HHS Public Access

Author manuscript

Lancet Psychiatry. Author manuscript; available in PMC 2020 July 02.

Published in final edited form as:

Lancet Psychiatry. 2019 October ; 6(10): e23. doi:10.1016/S2215-0366(19)30343-8.

The Genomics of Electroconvulsive Therapy International Consortium (GenECT-ic)

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Despite large variation in clinical phenotypes and illness severity and heritability estimates of major depressive disorder ranging between 40% and 70%,[1] little is known about the genomic underpinnings of the most severe forms of depression and the neurobiology of response to treatments, such as electroconvulsive therapy, in patients for whom other treatments have been unsuccessful. Researchers and electroconvulsive therapy providers have formed the worldwide consortium on the genomics of very severe depression and electroconvulsive therapy response, namely the Genetics of Electroconvulsive Therapy International Consortium (Gen-ECT-ic). Gen-ECT-ic intends to organize the largest clinical and genetic collection to date to study the genomics of very severe depressive disorders and response to a specific intervention in depression, aiming for 30,000 patients worldwide using a genome-wide association study approach.

Goals and objectives of Gen-ECT-ic include to: (1) investigate the genomic underpinnings of unsuccessfully treated depression; (2) study the genetic contribution to response to electroconvulsive therapy; (3) identify genetic markers of patients with cognitive side-effects from electroconvulsive therapy; and (4) conduct the largest clinical study of electroconvulsive therapy response to date.

Availability of basic demographic data (age, sex, and ancestry) is required, and minimum inclusion criteria need to be met for basic or extended data collection, including (1) an unequivocal diagnosis of depressive episode in the context of unipolar major depression or bipolar disorder; (2) history of very severe symptoms (eg, psychosis and high suicide risk) or unsuccessful previous treatments (inadequate response to ≥2 antidepressant trials from different drug classes of adequate dose and duration); and (3) patient being considered for or has received electroconvulsive therapy in the past. Additionally, at least one type of data collection should be feasible. Retrospective data collection of patients who had electroconvulsive therapy or unsuccessfully treated depression in the past should be a possibility; sources for minimal data might be biobanks, registries, or existing case notes or by recall of the treating doctor. Alternatively, there should be prospective data collection of

patients receiving a course of electroconvulsive therapy at baseline and at the end of the last electroconvulsive therapy plus clinical and response data.

Any interested electroconvulsive therapy provider or researcher with access to a relevant population is welcome to join Gen-ECT-ic, as are custodians of biobanks of patients with severe depression with access to DNA samples or samples from which DNA can be derived. Data collection will take place using either a digital tool or pen and pencil version of the data collection questionnaire.

Following agreement to the consortium Memorandum of Understanding, we can share materials to facilitate rapid data collection (ethical committee application, consent form template, and data collection instrument) and can assist with protocols for blood sampling for DNA extractions and genome-wide association studies.

References

1. Lesch KP. Gene-environment interaction and the genetics of depression. J Psychiatry Neurosci 2004; 29: 174–84. [PubMed: 15173894]