RELATIONSHIP BETWEEN ABSORPTION OF ADIPOSE TISSUE AND DRUGS ANASTROZOLE AND EXEMESTANE IN AUTOLOGOUS FAT GRAFTING

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PRESENTATION PLAN

- Introduction
- Objectives
- Methodology
- Results
- Conclusion

- References
Introduction

• Adipose tissue for defect correction and remodeling;

• Easy production, abundance and low reactions (autologous).

• Used in esthetic and reconstructive procedures:
  • Breast reconstruction after tumor removal.

Introduction

- Limitations of fat grafting:
  - High absorption rates;
  - Replacement by fibrosis, calcification and/or oil cysts.

- Additional methods and techniques continue being evaluated.

Introduction

• Alternative: reduction of estrogen signaling;
  • Modulates the development and function of adipose tissue;
  • Alters patterns of inflammation, fibrosis and adipogenesis;
  • Inhibits lipogenesis and promotes lipolysis.

• Anastrozole and Exemestane.


Objectives

- Selective inhibitors of the aromatase enzyme + autologous fat grafting:
  - Reduce rates of fat absorption;
  - Improving long-term graft survival;
  - Contribute to the improvement of the technique.
Methodology

• Experimental study;

• Thirty female Wistar rats;
  • UEPG experimental animal room;
  • 170g.

• Procedures carried out according to standards of conduct with animal research;

• Approval by the Committee on Ethics in the Use of Animals (case No. 054/2015).
Methodology

ANIMAL PREPARATION:

• Weighing;
• Marking;
• Anesthesia (Ketamine 40mg/kg and Xilazine 10mg/kg);
• Trichotomy;
• Antisepsis (Iodopovidone 10%).
Methodology

FAT GRAFTING:

(A) right inguinal incision; (B) Fat cushion removed; (C) dorsal incision where the graft was placed.

- The excised graft was weighed in an analytical balance (Gehaka AG200);
- Techniques performed in the UEPG operative technique laboratory.
Methodology

FOLLOW-UP:

- Randomly divided into 3 groups;
  - Control x Anastrozole (0.05 mg/Kg/day) x Exemestane (1.25 mg/Kg/day).

- 30 days;
- Free diet;
- Room temperature.
Methodology

WITHDRAWAL OF THE GRAFTS:

- Euthanasia (Ketamine 300mg/kg and Xilazine 100mg/kg);
- Weighing of animals;
- Graft recognition;
- Removal;
- Revaluation.

(A) encapsulated grafted tissue; (B) resection of fat.
Methodology

HISTOLOGICAL ANALYSIS:

• Preparation of blades stained with hematoxylin and eosin (HE);

• Inflammatory process;
• Neovascularization;
• Gigantocellular reaction;
• Steatonecrosis.

• Rated from 0 to 3 according to intensity.

(A) mild steatonecrosis; (B) moderate steatonecrosis;
(C) pronounced steatonecrosis.
Methodology

STATISTICAL ANALYSIS:

- IBM SPSS Statistics version 20;
- Tukey test;
- \( P < 0.05 \) for rejection of the null hypothesis.
Results

• Average weight gain: 38g in all groups;

• Macroscopy: similar patterns;
  • Size;
  • Form;
  • Consistency;
  • Neoangiogenesis.

Anastrozole x Control
Results

• Absorption:
  • Control 63.2% x Anastrozole 62.8% x Exemestane 62.85%.

<table>
<thead>
<tr>
<th></th>
<th>Weight of grafted fat (g)</th>
<th>Weight of removed fat (g)</th>
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<tbody>
<tr>
<td>Control</td>
<td>0.18303 ± (0.06187/0.01956)</td>
<td>0.06728 ± (0.03723/0.01177)</td>
</tr>
<tr>
<td>Anastrozole</td>
<td>0.19121 ± (0.09934/0.03141)</td>
<td>0.07114 ± (0.06990/0.02210)</td>
</tr>
<tr>
<td>Exemestane</td>
<td>0.17170 ± (0.07285/0.02303)</td>
<td>0.06380 ± (0.02975/0.00940)</td>
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</tbody>
</table>

p 0.860 0.945

In parentheses standard deviation / standard error of the mean.
Results

• **Histological parameters:**

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Anastrozole</th>
<th>Exemestane</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inflammatory process</strong></td>
<td>2.22 ± 0.394</td>
<td>1.67 ± 0.500</td>
<td>2.11 ± 1.054</td>
<td>0.775</td>
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<tr>
<td><strong>Steatonecrosis</strong></td>
<td>2.00 ± 0.866</td>
<td>1.89 ± 0.928</td>
<td>2.00 ± 1.000</td>
<td>0.958</td>
</tr>
<tr>
<td><strong>Neovascularization</strong></td>
<td>1.33 ± 0.707</td>
<td>1.11 ± 0.601</td>
<td>1.22 ± 0.444</td>
<td>0.732</td>
</tr>
<tr>
<td><strong>Gigantocellular reaction</strong></td>
<td>1.11 ± 0.333</td>
<td>1.00 ± 0.500</td>
<td>1.33 ± 0.707</td>
<td>0.419</td>
</tr>
</tbody>
</table>

In parentheses standard deviation / standard error of the mean.

• **No significant differences were observed.**
Conclusion

- The blockade of peripheral estrogen production by the drugs Anastrozole e Exemestane did not interfere in absorption and survival capacity of the grafts;

- Further research with animals ovarian hormonal deprivation is required.
References


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References


THANK YOU