Is Hyperlipidaemia a Contributing Factor to Algodystrophy (Reflex Sympathetic Dystrophy)?


Summary
To appreciate hyperlipidaemia as a contributing factor to reflex sympathetic dystrophy (RSD), we have evaluated basal lipidic values (cholesterol, HDL-cholesterol, triglycerides, apolipoproteins A1, B) and frequency of hypertriglyceridaemia (Turpin's diagnosis criteria) in 75 cases of RSD and in 75 paired controls. No difference exists in both groups with regard to frequency of hypertriglyceridaemia or basal lipidic values. These values seem independent of age, sex, duration of localization or etiology (traumatic or nontraumatic) of RSD. Hyperlipidaemia does not seem a contributing factor to RSD.

Key words Reflex Sympathetic Dystrophy, Hyperlipidaemia, Cholesterol, Triglycerides.

INTRODUCTION
Some authors (1-3), as apposed to others (4,5), claimed that hyperlipidaemia is associated with reflex sympathetic dystrophy (RSD) and may play a role in the etiology of this disorder. According to Turpin's diagnostic criteria (6) hypertriglyceridaemia was present in 55% and 43% of cases of RSD in two uncontrolled retrospective studies (7,8) and was only apparent after alcohol absorption (100 ml/1.73 m² body area from 9 a.m. to 5 p.m.) in a controlled study (2). We report a controlled study of basal lipid values in RSD.

MATERIAL AND METHOD
Patients and controls

Patients
Seventy-five cases of RSD (59 post-traumatic; 16 non-traumatic) including 53 men and 22 women (age range: between 17 and 35 yrs. in 40; between 36 and 81 in 35) met the Doury's diagnostic criteria (3): the clinical symptoms, including pain and at least one of the other 7 clinical criteria constituted 25 pseudo-inflammatory phases or stage I (5) and 50 ischemic cold phases or stage II; regional osteoporosis on X-rays was present in 63 cases; isotopic abnormalities on bone scan using Tech 99m diphosphonates included 75 cases (67 increased uptake on bone, 8 decreased uptake); sedimentation rate was normal in 75 cases. These cases affected 59 lower limbs (36 feet and ankles with 2 extensions to the homolateral knee, 19 knees with 1 extension to the foot, 4 hips with 2 extensions to the knee) and 16 upper limbs (2 hand-shoulder syndromes, 14 hands and wrists). The mean duration of RSD was 7.86 months (range: 0.5-38) in 75 cases: less than 4 months in 40 cases and more than 4 months in 35 cases (Table I).

Controls
Seventy-five controls were sex-and age-matched to the patients (Table I). They experienced noninflammatory arthropathy (osteoarthrosis of limbs: 6; radicular neuralgia: 23; lower-back pain: 22; post-menopausal osteoporosis: 1; microtraumatic tendinopathies: 11; Paget's disease of bone: 2; osteoid osteoma: 2; stress fracture: 4; fibromyalgia: 2; synovial cyst of the wrist: 1; villonodular synovitis: 1).

Patients with acute or chronic inflammatory rheumatic disease or with arthropathy of dyslipidemic origin or avascular necrosis of epiphysis were excluded from the control group. All pregnant women and patients with a lipid-modifying disease (diabetes mellitus, hepatopathy, pancreatopathy, hypothyroidism, nephrotic syndrome) or with lipid-modifying drugs (diuretics, prazosin, beta-blockers, estrogens, progesterone) or with...
Table I: Characteristics of 75 patients with reflex sympathetic dystrophy (RSD) and 75 paired controls

<table>
<thead>
<tr>
<th></th>
<th>RSD (yrs)</th>
<th>Controls (yrs)</th>
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<tbody>
<tr>
<td>Age (yrs)</td>
<td>37.0 ± 15.9</td>
<td>36.9 ± 15.9</td>
<td>NS</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>12.4 ± 28.5</td>
<td>9.6 ± 20.5</td>
<td>NS</td>
</tr>
<tr>
<td>(g/d)</td>
<td>(0-130)</td>
<td>(0-100)</td>
<td></td>
</tr>
<tr>
<td>BMI (Kg/m²)</td>
<td>23.7 ± 4.4</td>
<td>23.8 ± 4.1</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>(16.1-32.3)</td>
<td>(18.3-33.6)</td>
<td></td>
</tr>
<tr>
<td>GGT (UI/L)</td>
<td>21.3 ± 17.9</td>
<td>19.6 ± 14.5</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>(6-90)</td>
<td>(4-96)</td>
<td></td>
</tr>
<tr>
<td>MCV (mc3)</td>
<td>88.2 ± 4.1</td>
<td>87.9 ± 4.2</td>
<td>NS</td>
</tr>
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<td></td>
<td>(80-101)</td>
<td>(81-101)</td>
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</tbody>
</table>

(N-N): range values; NS: Not significant; BMI: Body mass index; GGT: L-gamma-glutamyl-transferase (Normal range: 4-50 UI/I); MCV: Mean corpuscular volume (Normal range: 85-95 mc3).

Data studied

Patients and controls were hospitalized and interrogated about their regular daily alcohol consumption (g/d). After an overnight fast, body mass index (BMI = Weight/Height*Height; Kg/m²) and basal lipidic values were studied: total cholesterol and total triglycerides enzymatically (Boehringer), HDL-cholesterol enzymatically after isolation of HDL by using the phosphotungstic acid magnesium chloride method (Boehringer), Apoprotein-A1 and Apoprotein B by nephelometry and turbidometry (Behring). As indirect and no specific index of regular daily alcohol consumption, the L-gamma-glutamyl-transferase (GGT; normal range: 4-50 UI/I) and mean corpuscular volume of erythrocytes (MCV; normal range: 85-95 mc3) have been evaluated.

Hypertriglyceridaemia was certain when its value was higher than “mean + 2 SD” given for each decennium and according to sex.

Statistical Analysis

We used the chi 2 test for nonquantitative data and Student’s t-test for paired data (results are expressed as the “mean +/- 1 SD”).

RESULTS

No difference exists between patients and controls (Table I). The basal lipidic values are identical in both groups (Table II) and no significant difference was found between patients and their matched controls with regard to age (more or less than 35 years old), sex, clinical aspect (hot or cold phase), localization (upper, lower limbs), duration of RSD (more or less than 6 months) or etiology (traumatic and nontraumatic).

Because of the very abnormal value of triglyceridaemia (4.49 g/l) in a control subject, the computations have been made again after removing this control and his paired RSD: the obtained results (74 pairs) are unchanged and again the differences are not significant in both groups as well as with regard to age, sex, clinical aspect, localization, duration of RSD or etiology.

The frequency of hypertriglyceridaemia, according to sex and for each decennium (6) like in Amor’s study (7), is not significantly different between RSD and controls: 31/75 (41.3%) and 23/75 (30.6%), respectively (Table III).

COMMENTS

Some authors (1-3, 7,8) claimed that hyperlipidaemia, especially hypertriglyceridaemia, is associated with re-