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Influence of birth cohort on age of onset cluster analysis in bipolar I disorder.

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Abstract

PURPOSE: Two common approaches to identify subgroups of patients with bipolar disorder are clustering methodology (mixture analysis) based on the age of onset, and a birth cohort analysis. This study investigates if a birth cohort effect will influence the results of clustering on the age of onset, using a large, international database.

METHODS: The database includes 4037 patients with a diagnosis of bipolar I disorder, previously collected at 36 collection sites in 23 countries. Generalized estimating equations (GEE) were used to adjust the data for country median age, and in some models, birth cohort. Model-based clustering (mixture analysis) was then performed on the age of onset data using the residuals. Clinical variables in subgroups were compared.

RESULTS: There was a strong birth cohort effect. Without adjusting for the birth cohort, three subgroups were found by clustering. After adjusting for the birth cohort or when considering only those born after 1959, two subgroups were found. With results of either two or three subgroups, the youngest subgroup was more likely to have a family history of mood disorders and a first episode with depressed polarity. However, without adjusting for birth cohort (three subgroups), family history and polarity of the first episode could not be distinguished between the middle and oldest subgroups.

CONCLUSION: These results using international data confirm prior findings using single country data, that there are subgroups of bipolar I disorder based on the age of onset, and that there is a birth cohort effect. Including the birth cohort adjustment altered the number and characteristics of subgroups detected when clustering by age of onset. Further investigation is needed to determine if combining both approaches will identify subgroups that are more useful for research.

KEYWORDS: Age of onset; Bipolar disorder; Birth cohort; Cluster analysis

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