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Cross-sectional observations of thyroid function in geriatric Mexican outpatients with and without dementia

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Abstract

This work was aimed at determining and comparing the frequency of abnormal levels of thyroid stimulating hormone (TSH) in geriatric outpatients with and without dementia. This cross-sectional study enrolled patients, aged 60 years and older with or without dementia (established on the basis of DSM-IV-R), from geriatric outpatient unit with third level of medical care. Comparisons were between 33 (34%) patients without dementia versus 26 (58%) with dementia; both among 142 (24%) randomly selected sample (RSS) from unit's register; and the 101 (89%) in the memory-clinic case series (MCCS) of dementia were contrasted with the former. Measurements: TSH, total/free thyroxine, mini-mental-state examination (MMSE), geriatric depression scale (GDS), Hachinski ischemic-score (HIS), and clinical data from the patients' charts. In the above order, high TSH was found in 9 (27.3%, confidence interval (CI) = 12.1–42.5%), 6 (23.1%, CI = 6.9–46.5%), and 30 (29.7%, CI = 20.8–38.6%), respectively. Low-normal free thyroxine levels accompanied 76% of individuals with elevated TSH; in contrast of Gaussian distribution of free thyroxine in those with TSH in normal range. In conclusion, the high frequency found of hypothyroidism in patients with and without dementia warrants further studies. Treatment is only being recommended for patients with

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below range thyroxin levels; while treatment of subclinical hypothyroidism in the presence of cognitive decline will be addressed in the forthcoming studies.

Keywords: Dementia in elderly; Ethnicity and dementia; Hypothyroidism and dementia; Subclinical hypothyroidism; Thyrotropin

1. Introduction

Thyroid dysfunction is common in old age, and it occurs often unnoticed (Trivalle et al., 1996). Incipient hypothyroidism has been reported in 2.7–3.5% of older men, and 7.1–17.6% of older women (Rai et al., 1995). US prevalence of hypothyroidism is 4.6% in the subjects older than 12 years, but increases to 14% after 70 years of age (Hollowell et al., 2002). In Spain, a recent study reported a prevalence of hypothyroidism of 11% in individuals between the ages of 50 and 69 years (Sender Palacios et al., 2004). The genetics accounts for almost 65% in thyroid phenotypic variation in Mexican Americans (Samollow et al., 2004). Besides genetics, gender and age, iodine intake has to be considered, its deficiency translates in endemic goiter and hypothyroidism (Jameson and Weetman, 2005). In our area, previously known as iodine deficient one, data suggest a 2% frequency of hypothyroidism in retired workers of a local industry (Salinas-Martínez et al., 2004).

Atypical presentation of excess and deficiency of thyroid hormones are common in elderly. Clinical changes are often confused with aging, making this a reasonable argument for thyroid dysfunction screening in this population (Rai et al., 1995). Hypothyroidism has been identified among the reversible causes of dementia (Jameson and Weetman, 2005). Thyroid testing is routinely recommended in the evaluation of elderly patients suspecting cognitive problems (ACP, 1998; Helfand and Redfern, 1998; Ladenson et al., 2000). Recently Löppönen et al. (2004) reported twice as high prevalence of hypothyroidism in demented patients. TSH levels quickly respond to the variations of thyroid function (Jameson and Weetman, 2005). Therefore, we decided to determine and compare the frequency of occurrence of out-of-range TSH levels in the patients with and without dementia, in an ambulatory setting.

2. Methods

This cross-sectional, descriptive and comparative study analyses data obtained in two different ways from the same setting: (i) an RSS from all the patients seen in the first half of 2004, aimed at estimating the frequencies (diagnosis and TSH abnormalities); and (ii) the MCCS recruited in 2004, diagnosed with specific types of dementia, accompanied by the presence of thyroid abnormalities.

2.1. Settings and subjects

The study took place in a tertiary geriatric care outpatient center at a University Hospital. The attending patients are rather age- than disease-referrals; many patients come