Saldaña LM, Acosta-Maldonado BL, et al. Building a hematopoietic cell transplantation outcomes registry in Mexico. *Bone Marrow Transplant.* 2020, <http://dx.doi.org/10.1038/s41409-020-0944-z>.
7. Limón Flores JA. El trasplante de células hematopoyéticas en México. Una perspectiva desde la III Jornada Académica de Trasplante Hematopoyético en el IMSS de Puebla. *Rev Hematol Mex.* 2018;19(2):101–4.

Monica M. Rivera-Franco, Erika S. Saldaña-Gonzalez ,
Eucario Leon-Rodriguez *
*Hematopoietic Cell Transplantation Program, Department of
Hematology and Oncology, Instituto Nacional de Ciencias Medicas y
Nutricion "Salvador Zubiran", Mexico City, Mexico*

* Corresponding author at: Avenida Vasco de Quiroga 15, Belisario
Dominguez Sección XVI, Tlalpan, 14080 Mexico City, Mexico.
E-mail address: eucario.leonr@incmnsz.mx
(E. Leon-Rodriguez).

Received 26 June 2020

Accepted 11 August 2020

Available online 21 August 2020

2531-1379/

© 2020 Associação Brasileira de Hematologia, Hemoterapia e
Terapia Celular. Published by Elsevier Editora Ltda. This is an
open access article under the CC BY-NC-ND license ([http://
creativecommons.org/licenses/by-nc-nd/4.0/](http://creativecommons.org/licenses/by-nc-nd/4.0/)).
<https://doi.org/10.1016/j.htct.2020.08.001>