

## **CHRONIC FATIGUE SYNDROME AND FIBROMYALGIA IN PATIENTS AFFECTED OF MULTIPLE CHEMICAL SENSITIVITY.**

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**Background:** Multiple Chemical Sensitivity (MCS) is a chronic condition with a diversity of symptoms that appear at low-level exposure to several unrelated chemical agents. Symptoms involve several organs, being repetitive after exposure, with partial improvement after avoidance. Most of MCS patients report physical and neurocognitive fatigue and diffuse muscle-skeletal pain. We previously described development of Chronic Fatigue Syndrome (CFS), Fibromyalgia (FM) and MCS after toxic organophosphate exposure (1).

**Objective:** This study evaluates the presence of CFS and FM in patients primarily affected of MCS.

**Patients:** 75 outpatients attending to outpatients Toxicology and Internal Medicine Clinics in a tertiary university hospital because of symptoms related to MCS.

**Methods:** Prospective longitudinal study (1996-2005). Sociodemographic data. MCS was defined according to 1999 MCS Consensus criteria (2); CFS was defined according to Fukuda (CDC,1994) case definition (3); FM was defined according to ACR 1990 criteria (4). MCS was evaluated with QEESI (Quick Environmental Exposure and Sensitivity Inventory Questionnaire), requiring almost 20 points in inhalatory and intensity of symptoms scores and 12 points in non-inhalatory score.

**Results:** Of 75 evaluated patients with symptoms of MCS, 14 were excluded because of non-accomplish MCS criteria, and 9 because of low QEESI score. Of 52 finally included patients (mean age  $47.2 \pm 7.6$  years), 46 (88%) were women. Mean QEESI scores were  $72.9 \pm 18.6$  in inhalatory (range 32-99);  $45.5 \pm 20.6$  in non-inhalatory (range 14—88), and  $68.9 \pm 20.6$  in symptoms intensity evaluation (range 20-100). In 31 Cases (58%) the origin of MCS was related to work exposure to insecticides because of fumigation, being 14 cases related to a work accident and 17 cases to professional chronic exposure to solvents, glutaraldehyde, and irritant vapors. In 19 cases, MCS was not related to any work exposure. Fifty of 52 patients with MCS (96%) accomplish with CFS case-definition criteria, and 14 (26%) with those of FM. Mean duration of symptoms before diagnosis was  $70.0 \pm 45.3$  months. In 21 cases (40%) transitory disability developed, and 7 cases (14%) presented permanent disability. Follow-up along 12 months did not show significant changes in MCS, CFS or FM symptoms.

**Conclusions:** The majority (96%) of patients attending for MCS share the case-definition criteria of CFS and one-fourth of them also that of FM. This situation evidences a common pathogenic mechanism in MCS, CFS and FM. Probably loss of tolerance to repetitive chemical stimuli and neurogenic-mediated hyperexcitability lead to increased chemical sensitivity and dysfunction of fatigue and pain central mechanisms. Transitory or permanent disability was evidenced in half of cases. CFS and FM criteria should be routinely evaluated in patients with MCS symptoms.

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