Introduction

Vitamin D deficiency is associated with:
- physical disorders: cardiovascular disease, diabetes, multiple sclerosis
- various mental disorders including established psychosis
- there is no previous published work on vitamin D levels at first onset of psychosis

HYPOTHESIS: We tested the hypothesis that vitamin D levels in patients with their first episode of psychosis are lower than those in the general population.

Methods

69 adults with a first episode of ICD-10 defined functional psychosis in South East England were recruited as part of a program examining cardiovascular risk factors in psychosis.

Controls were matched for gender, age (+/-5 years) and ethnicity. Vitamin D (serum 25-hydroxyvitamin D (25-OHD)) levels were determined by chemiluminescence immunoassay.

Vitamin D insufficiency is defined as 25OHD levels from 25-50 nmol/L
Vitamin D deficiency is below 25 nmol/L.

Results

- In each group, 27 participants (39%) were male and 30 were caucasian (56%), 20 black (29%) and 10 of other ethnicity (14%).
- Mean age of the cases was 31.0 years (SD 10.9, range 18-58) and of controls 30.7 (SD 11.1, range 18-59).
- There was no significant difference in season of testing between the two groups.
- Vitamin D levels (mean ± SD) were significantly lower in cases (36.7 ± 22.9 nmol/L) than in controls (53.7±33.0 nmol/L; p=0.000). Vitamin D deficiency was present in 34.8% of cases and 14.5% of controls, while the prevalence of vitamin D insufficiency was similar in both groups, with 43.5% of the first episode group and 40.5% of controls having insufficient vitamin D levels.

Discussion:

Our findings support previous associations between schizophrenia and vitamin D deficiency and indicate that even at first onset of psychosis mean vitamin D levels are significantly lower than in controls. In this sample, one third of first episode patients met criteria for vitamin D deficiency.

Why this is important

Patients with psychosis have a reduced life expectancy of up to 18 years, due largely to cardiovascular disease, for which vitamin D deficiency is a known risk factor. Addressing vitamin D deficiency may thus provide a potential avenue to reduce cardiovascular risk in psychosis.

Further work is needed to determine the nature of the association between vitamin D deficiency and psychosis – is developmental vitamin D deficiency, as McGrath suggested, a risk factor for schizophrenia in its own right, are there shared risk factors for both vitamin D deficiency and psychosis or is it a consequence of psychosis, mediated by reduced exposure to sunlight?

Author Disclosure

Gaughran F: Consultant/Advisor/Speaking Engagements with Bristol Meyers Squibb, Partnerships in Care, Roche. Family connections with Lilly, GSK.
Murray R: Has received honoraria for lectures from Astra-Zeneca, Bristol Meyers Squibb, Janssen, Lilly.
Howes O: On speaker bureau at Astra-Zeneca, Lilly, Janssen.