Starting a transplant program: A perspective from the front line.

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HSCT CHILEAN PROGRAM
1999- 2012

• Introduction
• HSCT Program
• Overall Ongoing Results
• Future Plans
CHILE

DEMOGRAPHICS
Total Population

16,928,873 inhabitants

<table>
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<th>&lt; 15 yr %</th>
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Public Health System 75.0 %
Highlights of Chilean Public Health

In 1986

Cancer 2nd cause of death in Chile

The NATIONAL CANCER COMMITTEE was established with members from the scientific societies, universities, private and public system: PINDA
PINDA NETWORK

12 PINDA centers
7 Satellite centers
4 partial centers
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SCT program PINDA-HLCM
How to do it?

• Develop goals and objectives for the HSCT program

• To define and have the necessary infrastructure for starting...
Goals: short-term (December 1998)

• To establish a protocol for the study of donor and recipient prior HSCT (IBMTR)
• To establish a protocol: for infectious prophylaxis, VOD prevention and transfusional norms ...
• To define conditioning protocols to be used based on specific diseases
• To create the PINDA transplant committee (June 1998)
• To define transplant indications according to PINDA’s protocols and EBMT Guidelines
• Selection of patients for transplantation in the committee
Goals: mid-term (December 1999)

- Accreditation process ✅
- To start an autologous and identical sibling transplant program ✅
- To obtain financial support through the Ministry of Health for autologous and identical sibling transplants ✅

Allogeneic transplant  US$ 54,000
Autologous transplant  US$ 28,000
Goals: Long-term

- UCB transplant
- Haploidentical HSCT program
- Unrelated stem cells transplant program
- To create a umbilical cord blood bank
- To establish a national donor registry
HSCT RESULTS
PINDA-HLCM

- National Program ✓
- BMT Program in the public health system ✓
- Started: October 1999 ✓
- Accredited (NMDP) ✓
- PINDA selection committee ✓
- Routine indications ✓
PINDA Chile
500 new cases every year in Chile

Second cause of death!
60 patients!

Ministry of Health
FONASA
AMICAM

IOP
St. Jude Children’s Research Hospital

Internal Support

External Support

Universidad de Chile

Hosp. Valle Hebron
Barcelona, Spain
Curitiba, Brasil
Londres, UK

BMT COMMITTEE PINDA

BMT UNIT
SCT Donors

POTENTIAL SCT PATIENT
> 500 patients studied

Option #1
MSD, MFD
25%

Option #2
MUD (UCB)
Caucasian 60 – 70%
Ethnic Minority 10%

Option #3
No donor (MMFD)
> 50%

Transfusion Medicine, 2008, 18, 250-259
HSCT CHILEAN PROGRAM
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• 263 transplants
• Age: 3 months – 24 years
• Average: 8.8 years
SCT-PINDA/HLCM Experience
Age 3 mo – 25 y (median 8.8 y)

- T. Oncological: 79%
- Non Oncological: 21%
Total Trasplantes: n=263 ATPH/MSD/MFaD/SCU/Haplo

% de Sobrevivencia:
- 75% a 1 año
- 64% a 3 años
- 61% a 5 años

Meses post TPH:
- Event Free Survival:
  - 69% a 1 año
  - 58% a 3 años
  - 56% a 5 años

Graph showing survival rates over time.
Type of procedure by time period

- **1999-2002**
  - Haplo Clinimacs: 36
  - Cord: 4
  - MFD: 4
  - Haplo Roseting: 11
  - Autologous: 4

- **2003-2005**
  - Haplo Clinimacs: 30
  - Cord: 15
  - MFD: 25
  - Haplo Roseting: 18
  - Autologous: 20

- **2006-2011**
  - Haplo Clinimacs: 44
  - Cord: 25
  - MFD: 44
  - Haplo Roseting: 18
  - Autologous: 20
Cause of death

Relapse
Overall Survival

OS %

Months after transplantation

Auto
Haplo
Cord
MFD
MSD

% represent estimated 5 years post transplant OS

72%
54%
45%
38%
TRM

Months after transplantation

Percent death

100 days

1999-2001
2002-2004
2005-2007
2008-2011
Autologous Hematopoietic Stem Cells Transplant

- Death by toxicity (Within the first 100 days) has decreased to 0%
- One year TRM has decreased to almost 0%
Allogeneic Hematopoietic Stem Cells Transplant

- **Increased:**
  - Number
  - Complexity (MMD and UCB)

- **Decreased:**
  - TRM
Chile: “a mixed population: 64% white, 35% Amerindian, with traces of other admixture and < 4% are foreign born”
SCT Donors

POTENTIAL SCT PATIENT
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Pediatric single Unrelated Cord Blood Transplantation (UCBT) for Acute Lymphoblastic Leukemia: Chilean experience

UCBT Event-free survival

Percent Survival

Time (months)

Todos los Trasplantes de Cordón
no Emparentados  n= 53

Meses post TPH

% de Sobrevida

ST 57,8% a 5 años
SLE 54,8% a 5 años

ALL: 37  AML: 6  Mixed L: 2  JMML: 1
LAD1:1  BDA:1  SCID: 1  ALD:2  SSCHD: 1  WAS:1
Haploidentical Stem Cell Transplantation for Children With High-Risk Leukemia

Julia Palma, MD,1,2* Lucia Salas, MT,3 Flavio Carrión, PhD,4 Cristián Sotomayor, MD,1 Paula Catalán, MD,1 Claudia Paris, MD,1 Victoria Turner, PhD,5 Hugo Jorquera, MT,6 Rupert Handgretinger, MD,7 and Gastón K Rivera, MD5

[Graph showing survival rates over months after transplantation]
Conclusions

• Results are comparable with international literature
• Increase life expectancy of children with cancer
• UCB and Haplo: HSCT option for ethnical minorities
• Increase of HSCT availability
• Low TRM: after increasing complexity of HSCT
1. Is it possible to set up a successful public BMTU program at a country with limited resources?

2. Successful treatment of malignancies in Latin American with common protocol is feasible?
   Collaborative work: Retinoblastoma.
   Bone Marrow Transplant. 2012 Apr;47(4):522-7

3. Are there new, cost effective diagnostic tests, we can perform in house?
   CMV PCR. Rev Chil Infect 2011; 28(2): 113-117

4. How to deal with complex patients in a limited resources setting?
5. Latin Americans are not well represented at donor registries. How to face the lack of suitable donors?

6. As we gain expertise, we were able to developed local/national/regional guidelines.

Summary of Practical Guidelines when establishing a new HSCT program

1. Pre-established pre transplant treatment protocols within a network
2. Sustainable funding
3. Twinning program or partnership with an experienced HSCT unit
4. Transplantation unit design according to international standards
5. International accreditation requirements
6. Infection prevention measures
7. HSCT committee with regular meetings
Summary of Practical Guidelines when establishing a new HSCT program

8. Availability of pediatric subspecialist services and ICU
9. Working relationship with local laboratories
10. Comprehensive pre-transplant evaluations
11. Availability of all pharmacological agents and radiotherapy
12. Long term follow-up HSCT clinic
13. Regular critical review of results and progress
14. Once standard HSCT has been mastered, endeavour to also master more complex HSCT
Increasing number of HSCT: >200 Allo

Quality

HLCM

PINZA

St. Jude
TASA DE MORTALIDAD POR CÁNCER INFANTIL
PINDA, 1988 al 2010

Friendly health care attention model

Focus: The Child

Children's Rights

Participative

Interdisciplinary

Integral

Quality

Results: Evaluations

Bio-Psycho-social approach
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HLA Laboratory
2012
HR HLA typing √
Goals: Long-term (Near future)

- Unrelated stem cells transplant program
- To create a umbilical cord blood bank
- To establish a national donor registry
- Haplo α – β Depletion
PINIDA Network and BMT Unit HLCM thanks to:

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J.J. Ortega, T. Olive
R. Pasquini
Noemi F. Euza


5. **Profilaxis de enfermedad por virus de Epstein Barr en niños y adultos receptores de trasplante de órganos sólidos y de precursores hematopoyéticos.** Paula Catalán y Andrea Alba.. Rev Chilena Infectol 2012; 29 (Supl 1): 29-31

6. **Profilaxis de infección por virus respiratorios en niños y adultos sometidos a trasplante de órganos sólidos y precursores hematopoyéticos** Ana M. Álvarez, Paula Catalán, Andrea Alba y Marcela Zubleta. Rev Chilena Infectol 2012; 29 (Supl 1): 33-36

7. **Profilaxis de toxoplasmosis en niños y adultos sometidos a trasplante de órganos sólidos y precursores hematopoyéticos** Ernesto Payá, Isabel Noemí, Renzo Tassara, Paula Catalán y Carmen L. Aviles.. Rev Chilena Infectol 2012; 29 (Supl 1): 37-39
