Evolution of liver and kidney transplant patients undergoing a standardized program of post-operative physical therapy
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**Introduction:**
The post-operative rehabilitation program for liver and kidney transplant patients is in its early stages compared to the post-operative pulmonary transplant program. In our institution, the kidney and liver transplant patients are considered as one group for post-operative rehabilitation.

**Aim of study:**
To compare the post-operative course of cardio respiratory and pulmonary functions of liver and kidney transplant patients undergoing a standardized program of physical therapy.

**Methods:**

1. **Patients**
   **Inclusion criteria**
   - Hepatic and Renal transplantation (> 18 years-old)
   - Hospitalisation for a maximum of 4 days post-op. (post-operative) in intensive care
   - Able to perform 6-min walk test on day 7 post-op
   - Haemodynamically stable
   - No post-operative complications (pneumothorax, rejection, severe hypoxemia...)

2. **Parametres measured**
   Measured in the pre-transplantation period and on postoperative days 7 and 21
   - 6 minutes walk test (Straight line, 50 metres course)
   - Borg scale (1 – 10)
   - FeV1 (Forced expiratory volume in 1 second)
   - FVC (Forced vital capacity)

3. **Standardized post-operative physical therapy**
   Performed after intensive care stay, twice a day for 3 weeks
   - CPAP (PEEP = 5 cmH₂O, 30 min per sessions)
   - Chest physical therapy (coughing, incentive spirometer, aerosol therapy)
   - Mobilization and graded exercises
     - Walking (50-150 m 1st week, 150-250 m 2nd week, 250-400 m 3rd week)
     - Cycling (10 min 1st week, 20 min 2nd week, 30 min 3rd week)
     - Strengthening exercises (once per day)

4. **Statistics**
   Data presented as mean +/- standard deviation (SD)
   - Baseline Characteristics of hepatic and renal groups: independent t-tests
   - Between-groups comparisons and comparison at the different time points: Analysis of variance (ANOVA), with pairwise comparisons performed by the Student-Newman-Keuls test
   - Significant difference : p value < 0.05

**Results:**

**Introduction:**
The post-operative rehabilitation program for liver and kidney transplant patients is in its early stages compared to the post-operative pulmonary transplant program. In our institution, the kidney and liver transplantation patients can be considered as one group for post-operative rehabilitation.

**Comparison between the evolution of the 2 groups (Day 21 - pre-transplantation)**

<table>
<thead>
<tr>
<th>Measured parameter</th>
<th>Hepatic group</th>
<th>Renal group</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance in 6 MWT (m)</td>
<td>-32.6</td>
<td>107.8</td>
<td>0.04</td>
</tr>
<tr>
<td>Borg scale in 6 MWT (N.U)</td>
<td>-1.1</td>
<td>1.4</td>
<td>0.004</td>
</tr>
<tr>
<td>FVC (liters)</td>
<td>-0.4</td>
<td>0.9</td>
<td>0.4</td>
</tr>
<tr>
<td>FEV1 (liters)</td>
<td>-0.4</td>
<td>0.7</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Mean +/- SD

**Conclusion**
The study demonstrated that renal and hepatic groups had better pulmonary functions and exercise tolerance after a 3 week standardized program of post-operative physical therapy. A significant difference between the groups was noted only for the Borg scale on day 21.

The hepatic and renal transplantation patients can be considered as one group for post-operative rehabilitation.