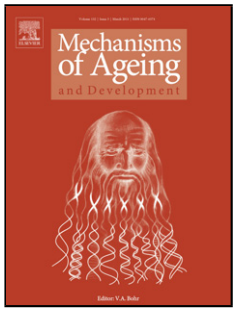

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Authors: Natassia Robinson, Peter Grabowski, Ishtiaq Rehman

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Alzheimer's disease pathogenesis: Is there a role for folate?

Natassia Robinson[1*], Peter Grabowski[2] & Ishtiaq Rehman[3]

1. Institute of Health & Society, University of Newcastle upon Tyne.
2. Human Nutrition Unit, Department of Oncology & Metabolism, University of Sheffield.
3. Academic Urology Unit, Department of Oncology and Metabolism, University of Sheffield.

*Correspondence: N.robinson5@ncl.ac.uk
Address: Wolfson Childhood Cancer Research Centre
Northern Institute for Cancer Research
Newcastle University
Level 6, Herschel Building
Newcastle upon Tyne. NE1 7RU

Highlights

- There is evidence that folate contributes to Alzheimer's disease aetiology and pathology via several mechanisms such as: secretase activity, tau phosphorylation, calcium homeostasis, oxidative stress and maintenance of neurotransmitters
- Components of one-carbon metabolism appear to have differential influences in pathology and could be used as therapeutic agents pending further investigation
- Biomarkers from molecular studies could be integrated into epidemiological studies

Abstract

Epigenetic modifications, including changes in DNA methylation, have been implicated in a wide range of diseases including neurological diseases such as Alzheimer's. The role of dietary folate in providing methyl groups required for maintenance and modulation of DNA methylation makes it a nutrient of interest in Alzheimer's. Late onset Alzheimer's disease is the most common form of dementia and at present its aetiology is largely undetermined. From epidemiological studies, the interactions between folate, B-vitamins and homocysteine as well as the long latency period has led to difficulties in interpretation of the data, thus current evidence exploring the role of dietary folate in Alzheimer's is contradictory and unresolved. Therefore, examining the effects at a molecular level and exploring potential epigenetic mechanisms could increase our understanding of the disease and aetiology. The aim