Letters

Sir: We were interested in the paper by Rougemont et al1 in which no alteration of local cerebral glucose utilisation was found between treated and non-treated Parkinsonian patients. However, the same parameter was found to be moderately increased in the basal ganglia of these patients compared to controls. In a recent study2 one of us demonstrated that low concentrations of dopamine combined with insulin in vitro increased glucose transport in the isolated rat adipocytes. However high concentrations of dopamine combined with high insulin concentrations inhibited glucose transport. If this occurred in vivo, then alterations in dopaminergic function (for example decreased dopaminergic activity) could result in impaired glucose transport in neuronal cells. This would be in agreement with the findings by Lenzi et al who demonstrated decreased glucose metabolism in the parietal lobe of patients with hemi-Parkinsonism. Moreover Rougemont et al1 demonstrated slightly increased glucose metabolism in the basal ganglia of Parkinsonian patients. This, we postulate, could result from reduction of dopamine content in these areas with resultant compensatory enhancement of insulin activity in these areas. It is thus possible that increased glucose utilisation in the basal-ganglia of Parkinsonian subjects could reflect impaired dopaminergic activity. The degree of the regional glucose utilisation could thus serve as a marker for loss of dopaminergic activity in these areas.

Dementia is a common associated symptom of Parkinson’s disease.4 It is possible that by normalising glucose transport into the cortical cells which have been shown to have decreased utilisation in Alzheimer’s type dementia, that the condition can be improved. This could possibly be achieved by administration of insulin, glucose and levodopa.

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References


Correction

"Mitochondrial malic enzyme in Friedreich’s ataxia: failure to demonstrate reduced activity in cultured fibroblasts" J Neurol Neurosurg Psychiatry Vol 48 Page 70–74.

Page 71—Methods

Column 2, Line 8 should read "The cells from a 175cm² flask were harvested, washed, frozen and thawed once in 20 μl of distilled water and sonicated on ice with two 20 second bursts’.

Matters arising

Cerebral glucose utilisation in Parkinson’s disease


Sympathetic skin response


Sympathetic skin response
