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Frontal cortical perfusion abnormalities related to gluten intake and associated autoimmune disease in adult coeliac disease: 99mTc-ECD brain SPECT study.

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Abstract

OBJECTIVE: Since brain perfusion abnormalities have been described by single-photon emission computed tomography in some autoimmune diseases, the aim of the present study was to evaluate the incidence of perfusion abnormalities by brain single-photon emission computed tomography in a group of coeliac disease patients, and to investigate whether gluten intake and associated autoimmune diseases may be considered risk factors in causing cerebral impairment.

METHODS: Thirty-four adult coeliac patients (16 on a gluten-free diet and 18 on a gluten-containing diet, 18 (53%) with autoimmune diseases) underwent 99mTc-ethyl cysteinate dimer brain single-photon emission computed tomography and qualitative evaluation of brain perfusion was performed together with a semiquantitative estimation using the asymmetry index. Ten subjects on our database, matched for sex, age and ethnic group, who were proved normal by histology of jejunal mucosa (four males and six females; median age 39 years, range 27-55 years), were included as control group.

RESULTS: Twenty-four out of 34 patients (71%) showed brain single-photon emission computed tomography abnormalities confirmed by abnormal regional asymmetry index (>5%; range 5.8-18.5%). Topographic comparison of the brain areas showed that the more significant abnormalities were localised in frontal regions, and were significantly different from controls only in coeliac disease patients on unrestricted diet. The prevalence of single-photon emission computed tomography abnormalities was similar in coeliac disease patients with (74%) and without (69%) associated autoimmune disease.

CONCLUSIONS: Abnormalities of brain perfusion seem common in coeliac disease. This phenomenon is similar to that previously described in other autoimmune diseases, but does not appear to be related to associated autoimmunity and, at least in the frontal region, may be improved by a gluten-free diet.

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MeSH Terms, Substances



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