Risk of psychiatric disorders in siblings of patients diagnosed with schizophrenia or affective disorders

A. Jacobs¹, D. Popovic¹,², S. Goldberg¹, A. Reichenberg³, R. Yoffe⁴, M. Davidson¹, M. Weiser¹,

¹Sheba Medical Center, Ramat Gan, Israel. ²Hospital Clinic, Barcelona, Spain. ³King’s College London, Psychiatry, London, United Kingdom. ⁴Ministry of Health, Mental Health, Jerusalem, Israel.

Introduction

The extent to which heritability contributes to schizophrenia (SZ) and affective disorders is insufficiently understood. The present study aimed to examine the relative risk of later hospitalization for psychiatric disorders among siblings of probands with schizophrenia (SZ) or bipolar disorder (BD).

Methods

The siblings of 6,111 hospitalized patients with a diagnosis of narrowly defined SZ, broadly defined SZ, schizoaffective disorder, bipolar disorder (BD) or unipolar depression (UD) were identified from the Israeli Psychiatric Hospitalization Registry and compared to age and gender-matched controls (n=74,988) from the Israeli Population Registry. The Israeli Psychiatric Hospitalization Case Registry is a comprehensive, nationwide, computerized list of all persons admitted to psychiatric wards or day hospitals in Israel. It includes admission and discharge diagnosis for each hospitalization assigned by a board certified psychiatrist at the facility. The sensitivity of the registry diagnoses of non-affective psychotic disorders is 0.89 [1]. Utilizing this nested case–control design, the risk of hospitalization was assessed for broadly defined SZ, narrowly defined SZ, schizoaffective disorder, BD, UD and other psychiatric disorders (OPD) (dissociative disorder, pervasive developmental disorders, anxiety disorders, adjustment disorders, PTSD, eating disorders, personality disorders and mental retardation) among siblings of probands and their controls. The Israeli Population Registry records all births, deaths, marriages and divorces in the country. Chi-square test was used for comparison between groups for categorical variables and Student's t-test for continuous variables. Multiple comparisons analysis was performed using a Bonferroni-corrected threshold for statistical significance. Odds ratios (OR) with 95% confidence intervals (CI) were calculated.

Results

Siblings of probands with broadly defined SZ, have a significantly higher risk of hospitalization for broadly defined SZ (OR 9.41 [CI 6.86–12.90]), narrowly defined SZ (OR 6.83 [CI 4.55–10.27]), schizoaffective disorder (OR 8.51 [CI 4.37–16.59]), and BD (OR 7.66 [CI 2.57–22.88]), compared to controls. Siblings of probands with narrowly defined SZ were found to have an increased risk to develop broadly defined SZ (OR 10.67 [CI 6.90–16.48]), schizoaffective disorder (OR 10.31 [CI 3.63–29.32]) and narrowly defined SZ compared to controls (OR 7.83 [CI 4.32–14.20]). Furthermore, siblings of probands with BD had a significantly higher risk of hospitalization for broadly defined SZ (OR 4.20 [CI 1.57–11.26]) and OPD (OR 7.56 [CI 2.52–22.69]). They also had a higher risk of hospitalization for BD compared to controls (OR 8.41 [CI 0.76–92.90]), but the sample size did not yield sufficient statistical power. Finally, siblings of probands with UD were found to have significantly increased risk of hospitalization for broadly defined and narrowly defined SZ (OR 6.24 [CI 3.77–10.24]) and other psychiatric disorders (OR 9.71 [CI 2.50–37.72]) compared to controls.

Conclusions

This large, representative, population-based study provided the opportunity to examine the risk of hospitalization for a wide range of psychiatric disorders among siblings of probands with SZ or BD. Our data highlights the psychiatric pathologies that siblings of patients affected with schizophrenia or bipolar disorder are most likely to develop.

References