**IL-6 Determination in Serum of Kidney Graft Recipients by a New Bedside Test. Its Diagnostic Relevance.**

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**INTRODUCTION**

The multifunctional Interleukin 6 (IL-6) is the main mediator of the acute phase reaction and earliest indicator of inflammation, tissue damage, hypoxia or infection. After kidney transplantation ongoing rejections are announced by elevated urinary but hardly serum IL-6 concentrations (Kaden J., R. Priesterjahn, Transplant Int 13[2000],S34-41). On the other hand the differentiation between bacterial and viral infections is relatively simple and valid by serum IL-6 concentration (Kaden J. et al. Transplant Int 9[1996], S63-67). The nowadays used immunoassays for IL-6 quantification are relatively time consuming, need a special technical support and well trained laboratory staff. Recently a new IL-6 bedside test was introduced by Milenia Biotec. The results are available after 20 minutes by visual chip testing or photometry as preferred method. We evaluated this test with respect to its diagnostic significance at the first time after kidney transplantation. In a retrospective study a total of 269 sera stored at -20 °C from 27 kidney graft recipients were selected, blinded and measured "en bloc".

**PATIENTS**

<table>
<thead>
<tr>
<th>Recipients</th>
<th>n = 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female/Male</td>
<td>16/11</td>
</tr>
<tr>
<td>Age (yr), x ± s</td>
<td>44,0 ± 9,9</td>
</tr>
<tr>
<td>Cold ischemia time (min), x ± s</td>
<td>1039 ± 365</td>
</tr>
</tbody>
</table>

**Basic immunosuppression**

- Azathioprine (change to Cellcept in one case at day 30)
- Ciclosporin (change to FK 506 in one case at day 18)
- Prednisolone
- Atg Fresenius (9 mg/kg body weight, bw) n = 15
- Lymphoglobulin Merieux (30 mg/kg bw) n = 8
- Pressimun Behring (60 mg/kg bw) n = 1

**Induction therapy**

- ATG Fresenius (9 mg/kg bw) n = 15 (intraoperatively)
- Pressimmun Behring (60 mg/kg bw) n = 1
- Methylprednisolone
- Ciclosporin (change to FK 506 in one case at day 18)

**Material**

**Serum samples (stored at -20°C)**

**Procedure: Selection - Blinding - Measurement "en bloc"**

**Selection of defined post transplant courses**

<table>
<thead>
<tr>
<th>No. of recipients</th>
<th>No. of sera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>6</td>
</tr>
<tr>
<td>Group 2</td>
<td>6</td>
</tr>
<tr>
<td>Group 3</td>
<td>8</td>
</tr>
<tr>
<td>Group 4</td>
<td>7</td>
</tr>
</tbody>
</table>

**METHOD**

**IL-6 bedside test**:

MILENIA BIOTEC GmbH, 61231 Bad Nauheim, Hohe Str. 4-8, Germany. Volume of serum necessary: 100μl. Turn-a-round time: 20 min

**Visual interpretation**:

by means of an evaluation card. The colour intensity of the test band (caused by patient’s serum) is compared to different colour intensities shown on the evaluation card. Four different ranges of IL-6 levels are differentiated:

- < 50 pg/ml.
- 50-100 pg/ml.
- 100-200 pg/ml.
- 200-500 pg/ml.
- 500-1000 pg/ml.

**Photometric measurement**:

by means of PicoScan. The IL-6 level is calculated according to a stored standard curve and allows the differentiation of six ranges:

1. No complication
2. Viral infections
3. Bacterial infections
4. No post transplant complication until discharge
5. CMV-infections
6. Rejection crises

**IL-6 values (bedside test) in 4 different clinical situations after kidney transplantation**

**Conclusions**

1. Viral infections did not result in an increase of IL-6 more than 50 pg/ml.
2. The diagnostic relevance of this new quantitative IL-6 bedside test is as high as that of other enzymimunoassays.
3. Advantages: The results are obtained already after 20 minutes and visual chip reading is possible.
4. If possible, photometry should be preferred to visual chip reading since the results are more precise.

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