electromyography (SFEMG) showed improvement in all but one patient. Concentrations of AChR antibody documented in the serum of 10 of 12 patients and increased twofold in one patient who showed improvement according to clinical and SFEMG changes. However, changes in concentrations of AChR antibody were not correlated with clinical or SFEMG findings. Cytotoxic activity of NK cells, CD4/8 ratio, and the CD4+ T lymphocyte count increased during the treatment but not significantly. No side effects were detected by laboratory tests including complete blood count, erythrocyte sedimentation rate, peripheral smear, urine analysis, electrolytes, liver, renal, and thyroid function tests, rheumatoid factor, ANA, anti-DNA, and antimitochondrial antibodies; nevertheless, a flu-like syndrome in six and nausea in three patients were noted at the beginning of the therapy.

IFNα has been used in the treatment of many diseases including the autoimmune diseases, rheumatoid arthritis, lupus erythematous, and multiple sclerosis. However, Batocchi et al.72 suggested that patients with malignant carcinoid tumours, especially when autoantibodies were present, could develop an autoimmune disease during treatment with IFNα. Furthermore, it has been reported that five patients developed myasthenic symptoms and AChR antibody positivity during IFNα treatment for malignancy and for HCV infection. Batocchi et al.72 supposed that IFNα could induce myasthenia gravis or simply manifest a preclinical disorder in two patients, one with bladder carcinoma and one with non-Hodgkin's lymphoma. Nevertheless, increased serum levels of IgG, myosin, mitochondrial, dynamin, EMG, and ragged red fibres in muscle biopsy that were compatible with mitochondrial myopathy raise some doubts about the diagnosis of myasthenia gravis in their first patients. Moreover, antibodies to AChR and myasthenia gravis are found occasionally in patients with motor neuron disease, epilepsy, other autoimmune diseases, aplastic anaemia, and acute lymphocytic leukaemia.38 No autoantibodies were detected in 11 patients. IFNα down regulates mitochondrial gene expression within four hours with the maximal inhibition achieved at a concentration of 0.1 U/mL concentration. This function would be expected after 24-48 hours. Thus if the myopathy were related to IFNα, as Batocchi et al.72 suggested, three months would be considered to be late. In addition, whether the serum concentrations of IFNα was high enough to lead to this effect is unclear. d-Penicillamine induced myasthenia gravis and AChR antibody positivity disappears after the drug is discontinued. An interesting finding of AChR antibodies persisting for two years without any symptomatic in a patient with malignancy could be attributed to IFNα treatment is debatable. In addition, autoimmunity associated with HCV is noteworthy, and activation of CD19/CD5 + cells, a subset of lymphocytes associated with human autoimmune disorders has been detected in more than half of the patients. There is no evidence whether AChR antibodies in the patient with HCV reported by Piccolo et al., high dose IFNα could have induced myasthenia gravis, although their finding could be consistent. Consequently, a possible contribution of underlying malignancy to myasthenic symptoms as well as certain clinical conditions that might lead to false positive AChR antibodies should be considered in patients with myasthenic symptoms induced by IFNα. We presume that IFNα may act through different mechanisms in myasthenic malignancy or HCV infection. Our impression, from a limited number of myasthenic patients, is that low dose IFNα is safe in myasthenia gravis and does not aggravate the disease.


Habitual snoring, sleep apnoea, and sleep apnoea

I read with interest the recent review articles on sleep apnoea by Khaw1 and Bronner et al.2 and was surprised that snoring and sleep apnoea were not mentioned as risk factors for stroke. Several cross sectional and case control studies have shown that habitual snoring represents an independent risk factor for stroke, with odds ratios ranging from 2:1 to 3:5. Based on a 10%-30% prevalence of habitual snoring and a 2%-4% prevalence of sleep apnoea3 the risk of stroke associated with habitual snoring may be of the same magnitude as the risk associated with diabetes mellitus and dyslipidaemia.4 Several physiological aberrations associated with obstructive apnoeas including hypoxaemia, cardiac arrhythmias, and pronounced variations in blood pressure and cerebral blood flow may contribute to the increased risk of stroke in patients with disorders of sleep breathing.

Although it is not known if treatment of sleep apnoea reduces the risk of stroke, it seems to reduce vascular morbidity and mortality.5-7 As sleep apnoea is a treatable condition, sleep apnoea and habitual snoring should be included in discussions of modifiable risk factors of stroke.

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The basis for behavioural disturbances in dementia

In her editorial, The basis for behavioural disturbances in dementia, Esiri reviews some possible neurochemical and pathological correlates of behavioural changes in dementia with particular reference to alterations in monoaminergic, serotonergic, and noradrenergic transmission.6 These data, offering some pathophysiological explanations for behavioural disorders in demented subjects are of great current interest but unfortunately this review is not complete and even presents some incorrect impressions that deserve the following comments:

Noradrenaline

Despite substantial neuronal loss in the noradrenergic locus coeruleus in Parkinson's and Alzheimer's diseases,7 markers of noradrenaline metabolism in brain tissue are reported to be unchanged or increased.8 A non-significant increase in Alzheimer type senile dementia has been reported by Yates et al., whereas most other authors demonstrated a significant decrease in noradrenaline values ranging from 29% to 52% of controls in the striatum, hypothalamus, and several cortical areas.1,9 In non-cortical projection areas there was no evident decrease in noradrenaline levels.

On the other hand, Zuberbuk et al.4 found a specific and pronounced loss of noradrenaline in the middle frontal area, superior temporal cortex, and hippocampus (90% to 95%) in demented patients with major depression along with a relative preservation of choline acetyltransferase activity in several subcortical regions. These data in patients with Alzheimer's disease suggest that dysfunction of the noradrenergic system is also related to mental changes and depression in parkinsonian patients.8

Serotonin

Degeneration of serotonergic systems in both Alzheimer's and Parkinson's disease results from neuronal losses in the dorsal raphe nuclei ranging in Alzheimer's disease from 30% to 76%, most often in the raphe magnus containing many neurofibrillary tangles that may involve up to 90% of the neurons10; cell depletion in Parkinson's disease averaging 20% to 40%.11 This cortical, hypothalamic, and cholinergic reduction of 5-HT and 5-HIAA in some cortical and hippocampal regions of Alzheimer disease brain ranging from 54% to 77%,12 and a reduction of 5-HT, its