Seasonality of clinical symptoms among high risk families for bipolar disorders in the Arctic

Sami Pirkola, Heidi Eriksen, Tiina Paunio, Tuula Kieseppä, Timo Partonen, Juha Veijola, Erika Jääskeläinen, Eeva-Maija Mylläri-Figuerola

1University of Tampere, Finland, sami.pirkola@uta.fi; 2The National Institute of Health and Welfare, Finland; 3University of Oulu, Finland; 4Hospital District of Lapland, Finland

Background

Bipolar disorder (BD) is characterized by periods of manic and depressive behaviour, often precipitated by stressful life-events, substance abuse and sleep-cycle disturbances. Regional variation as well as particularly high penetrance families in Finland exist. These are likely to relate both to genetic and specific environmental factors. Seasonality in bipolarity symptoms is common and circadian and seasonal rhythms are often disturbed.

We explored the clinical characteristics of subjects living in latitudes 68 – 70, with extreme annual variation in daylight. Three groups were studied: A) 15 subjects with a bipolar spectrum disorder from known high-prevalence pedigrees; B) 16 healthy family members, and C) 18 healthy non-related controls from the same geographical area. Possible seasonal fluctuation in mood, distress, sleep, social activity and alcohol consumption, were followed up at the four most demarcated photoperiodic time points of a year. Groups A) and B) represented the indigenous population on the northern latitudes, the sámi people, who have settled the area for 8000 -10 000 years.

Data

The diagnostic SCID interview and the data from traumatic experiences (TSQ), lifetime manic behavior (MDQ), and self-reported seasonality factors (SPQA1 and SPQA2) were collected in the baseline, and self-reported depressive symptoms (BDI), psychic distress (GHQ-12), sleep duration, alcohol consumption (g/wk) and vitamin D levels at the four time points.

Results

The baseline: The affected had the highest MDQ-, SPQ1-, and TSQ sums.

The follow up: There was variation in measures both within and between the groups. In individual statistical significance testing, the affected scored higher than healthy relatives in winter and spring GHQ12 (4.00 vs 1.25 and 3.78 vs. 1.08) and BDI (11.88 vs. 4.50 and 11.20 vs 5.17), but not in summer and autumn. Summer vitamin D –levels were the highest among the affected subjects.

Discussion

The baseline differences validate the study groups, and support seasonal patterns in bipolarity. Seasonal variation in follow-up was observed in affective and distress symptoms, although the sample is relatively small for statistical significances. Individual findings will be explored in further genetic analyses.

References

