Use of a business intelligence tool for multicentric analysis in Hematopoietic Stem Cell Transplantation in Brazil with data extracted from the Data Back to Center – CIBMTR

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Speakers

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Introduction

• Brazil do not have a national registry
  • Difficult to understand the scenario of hematopoietic stem cell transplantation in Brazil

• Through the ethical approval of a Brazilian multicentric study, it was possible the registry become official and started using the Data Back to Center (DBtC) as a database for analysis

• Data manager group made the 1st Multicenter study using data from DBtC and the SPSS for analysing (N=7)

• Use of a business intelligence tool to facilitate analysis with a larger number of affiliated centers (N=13)
Objective

To demonstrate the efficiency of the grouping and analysis of the data extracted from the DBtC of 13 Brazilian centers using Power BI (PBI) and to create a dashboard with the data from the HSCTs performed.
Actions

- Online course in Portuguese (2400 and 2450 forms)
- Multicenter study Ethics Committee approval

2016

- Central IRB approval for reporting to the CIBMTR
- Creation of DM working group with SBTMO
- Creation of direct communication channels for DM (WhatsApp)
- Official agreement between SBTMO and CIBMTR

2018

- Translation of the online course to Spanish (2400/2450 forms)
- Training of new AMEO DM and visit to the CIBMTR
- 1st Multicenter Study Using the Qlikview App Provided by the CIBMTR

2019

- Monthly online training meetings
- 2 webinars to encourage new centers to start reporting data to CIBMTR

2020

- 1st Visit of key Data Managers (DM) to the CIBMTR
- 1st DM meeting at the SBTMO Congress
Annual Number of HSCT in Brazil report to the CIBMTR and the Active centers

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of active centers</th>
<th>Number of HSCT in Brazil reported to the CIBMTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>9</td>
<td>569</td>
</tr>
<tr>
<td>2011</td>
<td>8</td>
<td>544</td>
</tr>
<tr>
<td>2012</td>
<td>7</td>
<td>587</td>
</tr>
<tr>
<td>2013</td>
<td>9</td>
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<td>2014</td>
<td>9</td>
<td>520</td>
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<tr>
<td>2015</td>
<td>10</td>
<td>579</td>
</tr>
<tr>
<td>2016</td>
<td>11</td>
<td>568</td>
</tr>
<tr>
<td>2017</td>
<td>14</td>
<td>766</td>
</tr>
<tr>
<td>2018</td>
<td>18</td>
<td>838</td>
</tr>
<tr>
<td>2019</td>
<td>23</td>
<td>999</td>
</tr>
</tbody>
</table>
The Multicenter Study Performed in Brazil at the CIBMTR – Participating Centers (N=30)
2nd Study - E-DBtC (N=13)
Business Intelligence tool

• Power BI Desktop
  – It is a free version, self-service data analysis and report authoring tool
Power BI Desktop
Power BI Desktop

• Functions were created to:
  – Totalize the number of HSCTs performed
  – Totalize the number of participating centers
  – Show the age categories for adults or pediatric patients
  – Calculation for analyzing overall survival

• Interactive Graphs were also created
  – Total transplant By:
    • Diagnosis, type (Allo/Auto), age at HSCT, year, graft type
  – Survival analysis using the Kaplan-Meier method
Total Transplantations by Age at HSCT:
- 0-9 years: 800
- 10-19 years: 700
- 20-29 years: 600
- 30-39 years: 500
- 40-49 years: 400
- 50-59 years: 300
- 60-69 years: 200
- 70 years or older: 100

Total Transplantations by TED Donor Type:
- Unrelated donor: 1032 (30%)
- HLA identical sibling: 948 (27%)
- Autologous HSCT: 908 (26%)
- HLA mismatched sibling: 479 (14%)
- HLA mismatched unrelated: 65 (2%)

Total Transplantations by Transplant Year:
- 2008: 196
- 2009: 237
- 2010: 319
- 2011: 337
- 2012: 339
- 2013: 242
- 2014: 246
- 2015: 270
- 2016: 220
- 2017: 439
- 2018: 625
- 2019: 171

Total Transplantations by Graft Type:
- Umbilical cord blood: 167 (4%)
- Bone marrow: 1627 (41%)
- Peripheral blood: 2145 (54%)

3972 Transplants
13 HSCT Centers
Transplant Type:
- ALLO - Allogeneic
- AUTO - Autologous

Primary Disease:
- All

Transplant Year:
- All
Survival analysis

- **3261** Transplants
- **13** HSCT Centers

Transplant Type:
- [1] ALLO - Allogeneic
- [2] AUTO - Autologous

TED Donor Type:
- All

Cumulative incidence vs. Days:
- Black line: Allogeneic
- Red line: Autologous
Survival analysis

- **Transplant Type**
  - ALLO - Allogeneic: 489 Transplants
  - AUTO - Autologous: 17 Transplants

- **HSCT Centers**: 12

- **Cumulative Incidence %**

- **Days**

- **Primary Disease**
  - [10]: Acute myelogenous leukemia

- **Legend**
  - Black: Allogeneic
  - Red: Autologous
Update and inclusion the new centers (Example)

• The Center send us Update/New Data

• Just include this new/Update spreadsheet in the folder
Update and inclusion the new centers (Example)
Update and inclusion the new centers (Example)
Conclusions

• The DBtC allowed the standardized collection and data analysis
• The use of BI tool to work with data extracted from DBtC made a creation of a multicenter Database possible
• It creates the possibility and easiness of including new affiliated centers at any time, without the need of making new analyses
• The combination of DBtC, a multicenter study and PBI allows to know some results of production and outcome of HSCT in Brazil, in a practical and clear way
Future perspectives

• Include most of brazilian Centers in the analysis
• Enabling the benchmarking of Brazilian data nationally and internationally
• Include new outcome analyses following the DBtC update (Relapse, GVHD)
• Share dashboard on the SBTMO official website
Thank You!!

One for all & all for one