SMALL NERVE FIBER EVALUATION TO AID THE EARLY DIAGNOSIS OF LEPROSY

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NERVE FIBER CLASSIFICATION

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>METHOD</th>
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</thead>
<tbody>
<tr>
<td>12-22μm  Aα</td>
<td>Motor neuron, Golgi tendon organs, touch and pressure</td>
</tr>
<tr>
<td>5-12μm  Aβ</td>
<td>Motor neuron, touch, pressure, vibration</td>
</tr>
<tr>
<td>2-8μm  Aγ</td>
<td>Motor neuron Y</td>
</tr>
<tr>
<td>1-5μm  Aδ</td>
<td>Fine tactile sensation, pain, temperature</td>
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<tr>
<td>&lt;3μm B</td>
<td>Sympathetic pre-ganglionic, autonomic fibers</td>
</tr>
<tr>
<td>0.1-1.3μm C</td>
<td>Post-Ganglionic autonomic fibers</td>
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</tbody>
</table>
OBJECTIVE

To evaluate the use of the Quantitative Sensory Testing (QST) for the assessment of small nerve fiber neuropathy in skin lesions suggestive of leprosy, in order to improve the early diagnosis of paucibacillary leprosy.
METHODS

• Cross sectional study 75 patients
• Contacts and patients with less than 5 suggestive skin lesions and negative bacterial index
• To evaluate the presence of local small fiber neuropathy
• Skin biopsy for diagnosis
RESULTS
CASUISTIC

Classification according to gender

FEMALE: 74%
MALE: 26%

Classification according to detection mode

CONTACT: 36%
TRIAGE: 64%
Results

Type of lesion
- anesthesia area
- patch
- plaque

Body segment
- face
- limbs
- thorax/abdomen

79%
31%
7%
QUANTITATIVE SENSORY TESTING

Site: La-Lum-Right (Chee Media, Method: Thermal-Limits, Test Date: 16 Nov 2016)

- Cold Sens.
  - L: 28.6°C
  - R: 30.2°C
  - Threshold: 1.6°C

- Warm Sens.
  - L: 39.5°C
  - R: 36.1°C
  - Threshold: 3.4°C

- Cold Pain
  - L: 25.2°C
  - R: 24.1°C
  - Threshold: 2.4°C

- Heat Pain
  - L: 40.8°C
  - R: 38.4°C


- Cold Sens.
  - L: 21.4°C
  - R: 5.3°C
  - Threshold: 16.1°C

- Warm Sens.
  - L: 37.9°C
  - R: 45.9°C
  - Threshold: 8.0°C

- Cold Pain
  - L: 15.5°C
  - R: 0.0°C
  - Threshold: 7.9°C

- Heat Pain
  - L: 41.8°C
  - R: 49.7°C

Contralateral Comparison:
QST follow-up of lesion

Site: Lt/Left Thigh Medial, Method: Thermal-Limits

9/Jun/10 23/Aug/10

thermal

Site: Lt/Left Thigh Medial, Method: Thermal-Limits

9/Jun/10 23/Aug/10

pain

Site: Lt/Left Forearm Medial, Method: Thermal-Limits


\( \Delta = 3.1 \degree C \)
\( L = 27.1 \degree C \)  \( R = 24.0 \degree C \)

\( \Delta = 6.4 \degree C \)
\( L = 45.5 \degree C \)  \( R = 39.1 \degree C \)

\( \Delta = 0.0 \degree C \)
\( L = 49.3 \degree C \)  \( R = 47.1 \degree C \)

\( \Delta = 2.2 \degree C \)

Contralateral Comparison:

Ximena Illarramendi.
Differential Diagnosis

DIABETES MELLITUS
Histopathology:
Indeterminate inflammatory findings
Histopathological findings
Final Diagnosis

- Lep: 56%
- ThTr: 37%
- OD: 7%
CONCLUSIONS

• Histopathological findings of cutaneous nerve branches involvement in combination with quantitative sensory testing are useful tools to aid the clinician at the diagnostic decision

• QST aided the diagnosis of leprosy in patients with 5 or less skin lesions.

• Contact surveillance is an essential strategy for ensuring early leprosy diagnosis and should extend into the first year of the index case diagnosis
Thank you – obrigado – merci