Treatment of the Oral Mucositis Severity in Patients of Bone Marrow Transplantation: A Meta-Analysis

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Aims

- To identify the interventions needed to treat oral mucositis

- To evaluate the evidences of effectiveness of these interventions when performed in patients undergoing Bone Marrow Transplantation (BMT)
Background

- However, it is important to consider the collateral effects deriving from BMT: marrow aplasia, nausea, vomits, diarrhea, mucositis and the Illness of the Excerpt against the Host (DECH)
Background

The mucositis, the object of this study, occurs in approximately 75% of the patients that receive ablative chemotherapy or total body irradiation (Total Body Irradiation - TBI), as a conditioning to the bone marrow transplantation or of peripheral cells

(Sonis, 2004)
Biological Development of Mucositis:

- Initiation
- Message Generation
- Signaling and amplification
- Ulceration
- Healing
Background

Before the exposed, the scope of the study is the investigation of the therapeutical measures for the oral mucositis in patients submitted to the BMT, as a manner of identifying the best clinical evidences to plan the nursing care to patients in this condition.
Design

- Systematic review with meta-analysis.
Setting

- Cochrane Brazil and Nurse Department of São Paulo Federal University
Method

- A systematic review was carried out using the following key words: “mucositis”, and “bone marrow transplantation”.

The period searched was from 1972 to 2017 in the following databases: LILACS, MEDLINE, CINAHL, EMBASE; CENTRAL (Cochrane Central Register of Controlled Trials) and DARE (Database of Abstracts of Reviews of Effects). The investigated closing was the intensity reduction of the oral mucositis.
Findings

- 3,839 abstracts were found, from which 19 were included in the systematic review and 17 were submitted to meta-analysis.
Findings

Abstracts identified

“mucositis”

N= 3839

Mucositis AND Bone Marrow Transplantation
N= 911 (abstracts)

Stomatitis AND Bone Marrow Transplantation
N= 101 (abstracts)

Excludes
N= 2827 (abstracts)

Total n= 1012

Excluded n=824
No Randomized Clinical trial (RCT)

Excluded N= 161

Included N=188
RCT (artigos)

Meta - analysis
N= 17

Included N=19

Excluded* N=2

Included N=27
RCT controlled, BMT adult

Excluded N= 8
<table>
<thead>
<tr>
<th>Study or sub-category</th>
<th>Treatment n/N</th>
<th>Control n/N</th>
<th>RR (fixed) 95% CI</th>
<th>Weight</th>
<th>RR (fixed) 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 GM-CSF VERSUS PLACEBO</td>
<td>55/22</td>
<td>37/22</td>
<td>2.62</td>
<td>1.14 [0.43, 3.02]</td>
<td>0.03</td>
</tr>
<tr>
<td>02 Mauprostal(PPTG E1) vs placebo</td>
<td>10/10</td>
<td>10/10</td>
<td>5.24</td>
<td>0.56 [0.43, 1.70]</td>
<td>0.03</td>
</tr>
<tr>
<td>03 Chlorhexidine vs placebo</td>
<td>6/12</td>
<td>6/12</td>
<td>4.29</td>
<td>0.27 [0.09, 0.92]</td>
<td>0.03</td>
</tr>
<tr>
<td>04 Traumeel vs placebo</td>
<td>7/15</td>
<td>14/15</td>
<td>5.24</td>
<td>0.50 [0.29, 0.87]</td>
<td>0.03</td>
</tr>
<tr>
<td>05 Amifostine vs placebo</td>
<td>5/43</td>
<td>16/47</td>
<td>5.73</td>
<td>0.34 [0.14, 0.85]</td>
<td>0.03</td>
</tr>
<tr>
<td>06 Sodium bicarbonate vs placebo</td>
<td>13/23</td>
<td>15/23</td>
<td>6.74</td>
<td>1.06 [0.72, 1.56]</td>
<td>0.03</td>
</tr>
<tr>
<td>07 GLUTAMINE VERSUS PLACEBO</td>
<td>6/12</td>
<td>6/12</td>
<td>5.99</td>
<td>1.06 [0.56, 2.01]</td>
<td>0.03</td>
</tr>
<tr>
<td>08 Sucralfate vs PLACEBO</td>
<td>15/56</td>
<td>24/52</td>
<td>5.99</td>
<td>1.06 [0.56, 2.01]</td>
<td>0.03</td>
</tr>
<tr>
<td>09 CUIDADO HIGIENE ORAL INTENSIVO VS HIGIENE ORAL LIMITADA</td>
<td>14/150</td>
<td>16/150</td>
<td>2.62</td>
<td>0.91 [0.71, 1.18]</td>
<td>0.03</td>
</tr>
<tr>
<td>10 Povidone vs solução salina</td>
<td>17/132</td>
<td>16/132</td>
<td>5.99</td>
<td>1.06 [0.56, 2.01]</td>
<td>0.03</td>
</tr>
<tr>
<td>11 Captopril</td>
<td>1/35</td>
<td>3/35</td>
<td>1.12</td>
<td>0.95 [0.04, 3.15]</td>
<td>0.03</td>
</tr>
<tr>
<td>12 Dextran vs Placebo</td>
<td>14/40</td>
<td>14/40</td>
<td>5.43</td>
<td>0.03 [0.00, 0.86]</td>
<td>0.03</td>
</tr>
<tr>
<td>13 Histamina gel vs Placebo</td>
<td>21/45</td>
<td>24/45</td>
<td>5.99</td>
<td>0.93 [0.04, 3.15]</td>
<td>0.03</td>
</tr>
<tr>
<td>14 Total events: 197 (Treatment), 207 (Control)</td>
<td></td>
<td></td>
<td>100.00</td>
<td>0.74 [0.64, 0.86]</td>
<td>0.03</td>
</tr>
</tbody>
</table>
Findings

- Three topical and one systemic interventions presented statistically significant evidence in reducing mucositis severity: the use of Traumeell®, mouthwash with chlorhexidine, topic cryotherapy and amifostina. **Cryotherapy presented better protective and therapeutical effect with relative risk of 0.03 (IC95%; p= 0.02)**
Data from the literature corroborate with the findings of this investigation, citing:

- **Clorexicidine** (Ferretti et al., Weisdorf et al), showing protective and therapeutic effect.
- **Traumeel** (Arnica Montana) for its anti-inflammatory action and healing promoter. (Oberbaum 2001)
- **Cryotherapy** as a vasoconstrictor, which decreases the concentration of cytotoxic drugs (Cascinu et al 1994, Aisa et al. 2005).
Implications for Nursing
Implications for Nursing

- The careful incorporation of this new knowledge in nursing clinical practice opens a new perspective on evidence-based practice, in order to provide an effective clinical care to patients undergoing BMT that present oral mucositis.
Conclusions

- The three topical interventions identified are essential for the management of oral mucositis for they are effective, don’t demand high technology resources and have low cost.

- Cryoterapy, Traumeel and Clorexidine
References


