**RELATIONSHIP BETWEEN TELOMERE LENGTH AND DYSLIPIDEMIA IN PATIENTS WITH CUSHING’S SYNDROME**

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**Introduction**
- Cushing’s syndrome (CS) is a rare disease caused by hypersecretion of cortisol and is associated with increased mortality and morbidity.
- Hypercortisolism is also present in chronic mood disorders (CMD) and stress, where telomere length (TL) has been found to be shorter than in matched controls.
- Since hypercortisolism is present in CS and CMD, we hypothesized that telomere shortening could also be present in CS.

**Hypothesis**

**Chronic mood disorder (CMD)**

**Stress**

**HYPERCORTISOLISM**

**Telomere length shortening**

**Premature ageing**

**Increased mortality and morbidity**

**Cushing’s Syndrome**

**Methods/Design**
- Transversal study.
- 45 CS patients and 45 matched control (age, gender, smoking):
  - 9 males, 36 females
  - Mean age 46.8 ± 12.8 vs 46.8 ± 12.6 controls
  - 36 pitiitary Cushing’s disease, 9 adrenal Cushing’s syndrome
  - 9 with active disease; 36 biochemically cured (7 patient postoperative ACTH deficiency)
- DNA extraction from leukocytes using the phenol/chloroform method.
- Leukocyte TL was measured by TRF Southern technique (kit-telo TAGGG Telomere length Assay, Roche).

**Aim**
- To investigate TL in CS patients compared to matched controls.

**Results**

**Table 1: Baseline characteristics**

<table>
<thead>
<tr>
<th></th>
<th>CS</th>
<th>Controls</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>46.8±12.8</td>
<td>46.8±12.6</td>
<td>ns</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>26.8±4.8</td>
<td>27.7±5.2</td>
<td>ns</td>
</tr>
<tr>
<td>W/H ratio</td>
<td>0.90±0.066</td>
<td>0.84±0.078</td>
<td>&lt;0.001</td>
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<tr>
<td>Hypertension</td>
<td>47%</td>
<td>11%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>24%</td>
<td>2%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>9%</td>
<td>2%</td>
<td>ns</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>35%</td>
<td>20%</td>
<td>ns</td>
</tr>
<tr>
<td>Psychiatric disease</td>
<td>31%</td>
<td>11%</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

No other baselines differences among CS and controls were found.

**Figure 1: Southern Blot results**

**Figure 2: Correlation of Telomere Length (TL) with age. (CS: Cushings’s syndrome, bp: base pair)**

**Figure 3: Comparison of Telomere Length between CS and controls**

**Figure 4: Relation of Telomere Length with disease activity and comorbidities**

**Conclusions**
- In this small group of matched CS/controls we did not find any differences in TL; however, in CS with dyslipidemia TL was shorter than in CS patients with normal lipidal values.
- Further studies will be necessary to confirm this finding and define any possible relationship between hypercortisolism and TL.

**References**

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